FIFTH BELGIAN SURGICAL WEEK
Ostend, Thermae Palace Hotel
6th - 8th May, 2004

QUALITY OF SURGICAL CARE IN BELGIUM

Programme & Abstracts
Welcome Address

Dear Colleague,

We have the honour to announce the 5th edition of the Belgian Surgical Week.

This year's theme is ‘The quality of surgical care in Belgium’, which is a very important subject. Since the foundation of our Society in 1892, we have been at the forefront of the quality improvement of surgical care in Belgium. But even today we can not rest on our laurels and the concern about the quality of surgical care is not restricted to experts or to those who speak on behalf of patients as politicians or the National Health Service. We all are concerned. It is much more than making a correct diagnosis and performing a correct operation. It is about practice-based learning and system-based practice, it is about patient safety, it is about interpersonal and communication skills and it is about professionalism. After all, our sincere desire to take good care of patients makes us want to pursue our crazy life of surgery.

Let us again convene as colleagues in a spirit of friendship, cooperation and scientific exchange. By these means, we should match the best of ourselves so as to accelerate progress, which is aimed at an efficient and effective healthcare ensuring the best outcome and quality of life for our patients.

The success of the Belgian Surgical Week proved that it was a good idea to open an area for the multidisciplinary encounter of surgeons. The Royal Belgian Society for Surgery is honoured to organise this surgical week with the great help of other Belgian Surgical Societies and with the support of our Scientific Committee.

We hope to see you in Ostend!

Luc Proot
Secretary General R.B.S.S.

Freddy Penninckx
President R.B.S.S.
How I do it?

Proximal anastomosis during CABG

Anatomy

What graft material?

- Without proximal
  - Lima
  - Rima
  - G.F.

- With proximal
  - Vena saphena (M-P)
  - Radial artery
  - Free Lima/Rima
When to do the proximal?

- With heart-lung machine
- After finishing the

- Off-pump
- Often first before the
distals (quicker revasc)

Key steps

- Insertion site
- Measurement graft cave rotation,
elongation
- Free Aortic wall
- Partial clamping (low pressure in aorta!)
- Stab-incision aorta
- Punch hole
- Perform anastomosis

Insertion site

- Ascending Aorta
- Exact location –
Location distals
Number of proximats
Quality aortas
Available graft length
Surgeon's preference

- Sometimes end to
side with another
graft (Y-graft)
**Measurement graft**

- Fill the graft as well as the heart!
- Physiological anatomy
- Correct length +++ (too short - too long - kinking)
- Care for rotation error

**Partial clamping**

**Without partial clamping**

**Technique**

- Trim the graft with a small angle, if necessary make small incision at the heel = diameter (SV reverse ?)
- Assistant presents the graft at 1.25 cm from the aorta
- Gentle bull-dog on graft
- Choose correct direction
- Parachute 4-5 stitches
- Prolene 6-0
- One stitch every hour of the clock
CHEST TUBE THORACOSTOMY
M. Cappello
Dept. of Thoracic Surgery, Hôpital Académique Erasme, Brussels, Belgium.

Although Hippocrates may have been the first to consider drainage of the pleural space to drain empyemas, the concept of closed pleural drainage originated in England in the 1870s. Since then, the concept of pleural space drainage has evolved considerably, not only because of better understanding of pleural space physiology but also because of improved technology and the changing needs of physicians.

**Indications**
- Pneumothorax
  - spontaneous
  - open pneumothorax
  - tension pneumothorax
  - traumatic
  - iatrogenic
- Hemothorax
- Empyema
- pleural effusions
- Chylothorax
- post operative drainage

**Contraindications to tube drainage**
There are virtually no contraindication to tube drainage, although one has to be cautious when inserting a chest tube in patient:

- with bleeding disorders
- with receiving anticoagulants
- with the presence of pleural adhesions
- with giant bullae
- with suspected diaphragmatic injury

**Chest tube insertion**
**Preoperative management**
A complete history and physical examination should always be done prior to tube thoracostomy and the patient's chest radiograph should be examined compulsively. Likewise, CT scans and ultrasound results should be reviewed, and exact site of the collection well documented.
**Insertion site**
- The patient should be positioned with the involved side elevated. The arm can be elevated over the head.
- Whether for the drainage of a pneumothorax or pleural fluid, the ideal site of tube insertion is the fifth intercostal space in the anterior or middle axillary line, immediately behind the pectoralis major. In this location, the scar is hardly visible and the technique is easier because there are no muscles than the intercostals to traverse.
- The only exception to axillary tube insertion occurs:
  - With drainage of loculated pleural fluid; in this situation, the chest tube has to be inserted in a specific location (eventually guided by ultrasonography or CT scan)
  - With drainage of post pneumonectomy cavity. In this case, the diaphragm is elevated and every organ in the upper abdomen is in jeopardy. It is mandatory to use the second interspace in the midclavicular line to avoid injury to the intraabdominal organs (liver on the right side, spleen, stomach or colon on the left side).

**Insertion technique (Fig. 1)**
- Chest tubes are inserted under local anaesthesia. The parietal pleura should be infiltrated generously.
- Aspiration of air, of fluid or pus through a needle and syringe is used to confirm the proper location of the drainage site (It is mandatory to find what you look for)
- A 1 to 2 cm incision is then made in the interspace.
- To avoid injury to the neurovascular bundle, blunt dissection, using a Kocher clamp, is carried out over the superior border of the rib.
- Chest tube can be inserted by the trocar method. The trocar is used to guide the chest tube through the chest wall and parietal pleura. In this situation, the trocar should be withdrawn a few millimetres after the parietal pleura is penetrated and the tube advanced into the space and positioned.
- To prevent postoperative dislodgement of the tube, it should be suture to the skin with heavy silk mattress suture (Fig. 1)
- Connect the end of the thoracostomy tube on an underwater-seal apparatus.

**Possible Complications to Tube Thoracostomy**
*Misplacement of the chest tube*
  - tube in the soft tissues of the chest wall
  - tube in the wrong pleural space
  - injury to intrathoracic structures
  - abdominal placement of the tube

*Hemorrhage*
  - cutaneous
  - intercostal arteries
  - injury to aorta, veina cava, heart

*Surgical emphysema*

*Empyema*

*Re-expansion pulmonary edema*

*Intercostal neuralgia and thoracostomy lung herniation*
The technique of cervical mediastinoscopy was first described by Carlens in 1959. Shortly after its introduction it became the gold standard of superior mediastinal exploration and the rate of exploratory thoracotomies dropped from 50 to 15%.

Bilateral superior mediastinal exploration is possible from the same cervical incision, which is a major advantage, and furthermore, mediastinal invasion of the primary tumour can be detected. Nowadays it still has an important role in lung cancer staging, especially when there are suspicious lymph nodes on CT or PET scan. Mediastinoscopy is also used for investigation of mediastinal lymphadenopathies or primary mediastinal tumours. It is mostly performed under general anaesthesia with the head in hyperextension. A small incision is made suprasternally, dissection is performed exactly in the midline and the pretracheal fascia is opened, followed by digital dissection posterior to the aortic arch into the superior mediastinum. Thus, in the retrovascular pretracheal plane a tunnel is created for the mediastinoscope, which is subsequently introduced and biopsies of mediastinal lymph nodes or tumours are taken.

There are some hot spots for mediastinoscopy but also blind spots, which cannot be reached by a classical cervical mediastinoscopy (table 1).

Mediastinoscopy is not a difficult procedure but is potentially dangerous due to the adjacent great vessels, so it should be performed by an experienced thoracic surgeon.

In a review of 20,000 cases by Kirschner PA (Chest surg Clin North Am 1996; 6:1-20) mediastinoscopy proved to be a safe technique, with a mortality of < 0.5% and a morbidity of 2.5%. The main complications are haemorrhage, left recurrent nerve paralysis, and pneumothorax. Rare complications include tears in the tracheobronchial wall, oesophageal perforation, stroke, chylous leak, and air embolus.

Table 1. Hot spots and blind spots when performing cervical mediastinoscopy

<table>
<thead>
<tr>
<th>Hot spots</th>
<th>lymph node station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest mediastinal nodes</td>
<td>1</td>
</tr>
<tr>
<td>Paratracheal</td>
<td>2 R+L</td>
</tr>
<tr>
<td>Pretracheal</td>
<td>3A</td>
</tr>
<tr>
<td>Tracheobronchial</td>
<td>4 R+L</td>
</tr>
<tr>
<td>Anterior subcarinal</td>
<td>7A</td>
</tr>
</tbody>
</table>
TOTALLY LAPAROSCOPIC AORTO-ILIAC SURGERY: HOW TO DO IT
Ph. Remy, Ch. D’Hont

Our experience dates from September 2001 with hand-assisted laparoscopic aorta approach (Kolvenbach handport). The aorta suture was made through a mini laparotomy in order to reduce clamping time.

In totally laparoscopic surgery, two problems arise: moving aside the small intestine and the aorto-aortic anastomosis. The technique used by Coggia seemed to us appropriate.

To avoid these stages, the patient is placed in dorsal decubitus position. A Pelvic-Tilt \textsuperscript{®} (Trimline) balloon is placed under the patient’s left side. This balloon makes it possible to obtain a 25\degree angle of the patient’s pelvis (the patient being in right lateral and twisted decubitus position). Tilting the operating table to the right will accentuate the lateral right decubitus position up to about 60\degree.

The first step is an approach of the groins (patient in simple dorsal decubitus position). The first 10 mm trocar is placed through a paramedian incision, just below the ribs. Three more trocars are placed left, four finger-widths from each other on the left paramedian line. These trocars serve for dissection and clamping. A fifth 10 mm trocar is placed in the left hypochondrium (serving to place a 45\degree optic) and a 5 mm trocar is placed in the left ilac cavity (useful for dissection).

Next, the Pelvic-Tilt balloon is inflated and the table is tilted so that a right lateral decubitus position of nearly 80\degree is obtained. The left colon will be exposed by this tilting of the table.

The small intestine will fall into the right flank, no longer hindering dissection. The Told fascia is opened and detached, revealing the sub-renal aorta, the left renal vein, the left urethra, the genital vein (serving a reference point) and the two iliac arteries, also allowing tunnelling to the right and the exposure of the right urethra. The left and right pre-aortic tissues are then fixed to the wall with traction sutures, thus allowing the left kidney and left colon to be displaced and the aorta exposed. The patient is then given an intravenous injection of heparin (5000UI).

After tunneling the right limb, a termino-terminal or latero-lateral suture is performed with prolene 4/0. The left limb is brought to the groin incisions retroperitonelly and the anastomoses are carried out as usual on the femoral arteries. The colon is then repositioned on the left side after hemostasis has been brought completely under control. The orifices from the trocars and the groins are closed with dexon 1.

We can use this technique for aorto-occlusive disease and infra-renal aneurysm.

**Blind spots**

<table>
<thead>
<tr>
<th>Aortopulmonary nodes</th>
<th>5 - 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posterior subcarinal</td>
<td>7P</td>
</tr>
<tr>
<td>Oesophageal</td>
<td>8</td>
</tr>
<tr>
<td>Pulmonary ligament</td>
<td>9</td>
</tr>
<tr>
<td>Scalene lymph nodes (N3)</td>
<td></td>
</tr>
</tbody>
</table>
TUMORECTOMY FOR BENIGN & MALIGNANT BREAST TUMORS
T. Defechereux, E. Hamoir, S. Maweja, M. Meurisse
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The objective of breast-conserving surgery is complete removal of the primary cancer (free margins) while leaving the breast acceptable from the cosmetic standpoint. The long-term survival rate among women who undergo breast-conserving surgery is the same as that among women who undergo radical mastectomy. Breast-conserving surgery is therefore the treatment of choice for women with small breast cancers. Actually 60 to 80 % of breast surgery for cancer is conservative treatment, and more and more conservative breast surgery has now become increasingly favoured.

For benign lesion and open biopsy (DCIS included), major consideration should be given to the cosmetic result of scars. Standard incisions for benign lesions and open biopsy are clearly described in the presentation, including surgical removal with wire localization. Incision should lie within the bounds of any subsequent operation that may be required. The most cosmetic incision is circumareolar. The least obvious scars result from incisions that follow the lines of cutaneous tension. In the upper and lower breast, these lines are concentric. If skin is to be removed, radial incisions avoid downward displacement of the nipple. It is also advisable to avoid placing incisions within 2 cm of upper mid-line of the chest as clothing often exposes this area (Fig).

Axillary lymph node dissection is of course part of breast-conserving surgery as well as systematic irradiation of the breast. Most of the time axillary clearance is performed through a separate incision except if lumpectomy of supero-external segment of the breast can be performed through axillary line incision. The skin incision of the axillary lymph node dissection follows skin lines and is placed so that it is not visible from the front. Landmarks and technique of this step will be described in the presentation.
THE LAPAROSCOPIC VERTICAL BANDED GASTROPLASTY - HOW I DO IT
B. Dillemans
Dept. of General Surgery, AZ St.-Jan, Brugge, Belgium.

Since 1992 more than 2000 patients underwent a bariatric surgical intervention in our department. Four types of bariatric procedures are actually performed, the decision on which type is made in consideration of the BMI, the eating and drinking habits and the personal preferences of each individual patient. As a pure restrictive procedure we prefer a laparoscopic Vertical Banded Gastroplasty (LVBG) (n = 700 patients) above a laparoscopic Adjustable Silicone Gastric Banding because of an expected lesser complication and reoperation rate and a better weight loss in the long term*. However, the LVBG is more difficult and demands careful attention to technical details. Those are shown in the video. If the patient had a symptomatic reflux oesofagitis before the operation, a laparoscopic Nissen fundoplication was added to the LVBG.

Following partial mastectomy, the remaining defect is left to fill with seroma fluid and then reabsorb at the time of radiation.
If the defect is large cosmetically unsatisfactory, such that there is significant redundant skin over the defect, in-folding results, where the skin becomes adherent to the chest wall and the nipple deviates toward the lumpectomy site. This is most of the time referred as "post-radiation deformity".
In reality, one must admit that it was the surgery that created this effect and not the radiation.
Oncoplastic surgery seems to be the solution to this; it refers to a collection of techniques where, after lumpectomy, the remaining breast gland heals with long-term cosmetic outcome that is markedly improved over that observed with the traditional lumpectomy operation. In this technique, the breast defect is closed, full thickness, by pealing the remaining breast gland off of the pectoralis muscle, and then shifted together by advancing the gland over the muscle with various possibilities.

For inflammatory disease, only absorbable suture material is recommended. Anal mucosa is closed with 3-0 absorbable stitches and anoderm is mobilized to reduce tensions and closed with 2-0 synthetic absorbable suture material. A subcutaneous drainage is allowed.

In the postoperative period, bowel movement should be restricted for 7-9 days by an elementary or low residue diet. After 8-10 days, normal diet is progressively reintroduced and mucilage and bulk-forming agents are given together with paraffin oil.

Physical training of the sphincters should not be encouraged before day 10. Infection of the skin incision can be possible. Healing is always obtained by second intention. This does not reduce the functional result of faecal incontinence.

References:
**HOW I DO A PANCREATICOJEJUNOSTOMY**

Cl. Bertrand  
Centre Hospitalier Jolimont-Lobbes, Belgium.

Pancreaticojejunostomy represents in fact a large variety of anastomosis. Schematically, we can differentiate anastomosis with or without pancreatic resection.

The purpose of the presentation will however be focused on the pancreaticojejunostomy after duodenopancreatectomy which is certainly the more frequent pancreatic anastomosis.

The leak of this anastomosis represents one main leading cause of morbidity. It is observed in 8 to 25% of all patients, a certain % (8-40) of these leaks being directly responsible for patients mortality. So three alternatives have been used: total pancreatectomy, pancreatic duct ligation or occlusion and pancreatico-gastrostomy. However, it remains actually certainly the mostly used technique for the management of the pancreatic stump.

**Pre-operative work-up**

- Clinical history, radiological investigations: chronic pancreatitis versus cancer, retro-obstructive pancreatitis (evaluation of the pancreatic consistency); dilated pancreatic duct  
- Insulin-dependent diabetes: it could favor a total pancreatectomy.  
- Use of a pharmacological prevention of pancreatic fistula: the pancreatic protease secretion is significantly inhibited by somatostatin-14 and analogues, giving so a rationale to the need of prophylactic treatment of this common postoperative complication. Several randomized studies have been completed, most with octreotide and one with somatostatin-14. Actually, despite several positive studies, a definitive consensus for their use has not yet emerged.

**Per-operative handling**

1. **Preparation of the Stump**

- Transection of the neck of the pancreas to the left side of the superior mesenteric vein, using a sharp knife blade. Hemostasis of bleeding vessel is achieved by ligature using 4-0 PDS U or X sutures. When a small pancreatic duct is first transected, it is usually visible. A probe or small catheter inserted caudally can provide ongoing identification.  
- Avoid unnecessary manipulation of the pancreatic remnant which could be traumatized. This could predispose to postoperative pancreatitis, anastomotic dehiscence and fistulisation.

- Biopsy from the margin of the resected specimen is obtained at this moment.  
- Two stay sutures are placed in order to mobilize the stump from the splenic vein on a 2 to 3-cm length. At this time an indication for total pancreatectomy is still possible in case of doubt about the viability of the remaining pancreas (traumatized stump) or of a positive margin’s biopsy.

2. **The Reconstruction**

- The Child reconstruction anastomoses the pancreas first, followed by the bile duct and then the stomach or duodenum. The biliary anastomosis is situated 20 cm away from the pancreatic anastomosis. The gastrojejunalostomy is realized 40-60 cm distally on the loop.  
- Duodenal "C" loop recreated by drawing the proximal small bowel up behind the superior mesenteric axis. We prefer to draw it proximally through the transverse mesocolon.  
- Different variants have been described, in particular a pancreatic anastomosis to an isolated Roux-enY limb.

3. **The Anastomosis**

- Different methods of anastomosis: the one-layer dunking end-to-end anastomosis (Hunt’s method), the two-layer dunking end-to-end anastomosis, the end-to-side pancreatico-jejunostomy (in case of too large pancreatic stump) and the end-to-side mucosa-to-mucosa pancreaticojejunostomy (or end-to-side wirsungojejunostomy), with or without seromyotomy.

There is no randomized study comparing these anastomoses. However, theoretical and experimental arguments would support an advantage for the mucosa-to-mucosa anastomosis in preventing fistula or his seriousness (the magnitude of an enteric leak is limited by the size of the jejunal opening, so limiting the subsequent peritonitis) and in obtaining a long term patency (experimental study; moreover stricture of the main pancreatic duct following the invagination anastomosis is the rule) which is mandatory to preserve pancreatic exocrine function. Stenting (external or internal) has been described too to decrease the fistula rate.
So the combination of a mucosa-to-mucosa anastomosis with stenting has our preference.

Description of the technique.

4. End of the Procedure
- Fibrin glue (Tissucol) (especially after extended lymphadenectomy)
- The left part of the epiploon which is not resected is brought around the anastomosis.
- Two (anterior and posterior) drains around the anastomosis. There are large silicone tubes, eventually with low grade continuous suction. The value of drainage is however certainly questionable, but it can prevent fluid collection and it can give an easy access for irrigation.
- Feeding jejunostomy: selectively used to permit an enteral nutrition until eventual complication resolution.

Post-operative care
- Unless a leak occurs, drains are removed when the volume is less than 20-30 ml/24h.
- The clinical presentation of a leak is variable depending on the secretory potential of the remaining pancreas, the size of the leak, the combination of the pancreatic fluid with an enteric content and the association of a distal pancreatitis.
- Early in the postop. course: infected pancreatic enteric leak with peritonitis, pancreatic necrosis and sepsis.
- Later: symptoms of an undrained collection of infected pancreatic juice (prolonged ileus, unexplained low-grade fever, elevated WBC, left pleural effusion) or only elevated volumes and level of amylase in the drains.
- Treatment:
  80% of patients with pancreatic fistula heal with conservative measures, requiring no additional percutaneous procedures or operative intervention.
  10-15% of the patients require some form of percutaneous manipulation.
  5-10% of the patients: open operative intervention for sepsis or hemorrhage.
  Closure of the jejunal limb may be necessary, eventually with completion pancreatectomy, especially if the distal pancreas is necrotic.

Conclusion
Pancreaticojejunostomy is the more frequently used technique for treatment of the pancreatic stump. His leak represents a leading cause of morbidity after duodenopancreatectomy with a lethal risk. There is no really demonstrated superiority for type of anastomosis, but an end-to-side mucosa-to-mucosa wirsungojejunostomy with stenting has theoretical advantages.
Whatever the type of anastomosis, a meticulous technique and scrupulous postoperative care are certainly the key of the success.
**INCIDENCE OF MRI DETECTED CEREBRAL ISCHEMIC LESIONS AFTER CAROTID STENTING - RESULT OF A PROSPECTIVE STUDY**  
*P. Astarci, C. Claus, F. Hammer, V. Lacroix, R. Verhelst*  
Dept. Cardiovascular Surgery, UCL, Bruxelles, Belgium.

**Objectives**  
To evaluate the incidence of symptomatic or asymptomatic new cerebral lesions detected by MRI after carotid stenting.

**Methods**  
From December 2002 to January 2004 we performed 30 carotid stenting for the treatment of stenosis superior to 70%. Patients were offered carotid stenting because they were considered at high surgical risk, according to the SAPPHIRE Trial criteria’s. Prestenting assessment was a non invasive cardiac evaluation, carotid duplex, a diffusion weighted brain MRI and a clinical neurological examination made by an independent neurologist. All procedures were performed with a protection device (EPI – Boston Medical – 19, Spider – eV3 – 11). We deployed a carotid wall stent in all cases. All patients were reevaluated within 6 to 24 hours after the procedure by neurological examination and a diffusion weighted brain MRI.

**Results**  
The success rate of the procedure was 100 %. One patient, presenting marked tortuosistis of the arch and common carotid, presented a transient hemiparesis. Another one presented a transient quadranopsia. Post procedure MRI detected new lesions in 10 cases (33%) with 2 bilateral, 3 contra-lateral and 5 homo-lateral brain lesions.

**Conclusion**  
MRI detected new cerebral lesions in a significant number of cases after carotid stenting with protection devices. However, the vast majority of these patients remained asymptotic, and the clinical role of MRI needs to be determined.

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**THE CASE FOR URGENT CAROTID ENDARTERECTOMY**  
*G. Van der Mieren, J. Duchateau, Ph. De Vleschauwer, J. De Leersnijder*

We want to report 3 cases of patients with recurrent TIA or fluctuating stroke. Two of them underwent immediate surgery. One patient was treated conservatively because of bilateral stenosis. The high mortality rate in previous reports and the absence of proven advantage of urgent carotid endarterectomy versus natural history discouraged consideration of urgent carotid endarterectomy. With these cases we want to report that a selected group of patients with recurrent TIA or fluctuating stroke due to recent carotid thrombosis might have a good prognosis after urgent surgery. We compare our experience with the data available in literature.
TINNITUS – A VASCULAR COMPLAINT?
F. Dubrulle, F. Vermassen
Dept. of Vascular and Thoracic Surgery, Gent University Hospital, Gent, Belgium.

Introduction
Fibromuscular dysplasia is an unrequent angiopathy that occurs most often in
women. Clinical manifestations depend on the arteries involved, but hyperten-
sion (renal artery involvement) and stroke (carotid artery involvement) are the
most common. The exact pathogenesis of this disease is not yet completely
understood, but it consists in a series of heterogeneous histological changes.

Case Report
A 65 year old woman presented with a very disturbing tinnitus, which was most
of all present in decubitus dorsalis and at night. She had already undergone
MRI-investigations elsewhere.
On the basis of this it was concluded that she was suffering from a high-grade
stenosis of the origin of the right carotid artery. Consecutively she underwent
surgery, but the peroperative angiography could not demonstrate any stenosis,
so surgery was prematurely interrupted.
Because of the persisting complaints and the loss of quality of life, the patient
presented at our department for a second opinion. A conventional angiogra-
phy was performed, which showed the famous “STRINGS of BEADS”, the diag-
nosis was made of a fibromuscular dysplasia of the right carotid artery. The
patient was treated by PTA. Immediatly postoperatively her symptoms vanished
into thin air.

Discussion
It is unknown how many patients with fibromuscular dysplasia develop symp-
toms. TIA and stroke are the most common clinical symptoms, but tinnitus
(bruit heard by the patient) is present in 22% of the symptomatic cases and is
sometimes even the only symptom. MRI and angiography are helpful tools in
the diagnosis. The other blood vessels (exp. renal arteries) prone to develop-
ment of fibromuscular dysplasia should also be investigated.
When symptomatic, treatment is imperative, because 25% of the patient with
fibromuscular dysplasia of the carotid artery develop a stroke. The actual treat-
ment of choice is PTA in the symptomatic cases.

ACUTE TYPE A AORTIC DISSECTION
V. Lacroix, P. Astarci, F. Hammer, R. Verhelst
Cliniques Universitaires St-Luc Bruxelles, Belgium.

We describe the case of a 59-year-old man who was operated in emergency for
an acute type A aortic dissection with neurological complications.
The intimal tear was located in the proximal descending aorta with retrograde
dissection extending to the ascending portion.
We performed the ascending, arch and proximal descending aorta replace-
ment.
Because of persistence of the flap excluding a kidney form the main blood flow,
it was fenestrated by endovascular procedure with renal artery stenting.
The patient then needed an aorto-biiliac bypass because he presented an iliac
artery ectasia.

We discuss what the best treatment for patients with abdominal dissection
from acute type A aortic dissection is -Medical, surgical, or endovascular stent
grafting.
THE ZENITH AORTIC STENT-GRAFT: A 5-YEAR SINGLE-CENTER EXPERIENCE
K. Keirse, I. Fourneau, K. Daenens, G. Maleux, A. Nevelsteen
Center for Vascular Diseases, University Hospital, Leuven, Belgium.

Objective
To evaluate the efficacy and midterm results of the Zenith stent-graft (ZSG) in the treatment of abdominal aortic aneurysms (AAA).

Methods
143 patients, who underwent endovascular repair of infrarenal AAA by means of the ZSG between 1998 and 2003, were analysed (134 men; mean age 71 + 7.1 years, range 47-86).

Indications included elective repair of AAA and/or iliac aneurysms, urgent repair and two complicated cases with documented aortoduodenal fistulas. Twenty-seven (18.9%) patients were considered unfit for open repair. The maximum diameter of abdominal aorta ranged from 27 to 96mm, with a mean of 56.6 + 11.6 mm. In all, 130 (90.9%) bifurcated ZSG (including 79 TriFab systems) and 11 aortouniiliac configurations were used. Cumulative data on endoleak, secondary procedures, and survival were evaluated with Kaplan-Meier analyses.

Results
Successful deployment of ZSG was accomplished in all patients, but one. None of the patients were peroperatively reconverted to open repair. There were 10 graft limb thromboses, occlusion or kinking (2 immediate, 8 late), 1 case of colon ischemia, and 1 renal insufficiency requiring dialysis.

The 30-day mortality rate was 0%. Thirty-nine endoleaks (27.3%), of which 28 type II, were recorded; the 5-year cumulative endoleak rate was 30%. Sixty-six (46.2%) patients did not present any complication related to the repair during a mean follow-up of more than 15 months.

Twenty-nine (20.3%) secondary procedures were performed (9 immediate or early; 20 late). Of all 23 late deaths (16.1%), only 3 were aneurysm-related (2%) and 10 related to cardiac or cerebral disease. The five-year cumulative survival rates were 65% for any death and 96% for aneurysm-related death. There was one late rupture documented, responsible for one of the three deaths.

Conclusion
The Zenith stent-graft appears both safe and effective in terms of midterm outcome of endovascular aortic aneurysm repair. Further follow-up study will be necessary to determine the effectiveness for the long-term treatment of AAA.
EXPLANTATION OF ABDOMINAL AORTIC INFECTED STENTGRAFT FOR SACCOFORM ANEURYSM IN A PATIENT WITH HORSESHOE KIDNEY
Y. De Bast (1), J.L. Linder (1), H. Van Damme (1), C. Campoloni (2), E. Creemers (1), R. Limet (1)
(1) Service de Chirurgie Cardiaque Thoracique et Vasculaire, (2) Service de Radiologie, CHU Sart Tilman, Domaine universitaire du Sart Tilman, Liège, Belgium.

The author reports a case of infection of a suprarenal fixated stentgraft, requiring surgical explantation.

Case
A man of 55 years old was admitted in emergency for acute thoracic and lumbar pain with fever. He had a horseshoe kidney and a stentgraft with suprarenal fixation, placed one year before in an other institution for a sacciform infrarenal aneurysm. There was evidence of myocardial ischemia. An abdominal CT-Scan revealed periaortic inflammation with contrast extravasation in the juxta renal area (endoleak type I). Hemocultures were positive for a staphylococcus aureus. An adapted antibiotherapy was started. Surgery was postponed for one month since the patient required urgent percutaneous coronary angioplasty for coronary artery disease. Clinical symptoms resolved. The patient was readmitted three weeks later for acute lumbar pain. CT-Scan showed an increase of the type 1 endoleak. The patient was operated in emergency. The wall defect interested the aorta between the renal arteries and celiac trunk. Proximal reconstruction was realised after explantation of the stentgraft and clamping of the covert endoprosthesis. A homograft was anastomosed to the celiac aorta. Renal and superior mesenteric arteries were reimplanted. This homograft was tunnelised behind the horseshoe kidney. Periaortic inflammatory tissues were excised. The patient left the hospital on the thirteenth day post surgery without any complication.

Conclusion
The infrarenal sacciform aneurysm was probably a mycotic aneurysm. Infectious aortitis with aneurysm degeneration is a contraindication for stentgrafting. Stentgraft explantation for infectious complications should include by excision of infected tissues and vascular reconstruction in situ with homograft.

CHYLOPERITONEUM AFTER ABDOMINAL AORTIC SURGERY
R. Vertriest, J. Duchateau, Ph. De Vleeschauwer, J. De Leersnijder
H. Hartziekenhuis Lier, Belgium.

A case of chyloperitoneum as a complication of abdominal aortic aneurysm repair is presented. The chyloperitoneum was treated conservatively with a somatostatine analogue and total parental nutrition followed by a medium chain triglyceride diet.

Aetiology, diagnosis and management of chylos ascites are discussed.
VASCULAR PROSTHESIS INFECTION BY LACTOBACILLUS: A NEW BACTERIAL OPPONENT IN THE QUALITY OF SURGERY?
H. Robijn (1), P. Depuydt (2), G. Alliet (3)
(1) Surgical Trainee, KU Leuven, Belgium. (2) Dept. of General, Vascular and Thoracic Surgery and (3) Dept. of Microbiology, AZ Damiaan, Oostende, Belgium.

Lactobacillus species are among the most common organisms in the mouth, gut and female urogenital tract. They are also widely used in fermented foods and dairy products and as commensal agent in preventing urinary tract infections.

Generally Lactobacillus species are considered as pure commensal microorganisms with no or low pathogenic capability. A few cases of Lactobacillus infections were published, all patients had severe comorbidity. The infections can be severe: from bacteraemia to endocarditis, even death. Therefore a Lactobacillus infection in a patient is presumed to be a marker for serious illness.

We present the case of an infection of aortic graft for aortic aneurysm by Lactobacillus species in a 73-year old female patient who had no risk factors as described in other cases. In fact, she had no severe medical history except cholecystolithiasis and chronic cholecystitis.

Analyzing the literature suggests an overall increase in Lactobacillus infections. With the increasing use of glycopeptide antibiotics and considering our presented case, the question rises if this microorganism is indeed as harmless as suggested or do we have a new bacterial opponent in performing surgery as vascular prosthesis implantation? What to do (or not to do) in aortic graft implantation to prevent this kind of infection and what can we do if there is an infection?

SURGERY OF VARICOSE VEINS WITH TRANSILLUMINATED POWERED PHLEBECTOMY: CLINICAL EXPERIENCE
E. Lemaire, V. Scavée, J.P. Haxhe
Dept. of Thoracic and Vascular Surgery, Clinique Saint-Pierre, Ottignies, Belgium.

Background
Among several techniques available to treat varicose veins (VV), transilluminated powered phlebectomy (TIPP) is a less invasive surgical technique. We prospectively report our clinical experience of patients treated by the TIPP technique.

Materials and Methods
Operative procedure:
The TIPP system combines an endoscopic powered vein resector, an irrigated illuminator device and uses tumescent dissection. After standard stripping of the greater saphenous veins and careful ligation of incompetent perforating veins, only the VV clusters were removed using the TIPP device.

Patients:
Between February 2001 and February 2004, 84 patients underwent TIPP treatment for major primary VV. Preoperative investigations were performed systematically in all patients, including duplex scanning to evaluate the deep, superficial venous system and perforating veins. Number of incisions, operative time, hematomas and all complications were documented.

Results
There were 63 women (75%) and 21 men (25%) with a mean age of 52 years (ranging from 29 to 79 yrs). According to the CEAP classification, all patients were at least class 2. The average operating time was 56 minutes (range 30–75 min) and the mean number of incisions was 5 (range 2–8). The score for post-operative pain and cosmetic results, advantages and limitations of TIPP technique will be discussed.
THE MAN WITH THE BUCKET – REVERSED T.O.S.
B. Moors (1), P. Vanlangenhove (2), F. Vermassen (1)
(1) Dept. of Vascular Surgery and (2) Interventional Radiology, Gent University Hospital, Gent, Belgium.

A 50-year-old male presented with persisting pain and swelling in his left arm after previous surgery for thoracic outlet syndrome (TOS). The trigger position for his complaints was walking with hanging arm. Neither clinical investigations, nor repeated radiographic investigations could obviate a TOS. Only on performing an angiography in the trigger position, i.e. standing with a bucket filled with weights in his left hand, the diagnosis was made of a compression with occlusion of the subclavian artery. By diagnosing a reversed T.O.S., he was operated by resecting the second rib. Postoperatively, the pain and the venous congestion disappeared.

NON-ANASTOMOTIC PSEUDOANEURYSM OF DACRON VASCULAR PROSTHESES
D. Nardella, H. Van Damme, R. Limet

Approximately 85% of prosthetic vascular bypass are made of Dacron. The rupture and the formation of false prosthetic aneurysms out of anastomosis are extremely rare (roughly 0.3%), a diffuse dilation of the prosthetic conduit is more frequently observed (10 to 20% of cases). The mechanism characterising late deterioration of the Dacron prostheses is multi-factorial. Defects in the manufacturing processes, inadequate surgical handling of the prostheses, deteriorations “in vivo” generated by haematomas or infection, structural tiredness and mechanical fatigue of the vascular graft, immunological response on the prosthetic material.

We present three clinical cases of prosthetic pseudoaneurysm out of anastomosis. It concerned two prosthetic femoropopliteal bypass grafts and one limb of a Dacron bifurcation graft. The delay between Dacron implantation and degenerative aneurysm formation was 12, 11 and 16 years. In none of the cases, infection could be evidenced. Diagnosis and treatment of this rare complication of vascular prosthesis are discussed.
Concerning efficiency standards, Francis D. Moore wrote several decades ago: « Corporate standards for social behaviour and community responsibility should not be confounded with clinical and ethical guidelines ». In other words, we should continue to distinguish between the field of corporate values (i.e. healthcare budget and hospital management values) and the field of medical profession values. The dichotomy between, on one hand, professional values and, on the other hand, corporate values is as follow: service versus profit, advocacy of the patient versus competition, altruism versus responsibility to the board of trustees, services of specialized knowledge versus services market driven, standards set internally inside the profession versus standards set externally for financial, economical and political reasons, humanism versus consumerism, long-term goals versus short-term goals.

Clearly, there is a hard core of professional values which is irreducible to corporate values. Just a short U.S. jurisprudential example to illustrate this point: Wickline versus State of California (192 CAL.App.d1630; 239 CAL.RPTR;8-10, [July 1986]) has reaffirmed the necessity for surgeons not to alter their surgical judgment based on pressures by third-party payers. In this case, the California Supreme Court decision makes it a physician’s responsibility to act as the patient’s advocate. I already mentioned above that any surgeon knows that the race for shortening hospital length of stay has reached an unreasonable, irrational and dangerous level. Well, if a third-party payer put too much pressure to discharge a patient from the hospital (in this case Wickline) when it is against the surgeon’s best judgment, it is the responsibility of the surgeon to act as the patient advocate and not to allow what he considers to be premature discharge.

Confusion and misuse of terms can lead to misunderstanding, mistrust, suspicion, and to conflict of interests between the numerous actors (politicians, economists, doctors, nurses) of the health care system - who ideally should be partners. The loose and variable use of terms can interfere with discussion of the real issues.

Quality, Evidence Based Medicine (EBM), Cost-Effectiveness analysis, Cost-Benefit, Effectiveness, Efficiency are the new buzz words related to the new paradigms of medical practice. These words are also covering – and sometimes concealing - the modern managerial rules aimed at controlling the efficiency of health care resources allocation. For example, the use of cost-effectiveness analysis—a method for plotting points on a curve and quantifying the direction of change in quality and cost that occurs with new or alternative modes of diagnosis or treatment—is seen as the foundation for health care policy changes. By comparison, the clinician continues to consider that the method of health care policy making should always be overtly focused on patient care. To put it more bluntly: even if there is no rational incompatibility between (a) the fair and efficient containment of costs in health care, (b) the evidence-based medicine approach and (c) the effective care to patients, it is obvious that the interconnection between these three issues is hedged about with difficulties to define with transparency and coherence the reasonable border between the macroeconomics and microeconomics of health care. Macroeconomics referring to allocation of limited resources which has to deal with political choices and economical feasibility, and microeconomics referring to treatment of a patient which has to deal, at the grass roots level, with the clinical, ethical and deontological obligations of the physician. Some people add a third level: mesoeconomics referring to decisions based on profitability to be made at the institution level, for instance decisions about the choice of investments in an hospital. Part of the difficulties to find the reasonable border between the macroeconomics and microeconomics of health care are illustrated by the unconscious – but sometimes deliberate – confusion of the concept of efficiency (which is an economical concept) with the concept of effectiveness (which is a clinical concept).

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QUALITY AND UTILITY OF LOK/GLEM IN BELGIUM

R. Van Hee
University of Antwerp, Belgium.

In the last 10 years medical quality improvement has been achieved by means of continuous Medical Education as well as by Local Groups of Quality Evaluation (LOK’s / GLEM’s).

Initial enthusiasm in these Groups progressively made place for defeatism concerning the techniques of evaluation and improvement of medical quality. Possible reasons for this decline in enthusiasm as well as solutions for the future will be discussed in this presentation.

QUALITY CONTROL OF SURGERY IN THE NETHERLANDS

C.D. van Duyn
Dutch Surgical Society, The Netherlands.

The main factors concerning the quality of surgical care are the surgeon, the hospital facilities and the patient. This lecture will focus on the quality of the surgeon and the hospital facilities, and the control of these both.

Important factors regarding the quality of the surgeon are his education, attitude and performance. In this, the quality of the training of surgeons plays an important part. A short review of some aspects of the organisation of this training will be given. A special focus will be on the regulation and the control of the quality of this by peer review on location (named “visitatie”).

Government and several non-governmental organisations are involved in the control of the quality of medical care. Several laws regulate different aspects of medical care and thus also surgical care. Medical professionals in the Netherlands are, with respect to their professional performance, submit to the medical court. A review of the different laws and their aims will be given. The position of the Dutch governmental organisation with the task to control the whole health system will also be discussed.

The Dutch Surgical Society plays an important part concerning the quality of surgical care.

This task is fulfilled in close co-operation with the Dutch association for medical specialists (Orde van Medisch Specialisten). For each of the several aspects of the quality of the surgical care exist a committee in the Surgical Society. Different themes as the development of evidence-based standards, measuring the outcome of care, registration of complications, the “visitatie” of the non-training hospitals and the development of tools concerning the information of patients, are classed in the committees.

The development of indicators, also the measuring of the outcome of care, started recently.

Outcome of care is measured by registration of complications with benchmarking. This system was developed by the Society. There are Board-certifications for the different fields of surgery (vascular, lung, traumatology, gastroenterology, oncology and child surgery). New developments for the nearby future will be in the “visitatie” and the further development of indicators measuring the outcome of care. The problems which occur when dealing with these projects such as aspects of confidentiality, privacy, the public wish for transparency and openness and the fear for liability of the professionals will be presented.
PAST, PRESENT AND FUTURE OF SURGICAL TRAINING IN BELGIUM
P. Mendes da Costa
Bruxelles, Belgium.

Before 1979, the recognition as a surgeon happened « interpares ». General and special requisites for training centres were first published in 1979; these criteria were modified in 2002 introducing notably for the first time quantitative criteria.
A restricted admission to medical studies was introduced in 1997.
Also in 1997, Minister of Public Health Cola fixed by law new training rules for candidate-specialists defining timing, remuneration and selection of the candidates.
Finally, a regulated access to the different specialisations was introduced in 2004.

During the past 25 years, surgery has profoundly changed; on a technical point of view (minimally invasive approach); in terms of specialisation (general surgery, orthopaedics, urology, plastic surgery and neurosurgery) and super-specialisation (vascular -, cardiac -, thoracic -, abdominal -, paediatric surgery,…); in terms of administrative rules which intend to regulate surgical practice in different domains.

In order to control the quality of the candidate-specialists and an optimal level of education, the French-speaking Commission of Agreement:
2. Has organised (in collaboration with the Flemish-speaking Commission) since a few years at national level a control of knowledge at the end of the second year (common trunk) and of the sixth year (superior formation).

Both the French and the Flemish Commissions are interested in the evolution of surgery in Belgium as well as in Europe and they are particularly concerned with the harmonisation and duration of the surgical training in Europe (6 years, 5+2 years, 6+2 years, 6+2+2 years) allowing the acquisition of certificates of particular competence while trying to reconcile "conservative" attitudes (some large surgical sectors) and "progressive" attitudes (some super specialities).
The requirements of a specialist breast unit were established by the EUSOMA (European Society of Mastology) in Leuven in May 1989 on the standards required for forming high quality Breast Cancer Units across Europe.

The objectives were:
1. To make available for all women in Europe a high quality specialist Breast Service;
2. To define the standards for such a service;
3. To recommend that a means of accreditation and audit of Breast Units;

Recommendations for quality standards must be made in the separate aspects of breast cancer care: diagnosis, screening, local treatment, systemic adjuvant therapies, follow-up, management of risk, management of advanced disease, palliative care, support services, reconstruction, audit and data collection.

What are the mandatory requirements?
1. An Unit must have more than 150 newly diagnosed cases of primary breast cancer each year to maintain expertise for each team member;
2. Each member of the care team must have special training in breast cancer in his discipline by spending a year in an recognised unit and must undertake continuing professional education;
3. For new patients, a multidisciplinary working must allow all standard investigations for triple assessment (clinical examination, all appropriate imaging and tissue diagnostic procedures) to be completed at one visit;
4. A multidisciplinary case review meeting must be held each week, attended by the team surgeons oncologists and presented by the pathologist;
5. All patients must be followed-up in a combined Breast Clinic;
6. Associated services are also necessary as a psychological support, a reconstruction team, a palliative care service and a nominated clinical geneticist;
7. Finally, the Unit must have written protocols for diagnosis and treatments and also information to patients. Units should be encouraged to provide research opportunities.
Especially for the surgical team, we must provide:

1. An identified Clinical Director of Breast Surgery;
2. Two or more nominated surgeons specially trained in breast disease, each of whom must personally carry out the primary surgery on at least 50 newly diagnosed cancers a year and must attend at least one diagnostic clinic per week;
3. The surgeons must have at least 28 to 32 hours per week in Breast Disease (operating time, diagnostic clinic, follow-up, screening, meeting...).

In conclusion, we can certainly say that to agree with this standards is the only solution to offer to our patients with a breast cancer a high quality service with a maximum chances of cure.

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BREAST CANCER - A EUROPEAN PRIORITY
Karin Jöns
MEP

The European Parliament calls on the member states to implement the European strategy against breast cancer as outlined in Karin Jöns’ report on “Breast Cancer in the European Union”. This report was adopted in plenary in Strasbourg in June 2003 and asks the member states to create by 2008 the conditions required for a 25% reduction in the breast-cancer mortality rate in the EU and, at the same time, for a reduction to 5% in the disparity in the survival rates between the Member States, which can currently be as high as 16%. In 2006, the European Parliament and the European Commission will initially take stock of the situation. At this point the member states will have to show whether they have actually made progress in the treatment of this disease.

The impressive successes achieved by individual Member States in the fight against breast cancer have shown to the European Parliament that this target can be readily attained if politicians and the medical profession join forces to tackle the problem. There is no doubt that also advocacy and patient groups have made a big impact in bringing about a better provision in the whole chain of breast cancer care already.

In view of the fact that 90% of breast cancer patients might be cured if diagnosed and treated correctly at an early stage, the report reminds the member states that, as long ago as 1992, the European Commission first published guidelines on mammography screening drawn up by experts in the European Breast Cancer Network. According to the WHO these EU guidelines have set quality standards worldwide. Their application could reduce breast-cancer mortality by up to 35%. It is therefore unacceptable for the European Parliament that at present only eight Member States offer women aged between 50 and 69 high-quality mammography screening of this kind.

High-quality screening is, however, no use if the subsequent treatment is inadequate or even wrong. That is why the European Parliament also insists on the establishment of multidisciplinary breast centres throughout the EU where medical teams work on a multidisciplinary basis and specialise solely in treating benign and malignant diseases of the breast. In Member States where such breast centres already exist, studies have shown that women have better chances of being cured. To enable every woman suffering from breast cancer to be treated in a breast unit, there would have to be one breast centre for every 300 000 or so inhabitants.
But so far only 4 out of 15 member states do have breast units all over their country.

The breast cancer report of the European Parliament is calling for every woman in Europe to have access to the same first class early-detection, diagnosis, treatment and aftercare irrespective of where she lives, her social status and her level of education.

The central mammography screening requirements called for by the European Parliament are as follows:

1. women between the ages of 50 and 69 must have the right to attend high-quality mammography screening at two-year intervals in dedicated and certified centres paid for by health insurance schemes;
2. each mammogram must be read independently by two radiologists, each of whom must read the mammograms of a minimum of 5 000 women per year so that they have a trained eye;
3. the equipment must be monitored regularly by an independent national body to keep the radiation dose to a minimum and the image quality to a maximum.

A multidisciplinary breast centre must fulfil the following criteria:

1. Each breast centre must perform a minimum of 150 primary breast cancer operations per year, and the surgeons specialising in benign and malignant diseases of the breast must each perform at least 50 operations themselves. Cooperation arrangements between hospitals are a possibility if the number of cases falls below the 150 required.
2. The medical team at a multidisciplinary breast centre must specialise in benign and malignant diseases of the breast and must regularly attend further training courses. The surgeons must perform only breast surgery.
3. Weekly multidisciplinary case conferences are absolutely vital and must take place at the breast centre where the patient undergoes surgery.

The European Parliament is convinced that Europe will only achieve real progress in the treatment of breast cancer if there is a quicker and better exchange of experiences between the member states and if benchmarking and best practice will be implemented on a European level.

Specific aims of this mandatory training are to make sure that the clinical skills and knowledge a surgeon, plastic surgeon or gynaecologist should acquire - to be recognised as a specialist breast surgeon - are reached. Candidates must hold a current license to practice as a general surgeon, plastic surgeon or gynaecologist and have to demonstrate that they have worked during their training in a Unit that can broadly follow the Eusoma guidelines (Teaching Unit according to Eusoma). The unit should contribute to research and/or large clinical trials.

The trainees must have spent one of the two final years of training entirely working on breast disease on a designated unit as above. They should have attended an advanced level training course in breast disease (Eusoma run or approved) and have attended one of the major European International meetings on breast disease.

Practical content and training requirements include diagnosis, management of benign disease and primary breast cancer. Candidates must have sufficient knowledge of the protocols according to which the hospital unit works so they can advise women whether they should receive adjuvant radiotherapy or systemic therapies and which agents they should receive. They must attend a number of follow-up clinics and have knowledge of the management of women with advanced disease (both locally advanced and distant disease) and palliative care.

By the end of the training the candidates should be able to prove (logbook) their experience in the above mentioned fields, their regular participation in multidisciplinary meetings where specialised Breast Surgeons, Radiation Oncologists, Clinical Oncologists, Pathologists plan the therapeutic post surgical treatments. They should be able to use the QT EUSOMA audit System.

Outcome measures of the training and scientific / research activities are defined and qualification will be assessed through a multiple-choice test and discussion on clinical cases.
We evaluated Health-Related-Quality of Life (HRQL) and body image in patients treated with PCT, followed by BCS, or skin-sparing mastectomy (SSM) and perforator-flap breast reconstruction. Additionally, clinical observers assessed cosmetic outcome.

For all patients, Norm-based scores of physical and mental health state are comparable with the general population, except for Vitality (VT) score, which is somewhat lower. No significant differences can be observed between both groups.

The cosmetic results, assessed by the clinical team, were significantly better for patients having IBR, compared to BCS.

Breast conserving treatment or mastectomy with reconstruction may yield comparable results of QOL, but cosmetic outcome is better after SSM and perforator-flap reconstruction. Patients must be offered both options and clinicians should stress that both are equally effective.
Concerning proximal femur fractures, three quality goals are to be achieved; they are related to preoperative length of stay, lethality and failure of osteosynthesis or prosthesis material. For each of those, quality goals will be analysed both wards with exceptionally high percentages and wards that haven’t reported a single case. Possible explanations for 0% complications are: good quality of the treatment, small number of treated patients in the hospital concerned, the complications not occurring during post-operative hospitalisation and consequently not being documented, the complications not being documented for other reasons. Only data on primary post-operative hospitalisation are registered, so the evaluation can only pass judgement on early post-operative events. Important quality indicators of proximal femur fractures such as pseudarthrosis, femoral head necrosis, failure of osteosynthesis or prosthesis material cannot be followed. In Sweden f.i., there exists since 1979 a national hip prosthesis register in which all primary operations, revisions and changes in process quality (operation technique, infection prophylaxis, …) are registered. In spite of the uncontested value of external quality guarantee it also implies several serious risks. If results are accepted on the basis of such controls, it is almost impossible to refute them by means of controlled prospective studies. The statistical power is very high because of the large number of patients, which means that it takes years and even decades to counter a thesis on the basis of conventional studies.

An example of external quality control can be seen in German hospitals, where from 1st Jan. 2001 on, information on results of medicine and nursing quality is being documented.
WHO NEEDS DATA – PHYSICIANS, PATIENTS, POLITICIANS?
C. Makin
Consultant Surgeon & Director Clinical Information, Wirral Hospital NHS Trust, Upton, Wirral, UK.

This will be a thought provoking discussion illustrating current trends in modernising the management of bowel cancer in the United Kingdom to provide good quality patient centred care.

How do you recognise a good surgeon?
Is it because you have met him, or heard him talk, or from personal recommendation, or worked alongside him as a trainee or colleague, or visited his unit? Is your information based on facts and figures? Is that data in the public domain or implied from published articles? Does it depend on the number of cases managed each year? How do you respond when a patient brings a print-out from the Internet and asks probing questions?

Guidelines
The Association of Coloproctology GB & I (www.acpgbi.org.uk) and SIGN (www.sign.ac.uk) have both produced guidelines for the management of patients with bowel cancer. These respected professional bodies provide a distillation of published evidence. Guidelines detail a minimum standard of care. Multidisciplinary meetings (MDT) have been implemented to discuss the management of new cases and recurrences. At MDTs treatment is agreed for an individual. Deviation from accepted guidelines can and will occur and must be documented. Guidelines provide support in medicolegal situations as well as helping continuity of care for patients, nursing staff and colleagues.

Outcomes
Outcomes provide us with something to measure up to. For example:
- Proportion of rectal cancers treated by abdominoperineal excision of rectum <40%
- Clinical anastomotic leak rate: anterior resections <8%; other resections <4%
- Curative resection rate based on histology 60%
- 30 day peri-operative mortality: emergency/urgent <20%; elective <5%
- Post operative wound infections <10%
- 5 year survival: colon 42% men, 40% women; rectum 39% men, 43% women
- Local recurrence rate if circumferential resection margin clear <10%

QUALITY CONTROL IN CALCANEAR FRACTURES
L.J.M. Mortelmans
AZ KLINA, Brasschaat, Belgium.

Quality control is derived from the product-oriented industrial process. Medicine however is a service-oriented process with a lot of variability. As services are hard to measure it is difficult to implement a quality control.

First of all you need standards to refer to. If there is one tower of Babel in trauma care it certainly is the treatment of calcaneal fractures. There is a total lack of standardisation in the literature. How to compare different studies if different diagnostic classifications are used?
Results are scored as good, fair and poor but on what ground? Should one rely on radiological outcome? The lack of correlation between Böhlers angle and functional outcome are well known. Arthrosis could be a parameter but it’s very evolving and rather a long-term problem.
Functional outcome could be a standard but which movements are predictive and should pain be taken into account at the same time? Is the gait pattern of any importance and how to correct for different walking surfaces? One can even run tests on the overall quality of life.

It will be clear that there is still a long way to go before quality control can be implemented in the treatment of calcaneal fractures. In the presentation some results of a personal study on outcome variables on disability rating will be presented without pretending that they are (the best) quality control features.
Data
Data is collected by every hospital and forwarded to regional health authorities and the Department of Health. For what purpose? Who owns it? How accurate is it?
Should data collection be compulsory?
Who should collect it?
How long can you survive without it?

Would you trust me to resect your bowel cancer?

IMPROVEMENT OF QUALITY OF CARE IN COLORECTAL SURGERY IN THE NETHERLANDS
C.J.H. van de Velde
Professor of Surgery, Principal Investigator Dutch Colorectal Cancer Group Trials, The Netherlands.

In the Netherlands approximately 9000 new patients with colorectal cancer will be treated each year of whom about 25% have rectal cancer. In a population based study of local recurrence rates incuratively resected patients with rectal cancer diagnosed between 1988 and 1992 the overall local recurrence rate was 22.5% with a range of 9 to 36%. Compliance to national guidelines of post-operative radiotherapy was only 50%. In recent years local control and survival have improved with the introduction of total mesorectal excision based surgery. TME is accomplished by precise sharp dissection under direct vision with a true pelvis around the integral mesentery enveloping the entire mid-rectum, with preservation of the hypogastric plexus. Using the TME-technique, a reduction in the rate of abdominal perineal resection has also been achieved. The Dutch Colorectal Cancer Group was established to conduct trials in order to improve the outcome of colorectal cancer treatment in the Netherlands. Short and long term outcomes of the TME-trial were compared with all the trials from the Netherlands, in which conventional surgery was performed without quality control. The local recurrence decreased in similar staged patients in successive trials from 16 to 9% and the type of operation conventional versus TME was an independent predictor for local recurrence as well as survival. In the TME trial quality control was an essential part for treatment and data handling. The different treatments were familiar to all participating physicians prior to the start of the trial. Instructions were given by an extensive protocol, videotapes, workshops and instructors at the operating table. Feedback was given through workshops, newsletters and trial updates at scientific meetings. The logistics of the trial will be explained which led to a decrease of abdominal perineal resections from 43 to 27% and significantly improved local control and survival.

Between January 1996 and December 1999, 1861 patients were randomized between preoperative radiotherapy (5 x 5 Gray) followed by TME or TME alone. With a medium follow-up of 5 years there is no statistical significant difference contrary to the Swedish rectal cancer trial in 5-year overall survival between patients assigned to radiotherapy plus surgery, and patients that underwent surgery alone (64%). Nor is there any difference in distant recurrent disease. The 5-year local recurrence rate in irradiated patients was 6% compared to 11% in the surgery alone group (p < 0.001).
This benefit has to be counter balanced against the late toxic effects of radiotherapy which significantly impaired sexual activity and sphincter function. Faecal incontinence was observed in 39% of the surgery alone patients and 62% of the irradiated patients, who underwent an anterior resection. Further improvements can be made by better preoperative staging preferably by MRI, adaptation of abdominal perineal resections in order to avoid positive circumferential margins and participation in present the ongoing study on the effect of chemotherapy in curatively operated patients.

Conclusion: The introduction and training of TME within the structure of a randomised clinical trial has let to improved long term outcome of patients with rectal cancer and has been the basis of research in order to obtain a tailormade approach for the different stages of colorectal cancer.

PROCARE, A BELGIAN RECTAL CANCER PROJECT: CAN BELGIUM COMPETE WITH OTHER EUROPEAN COUNTRIES?
F. Penninckx
on behalf of the Multidisciplinary Working Group on Rectal Cancer

Outcome in rectal cancer patients is highly variable. The multidisciplinary treatment of rectal cancer is not standardised and quality is not assured. Major improvement has been achieved by nation wide projects in Sweden, Norway, the Netherlands, and Denmark mainly focusing on TME or preoperative radiotherapy in order to reduce the local recurrence rate. In collaboration with all other disciplines involved, the BSCRS initiated and strongly supports a multidisciplinary national project.

The aim of this profession-initiated project is to reduce variability and improve the quality of rectal cancer care in Belgium by standardisation (guidelines), decentralised instruction (implementation of guidelines) and quality assurance (national rectal cancer register).

Multidisciplinary guidelines based on recent evidence have been made in consensus and will be distributed through the scientific and professional organisations involved. In contrast with other projects, PROCARE will be multidisciplinary, will include all patients with rectal cancer, and will follow an updated treatment algorithm based on high quality preoperative imaging (cTNM staging).

The outcome of patients treated in 1997-1998 will be analysed and serve as a benchmark, together with international data.

After external audit of instructors and finalising the manual with documentation, decentralised instruction of individual specialists and teams will be organised. All specialists and teams will be invited to participate and co-organise the project.

A central database will be organised (National Rectal Cancer Register). All data will be anonymous. Anonymity of individual data will only be lifted by written request of a participating specialist or team.

The prospective part of the project is planned to start in 2004-2005. The targets are: R0 resection >60%, abdominoperineal excision rate <30%, postoperative mortality <4%, local recurrence rate <10%, survival 80% at 2 yr after R0 resection, improved survival in advanced disease, patient satisfaction.

This project can only be realised through major financial support of all instances involved in health assurance. Whether Belgium will prove to be able to compete with other European countries, will depend on the will and duty of these instances and of each of us who are convinced that surgeons have to play an important role in the modern multidisciplinary treatment of cancer patients.
QUALITY IN SURGICAL BIOPSIES
I. De Wever
Leuven, Belgium.

A poorly performed tissue biopsy may jeopardize the proper treatment of the patient. Therefore a biopsy should be carefully planned and correctly performed resulting in a sufficient and representative sample for the pathologist. The importance of tissue biopsy becomes even greater as neoadjuvant therapies are used more frequently and systemic therapies become more specific against molecular defects in tumour cells.

The indication should only be made if a differential diagnosis remains after adequate imaging and chemistry, if there are no contra-indications for biopsy and if the requested information is well understood. Biopsy is not indicated if a diagnosis can be made by less invasive techniques, if it would not answer the question, if the result would not make a difference in therapy, if it would make a curative resection impossible or complicated, if it would cause tumour spilling in body cavities.

A careful choice has to be made between fine needle aspiration, core needle, incisional and excisional biopsy, depending on location and type of tumour, information requested, feasibility, possible complications. Image guided percutaneous biopsies should only be performed after consultation of the surgical oncologist. For incisional biopsy the location and direction of the skin incision is critical. Excisional biopsy of deep-seated tumours has to be avoided. The tissue obtained should be viable tumor, not necrotic or inflammatory, not damaged by compression or heat, not dried out. It should be delivered to the pathologist with essential clinical information and with specific questions.

COMPÉTENCE EN ONCOLOGIE : QUELQUES POINTS DE REPÈRE
R. Detry
Bruxelles, Belgium.


Dispositions générales
A souligner, parmi d’autres, maîtrise de l’ensemble des connaissances fondamentales, cliniques et des techniques spécifiques se rapportant au traitement et au suivi des maladies tumurales dans sa discipline collaboration étroite avec les autres médecins spécialistes impliqués dans l’approche multidisciplinaire de l’oncologie et dans les programmes de soins en oncologie

Critères spéciaux
Des critères complémentaires de formation et d’agrément des services et des maîtres de stage, propres à chaque discipline, peuvent être déterminés par le groupe de travail du Conseil supérieur des médecins spécialistes et des médecins généralistes.

Formation
La formation spécifique en oncologie comporte un stage à temps plein d’au moins deux années dans un service de stage agréé dont une année au maximum peut être accomplie au cours de la formation supérieure dans l’une des disciplines concernées ….

Dispositions transitoires
Tout médecin spécialiste notoirement connu comme particulièrement compétent en oncologie ou qui apporte la preuve qu’il exerce l’oncologie de manière substantielle et importante, depuis 4 années au moins depuis son agrément comme médecin spécialiste, peut faire la demande de reconnaissance en oncologie dans les deux ans à partir de la date d’entrée en vigueur du présent arrêté.
BEKWAAMHEID IN ONCOLOGIE: ENKELE HERKENNINGSTEKENEN
R. Detry
Brussel, Belgium.


Algemene bepalingen
Te onderlijnen, onder andere:
- het geheel van de fundamentele, klinische en specifieke technische kennis beheersing in verband met de behandeling en de opvolging van de tumoraal aandoeningen in zijn discipline.
- nauwe samenwerking met de andere artsen betrokken bij de multidisciplinaire aanpak van de oncologie en de zorgprogramma’s in de oncologie.

Bijkomende criteria
Bijkomende criteria voor de opleiding en erkenning van stagediensten en stagemeesters, eigen aan elke discipline, kunnen voorgesteld worden door de werkgroep «Specialisten» van de Hoge raad van geneesheren-specialisten en van huisartsen.

Opleiding
De specifieke opleiding in de oncologie omvat een voltijdse stage van tenminste twee jaar in een erkende stage dienst, waarvan ten hoogste één jaar verricht kan worden tijdens de hogere opleiding in een van de disciplines ....

Overgangsbepalingen
De geneesheer-specialist die algemeen bekend staat als bijzonder bekwaam in de oncologie of die het bewijs levert dat hij, sedert ten minste 4 jaar na zijn erkenning als geneesheer-specialist, de oncologie op een substantiële en belangrijke manier, kan binnen twee jaar na de datum van inwerkingtreding van dit besluit een aanvraag van erkenning in te dienen.

Een stageperiode van twee jaar in de oncologie, aangevat voor de inwerkingtreding van dit besluit, kan als opleiding gevalideerd worden voor zover de aanvraag werd ingediend binnen een termijn van zes maanden vanaf de datum van inwerkingtreding van dit besluit.
Surgical Oncology has been established since 1980, first as a form in general surgery, later as a separate unit in the Department of Surgery. From the start, its focus has been on tumor types, tumor problems and treatments that were rare, complex and new, thus avoiding negative competition with other departments. Some examples are melanoma and skin tumors, soft tissue tumors, pediatric tumors, retroperitoneal and complex pelvic tumors, cytoreductive surgery in the abdomen, venous access for chemotherapy, isolated limb perfusion. Surgery mostly was part of a multidisciplinary treatment.

The unit has played a role in oncological education and training of the surgical residents, in postgraduate training of Belgian surgeons, in the stimulation of interest for oncology in other surgical departments and in profilation of oncology in the region.

Collaboration with other departments has been intense, complex and evolving over time. Over the years, a shift towards ever more complex and rare tumor problems has occurred.

Our experience leads to the conclusion that a specialised unit of surgical oncology can function in a university hospital serving as a referral centre for a population of millions.
24-HOUR INTRALUMINAL BILE MONITORING WITH THE BILITEC 2000 DEVICE

J.-M. Collard
Brussels, Belgium.

The Bilitec 2000® device (Medtronic, Skovlunde, Denmark) is an optoelectronic instrument including a miniaturized fiberoptic probe and a portable recording unit, capable of monitoring the presence of biliary pigments in the foregut lumen over a 24-hour period. The distal tip of the probe contains a 2-mm space through which fluids and small solid particles can flow. The portable unit contains two light-emitting diodes, one having a wavelength of 470 nm (i.e. close to the absorbance peak of bilirubin at 453 nm) and the other of 565 nm (reference signal). Optical signals reflected back by the probe are converted into electrical impulses by a photodiode, and a microcomputer calculates the difference between the absorbance at 470 nm and that at 565 nm. This difference is commonly called "absorbance". Absorbance values range from 0 (plain water) to 1 (total screen), but the working range of the instrument has been shown to extend from 0.14 to 0.60 only.

Main indications for for intraluminal bile recording are:
- GERD patients suspected to be at risk for the development of Barrett's esophagus
- GERD patients poorly responsive to PPI therapy
- Helicobacter pylori - negative gastritis
- Patients with upper G-I symptoms either residual to or induced by previous upper G-I surgery

Twenty-four hour bile monitoring should become a routine investigation technique in upper G-I functional disorders as is 24-hour intraluminal pH monitoring.

COMPUTER AIDED TEACHING - VIRTUAL SURGERY IN THE 21ST CENTURY

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Educational demands in medicine at the turn of the 21st century have exceeded what may reasonably be accomplished in the traditional mentor-apprentice approach. A major reason for this may be the ever-expanding body of knowledge that the learner is responsible for; we have amassed knowledge in medicine at an exponential rate over the last fifty to one-hundred years. What is a challenge of increasing difficulty for each successive generation of learners is also a similar struggle for the mentors to stay ahead of the information to be taught. Nowhere is this seen more clearly than in the interventional specialties, especially surgery.

The surgical mentor faces the challenge of technology which changes on a near-daily basis, and is also confronted with a specialty whose textbooks on classic techniques are being rewritten into progressively less-invasive and more precise operations as rapidly as the presses can print them. The mere process of printing is itself so slow in comparison that it is often skipped entirely in favor of electronic media.

The situation is compounded by relatively new governmental regulations in both Europe and the United States protecting trainees from what has been referred to as the "slave-labor" or "learn-by-osmosis" approach inherent to the mentor-apprentice model. Trainees are no longer allowed to live in the hospital and participate in every clinical form of pathology that enters the front door. Regulations now mandate limited work hours and structured educational objectives to be met. How can the challenges of training in surgery be met without compromising the trainees’ skill and knowledge base?

The answer likely lies in the very technology which has driven nearly all of the other changes in modern society: information technology. It will take the power of microchips to deliver quality surgical patient care and to train the subsequent generations of trainees. Through use of "simulated experience", learning can be accelerated and better structured, without danger to the patients or expensive time lost in the operating theater. Computer based models are currently capable of simulating patient clinical presentation as well as inter-operative findings. Trainees can perform virtual operations with haptic feedback repeatedly until performance is sufficient to begin actual patient interaction.
Through creation and use of virtual systems, accurate tracking of the learner’s progress and deficiencies can be objectively defined and dealt with. The truly virtual systems maximize interactivity, which has been proven to improve learning and, more importantly, performance. Microchips also provide us with the telecommunication technology necessary to perform remote teaching and enhanced real-time learning. For example, systems such as Socrates™ and Telestration™ allow the mentor to enhance and illustrate on the visual input of an operating trainee. Robotic systems allow for improved degrees of freedom in minimally invasive procedures as well as telementoring and digital recording of actual surgical gestures. Augmented reality systems currently in development will allow both learners and mentors to have enhanced visual sensory feedback while they are working to avoid “no-fly zones” and “see-through” solid organ structures to speed safe dissection.

In summary, surgical training can be improved through computerized assistance with resulting improvement in the delivery of patient care. The next several years will define how this is accomplished.

In contrast with other European countries laparoscopic surgery is already well spread in the daily surgical practise in Belgium. After the pioneering work of early enthusiastic experts most techniques are now standardised. The implementation of laparoscopic surgery however is not always easy and can have different financial implications.

First of all it has been demonstrated that most advanced procedures have a steep learning curve, this will induce costs and prolonged operating times. There is a continuous need for postgraduate advanced laparoscopic training to overcome difficulties and postoperative morbidity linked to that learning curve. This training is expensive and at this moment only affordable by means of educational grants by the industry.

Different haemostatic tools (Ultrasonic shears, bipolar clamps, ligature,…) are now available on the market and can make advanced procedures more feasible for all of us. The surgeon however is confronted with difficulties to make the right choice in investment and this while there is a continuous upgrading and progress in technologies.

Changing rules in hospital financing and especially changing rules for reimbursement of laparoscopic instruments and viscerosynthesis made the surgeon more vulnerable towards his hospital direction. The recent changes (law KB 35 bis, reimbursement of viscerosynthesis and endoscopic material, March 1st, 2004) made it clear that from now on patients will have to participate in the fee for material if a laparoscopic procedure has been proposed.

As patients participation in the procedural fee becomes substantial, these implications will have to be clearly stated within the informed consent. In the near future, the surgeon could be confronted with an ethical problem if the patient cannot effort the amount of money to cover that fee and if this would lead the surgeon to change his surgical approach towards an open resection. This could be one of the first steps towards a two-speed medicine.

So, today implementation of a new laparoscopic procedure does not end with the learning of a new surgical technique.
GUIDELINES IN LAPAROSCOPIC SURGERY: DO WE NEED THEM?

W.P. Ceelen
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Guidelines can be defined as systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. In the field of laparoscopic surgery, they should ideally allow the individual surgeon to
1. keep pace with the rapid evolution in both technology and scientific knowledge;
2. ensure a practice based on best evidence; and
3. provide a tool to measure and improve the quality of the provided care.

Guidelines can assist in diagnostic test selection and interpretation, the selection of preoperative procedures and assessments, the appropriate indications for alternative technical procedures, and (neo)adjuvant or intraoperative interventions. Several sources of guidelines concerning laparoscopic surgery are currently available.

Key elements contributing to the success of guidelines are: simplicity, wide distribution, no requirement for major changes, endorsement by local opinion leaders, and timely revision with adaptation to new scientific insights. Several methods have been used in formulating guidelines in surgery, including expert opinion, consensus methods and evidence-based methods. The first two methods are prone to bias, conflicts of interest and problematic intragroup interactions. An evidence-based approach to guideline formulation is therefore preferred, as exemplified by the NICE initiative in the UK.

Alternatively, in the absence of sufficient quality clinical trials, guidelines can be developed by a consensus panel aided by a review of the literature. The EAES guidelines on laparoscopic resection of colon cancer are an example of this approach.

In the field of surgery, guidelines alone do not suffice to enhance quality of care but should be supplemented with a continuous education programme and a quality control method to identify inappropriate variations in outcome.

ABDOMINAL WALL HERNIA

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The use of mesh for inguinal hernia repair is generally accepted. Laparoscopic techniques have a steep learning curve with potential severe complications. Though we believe they need to be a part of the surgical techniques used by the general surgeon performing inguinal surgery. If the principle of Stoppa with a giant prosthetic reinforcement of the visceral sac can be obtained by minimal invasive means with the same or even lower morbidity and recurrence rates on the long term, this is the procedure to be preferred. Every surgeon needs to be familiar with both the anterior and posterior approach to the inguinal region e.g. as in the repair of recurrent inguinal hernia after an anterior approach.

Therefore, instead of discouraging and limiting the use of laparoscopic surgery to recurrent or bilateral hernias, as has been proposed in different countries, we believe it is essential to train surgeons to become familiar with the laparoscopic approach of the inguinal region. Much more efforts will be needed in the coming years to train surgeons adequately in performing laparoscopic (and open!) repair of primary unilateral inguinal hernias, with the accent on special tips and tricks from expert surgeons in order to limit the chance for severe intraoperative complications. Only then, surgeons will be adequately trained to perform also laparoscopy in recurrent or bilateral hernias.

Last but not least the item of cost-effectiveness and laparoscopic surgery needs to be integrated into the total picture of direct and indirect costs. Here only well-designed randomised controlled trials on a national level with cost-effectiveness and socio-economic parameters as primary outcome measure will be able to answer these questions.
VARICOCELE
M. Querton

Purpose
Reviewing the different methods available for the treatment of varicoceles.

Objective
Varicoceles are found in approximately 15% of the general male population and in 35% of men with primary infertility. The goal of the treatment is to improve testicular function and seminal parameters, and to increase the likelihood of the ultimate goal: increased pregnancy rates.

We review:
• the different surgical approaches such as retroperitoneal, inguinal, subinguinal techniques,
• the laparoscopic approach,
• the percutaneous embolisation,
• the antegrade sclerotherapy,
and we compare the advantages and disadvantages of each approach (techniques, complications, success rate, cost-effectiveness).

Result
We suggest that antegrade sclerotherapy is valuable as first line treatment. The procedure is less invasive, avoids general anaesthetic, involves minimal pain and allows an earlier return to normal activities. The other techniques are valid in second line, in case of recurrence or according to the surgeon.

ACTUAL TREATMENT OF PRIMARY AND SECONDARY PNEUMOTHORAX
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UZA, Antwerpen, Belgium.

The treatment of a primary or secondary spontaneous pneumothorax remains controversial and many therapeutic options exist. As there are only a limited number of patients in published randomised studies, definitive guidelines are difficult to establish.

In case of a first episode of pneumothorax the patient can be treated by observation, aspiration or thoracic drainage. The therapy of choice depends on clinical features and the degree of lung collapse on chest X-ray.

According to recent literature, thoracic drainage is recommended for older patients, COPD, bilateral pneumothorax, initial aspiration of more than 2.5 l of air, pleural effusion and ventilated patients.

Surgical treatment will be necessary in case of failure of conservative treatment or recurrent pneumothorax. In these cases, chemical pleurodesis or video-assisted thoracic surgery (VATS) is the preferred treatment.

Indications for talc pleurodesis are restricted as complications have been described in literature.

Video-assisted thoracic surgery with resection of blebs or large bullous lesions combined with an apical pleurectomy is considered the most definitive and minimally invasive treatment with good long-term results and a low recurrence rate.

Diagnosis and treatment of spontaneous pneumothorax is a perfect example of a disorder where a multidisciplinary approach by pulmonary specialists and thoracic surgeons is recommended to determine optimal treatment in each patient.
LAPAROSCOPIC BUTTON CECOSTOMY: AN EASY ALTERNATIVE TO MALONE APPENDICOCECOSTOMY FOR ANTEGRADE CONTINENCE ENEMAS

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Bowel management programs improve the life of children with severe constipation and incontinence. Malone’s cutaneous appendicocecostomy for antegrade enemas have further improved the efficiency and comfort of those regimens, at the cost of a major operation, with a high complication and revision rate. We developed the laparoscopic controlled placement of percutaneous button cecostomies, as a variation of Chait’s procedure, described under radiology guidance in Toronto.

Between April 2002 and January 2004, 13 patients, age 4 to 13 years, underwent the procedure. Their perioperative and follow-up data were reviewed. There were 2 anorectal anomalies, 9 spina bifida, 1 severe neurological deficit, 1 intractable constipation/encopresis.

The child is admitted the day before his operation for bowel preparation. Antibiotics are given perioperatively, and followed by oral clindamycin for 5 days. Under general anesthesia, a laparoscopy is performed, with 2 or 3 3mm ports. A grasper presents the caecum to the right lower quadrant, were it is sutured transparietally to the abdominal wall. By direct puncture, a guide wire is inserted into the bowel, over which a 8.5 Fr Trapdoor® cecostomy button (Cook®) is placed after appropriate dilatation.

The procedure was completed in all, without perioperative complications. Mean operative time was 30 min., mean post operative stay 2 days. (0-4). Two children developed peristomal cellulitis, managed with oral clindamycin. Enemas were started at day 8, to achieve a satisfactory continence within 3 weeks. The button was replaced over a guide wire in the office 3 times in 2 patients, after 3,9 and 15 months. Once, after removing the button to change it without wire, the tract was lost and a new laparoscopic insertion necessary. Minor granulation tissue was treated with silver nitrate in 7. Bathing was resumed after 3 weeks, as well as sports and swimming. Overall, 12/13 families are very satisfied with the result. One adolescent child requested the removal of his button after 11 months, because of an incomplete result, with occasional uncontrolled diarrhea. The sinus tract healed spontaneously in 72 hours.

Malone’s continent appendicocecostomy is very efficient, at the cost of a major undertaking. The cecostomy button is easily inserted, interfere minimally with the daily life of the patients and has a very low complication/problems rate. Laparoscopy allows safe and accurate positioning, whatever the anatomy of the patient and despite previous abdominal operations. The Trapdoor (Cook®), with its low profile is very well tolerated, long-lasting and easy to replace. More over, the procedure can be reverted by simply removing the device.

Laparoscopic placement of cecostomy buttons allows an easy implementation of antegrade continence enemas, with minimal inconveniences. It seems more acceptable to patients and families than the classical Malone and should provide the same level of satisfaction at a lower physical and psychological cost.

Keywords: continence enema, cecostomy
MANAGEMENT OF THORACIC EMPYEMA IN CHILDREN
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The incidence of para pneumonic empyema seems to be increasing in the pediatric population, but there is little consensus on its management. Our aim was to review 10 children treated surgically in two institutions during the year 2003 for complicated empyema.

Ten children (median age: 4 years 4 months, range 7 weeks to 8 years) were admitted in our institutions in 2003. The median time from onset of symptoms to admission was 6 days. All patients were initially treated with intravenous antibiotics. Four children in one institution underwent initially percutaneous chest tube insertion, associated once with intrapleural fibrinolysis. Children were referred to the surgeon after failure those therapies. Videoassisted thoracoscopic (VATS) was attempted in all patients. All were operated under general endotracheal anesthesia, without selective ventilation but with low pressure CO2 thoracic insufflation. The procedure consisted, with 2 to 3 trocars, in the removal of all fibrinous membranes and debris, and pleural toilet with large amounts of normal saline. One or 2 chest tubes were placed at the end of the procedure. The intended procedure was completed in 9 to the 10 patients. One patient was converted to open decortication because the lung could not be mobilized sufficiently to reach both chest wall and diaphragm (late organization stage). A pathogen was isolated in 6 patients. Mean duration of drainage was 4 days. Fever resolution depended on the underlying lung disease (pneumonia). No pulmonary resection was required.

Lung function was restored in all patients with later radiological normalization. Primary VATS provides rapid clinical recovery with low morbidity. Surgical intervention is best performed before the empyema reaches the organization stage. Early referral to the surgeon for thoracoscopic debridement of the pleural space seems to have the potential to shorten the course of the disease and thus both the length of chest tube drainage and hospital stay while reducing the risk of long-term sequelae.

FETAL LUNG VOLUME MEASUREMENT BY MRI IN ISOLATED LEFT CONGENITAL DIAPHRAGMATIC HERNIA: AN USEFUL AID IN PREDICTION OF OUTCOME
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Introduction
In 2004, mainly recognized prenatal predictors of outcome in cases of left congenital diaphragmatic hernia (LCDH) consist on:
- liver up or down at abdominal ultrasound
- lung to head ratio (LHR) done between 22-28 weeks > 1, in cases of LCDH with liver up
- evaluation of the left ventricular mass and pulmonary artery diameters
- measure of the lung volume by MRI (MRILV)

Population
In 7 cases of LCDH, a MRI was done once or twice during pregnancy to precise malformations and to measure lung volume (MRILV).

Results
Four of the 7 fetuses had a MRILV done twice during the pregnancy. Six of 7 fetuses had their first or second MRILV ≥ 30% of the expected lung volume for the gestational age and are alive. The seventh fetus had a first MRILV = 0.22 and a second MRILV = 0.25: he died on ECMO after 20 days of life. Two babies with the lowest O/E MRILV had the longer duration of artificial ventilation (888 hours and 864 hours). All the patients were operated successfully (muscular suture or patch interposition). Three of the 4 patients with a LCDH associated with a liver up had a more difficult postoperative course.
THE LAPAROSCOPIC NISSEN FUNDOPLICATION AS TREATMENT OF GASTROESOPHAGEAL REFLUX IN CHILDREN: AN EVALUATION OF 106 CONSECUTIVE PROCEDURES

University Hospital, Leuven, Belgium

**Background**

Nowadays the laparoscopic Nissen fundoplication has become a frequently performed procedure in children who suffer from gastroesophageal reflux disease (GERD), especially when medical treatment fails. In this study we describe our 8-year experience with 106 consecutive laparoscopic Nissen fundoplications. The aim of this study was to assess the indications for surgery, the per-and post-operative complications and the patient’s satisfaction degree.

**Methods**

From January 1994 to May 2002, we included 106 consecutive patients (aged 8 months to 18 years). The indications were symptomatic GERD (resistant to medical treatment), pulmonary symptoms or combinations of both. The patient's satisfaction was assessed by questionnaire.

**Results**

No mortality was noted and conversion to an open procedure was necessary in 3 cases (2.8 %). Major postoperative complications were seen in 10 % of cases. Recurrence of reflux occurred in 6 patients (3 due to herniation of the fundoplication). Dysphagia was seen in 22% of cases with spontaneous regression in all but 6 patients (4 dilations, 2 redo Nissen). Gas bloating occurred in 11 % of the children, all with spontaneous regression. Recurrent pneumopathies were seen in 7.4% of the patients who presented with reflux-related pneumopathies. The greater part of these patients showed an improvement in pulmonary symptoms compared with the preoperative situation.

71 % of the children sent back their questionnaire. 30 patients (41.6 %) gave the maximum score and 92% of the patients presented a good quality of life and a decrease in preoperative symptoms.

**Conclusion**

This study shows that the laparoscopic Nissen fundoplication can be performed safely in children with low complications and good reflux control showing symptoms improvement and high satisfaction score in most of the patients. Good follow-up of the patients remains in any case mandatory.

**Discussion**

Although there is an unknown relationship between fetal lung volume (FLV), neonatal lung function and life, we observed that the 3 patients with the lowest O/E expected MRILV had either the longest duration of ventilatory support or died under ECMO and that the 6 babies with an O/E ≥ 0.30 survived.

**Conclusion**

The antenatal MRILV appears to be very interesting to determine the prognosis of LCDH.

**References**

PECTUS EXCAVATUM: MINIMAL INVASIVE SURGERY
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Various open surgical techniques represented, for many years, the "golden standard" for treating the chest wall of patients with pectus excavatum (PE) deformity. Since the advent of minimal invasive repair of pectus excavatum (MIRPE), described by Nuss in 1998, this situation changed dramatically. The principle is based on the chest's plasticity in childhood that allows the mobilisation and lifting of deep funnel chests without any rib discontinuity. The procedure consists in remodelling the chest wall deformity by inserting a metal bar retrosternaly, under thoracoscopic control. The implanted bar is removed after 2 to 3 years.

The appropriate age for surgery is between 8 and 12 years, however, more and more older patients, who resist open surgery, are now requesting the new less invasive procedure. Yet, no long-term results are available for the latter group.

This presentation will focus on the actual state-of-the-art of MIRPE, address the most frequent asked questions about PE and show a short intraoperative video.

TRAINING IN LAPAROSCOPIC PAEDIATRIC SURGERY
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Training in laparoscopic surgery is essential to develop specific skills in hand-eye coordination, depth perception and ambidexterity and to help clinicians along the learning curve quickly and safely. Skill labs may be useful in order to decrease operation time and reduce complication rates in the clinical setting. Especially in paediatric surgery with a reduced size of the working environment and the anatomical structures, this might be extremely helpful.

During the lecture we will present our standardised laparoscopic training program in (paediatric) surgical animal models.

This training program during the six year period allows surgical residents under continuous supervision (with two residents per set) to train laparoscopic surgical techniques and procedures in the laboratory: junior residents start with stereotaxy exercises in the endotrainer and the accent on endoscopic suturing and knot tying; later dissection exercises on animal tissue in the endotrainer are performed, ultimately leading to surgical procedures in vivo in rabbit and pig.

The role of laparoscopic virtual simulators in order to minimise the use of animals will be highlighted. In addition, the instruments to measure objectively technical capacities (and the effect of skill labs) will be demonstrated.
GOOD PATIENT SELECTION FOR ABDOMINAL SURGERY OPENS NEW POSSIBILITIES IN AMBULATORY SETTING

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In parallel with more intense and frequent utilisation of hospital resources, the number of patients on the waiting list as well as the pressure on available bed capacity is increasing.

Ambulatory surgery may be one of the options to decrease the use of hospital resources and save costs. However, the conversion of an inpatient procedure to an outpatient one needs to be feasible, safe, cost-effective, and without sacrifice in patient satisfaction. The success rate of ambulatory surgery is partly related to an appropriate patient selection, whereas it strongly depends on extensive education of both the healthcare professionals and the patients who undergo this care. This success can be facilitated by the construction and use of guidelines in the care of these patients. The implementation of clinical pathways has an additional value to these guidelines, and increases the success of ambulatory surgery in terms of feasibility and safety. Proper patient instruction, adequate pain control, low threshold for admission and an uneventful postoperative course are factors that determine patient satisfaction. The implementation of clinical pathways also increases patient satisfaction, and results in a decreased use of hospital resources and consequent cost savings. The evolution of ambulatory abdominal surgery at our institution will be presented, while the effect of the implementation of a clinical pathway for ambulatory laparoscopic cholecystectomy will be highlighted.

IS THE SURGEON FORCED TO DO AMBULATORY SURGERY AND IS THERE A FINANCIAL BENEFIT?

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Gent, Belgium.

For the moment, two laws are important and define guidelines for performing surgical acts in day surgery setting, i.e. the law of 25th November 1997 about the organisation of the function "Surgical Day Centre" and the law of 3rd July 2003 about the remuneration of a limitative list of surgical acts, when performed in an ambulatory setting.

Ambulatory surgery is an organisational concept that is only possible because of new techniques in surgery as well as in anaesthesiology. In function of lowering the costs of medical care in Belgium, the government, since several years, is looking for methods to stimulate the organisation of ambulatory surgery.

A good functioning surgical day centre will allow the politicians to spend less money in the medical care because of the lower "hotel" costs.

Stimulation to perform more surgical acts in day care, is done by paying the surgeon as well as the specialist who is responsible for the organisation of the Day Care Centre.
SURGEON X
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Quality control in medicine is a hot topic. Any publication in non-scientific media guarantees immediate interest and corresponding reactions from the alternative media platforms. Der Spiegel cites on the very front of their journal nr 44 of October 10th 1995 the words “Gefährliche Chirurgen: Pfusch am Herz”. The title inside is even more shocking: “Jeder hat seine Toten”. The journalist was not interested to hear about the uncertainty of an observation, confidence limits and variability of risk. These fundamental bases of science become irrelevant when quality control is concerned in non-scientific media. The Nouvel Observateur is not much better in their journal nr 1626 of January 4th 1996 where they cite, of course on their front page “Hôpitaux, ceux qu’il faudrait fermer. Ce n’est pas une question d’argent mais de sécurité des malades”.

The drama is not that these non-scientific journals publish conclusions, without any scientific basis. Even scientific journals and media, or health authorities prefer to discuss quality control without taking into considerations the fundamental elements of science. Some very expensive programs of quality control (see the STS database) focus on the first four days, have unverified data, no idea about completeness or accuracy.

This project brings forward the fundamental elements and limitations of quality control. Starting from an index quality model, defined on the long term follow up of 6000 patients and structured in a series of time-related equations. An independent test sample of several thousand patients with five years of follow-up is analyzed using this quality model and several thousand individual prediction lines are constructed. Based on these different lines a line is created (with its uncertainty) of the test sample behaviour. The variation of this test sample versus the index sample is identified. The variation over time is studied and a univariate analysis identifies the incremental variables structuring this variation. Surgeon X is identified as one of these variables. Let us drop this name to one of the journalist and the fourth power will do the rest.

Multivariate time-related analysis identifies that it is not the surgeon but some new variability of patients that is the cause of the variability. The complete analysis is redone, excluding some patients with a rare variability. No more residual differences are observed and the test sample has the same quality performance versus the index quality sample. Too bad the surgeon has just been hanged.

Finally the essential elements and limitations of quality control will be discussed.


LAPAROSCOPIC COMMON BILE DUCT EXPLORATION FOR LITHIASIS
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The incidence of common bile duct stones (CBDS) in patients with gallstone disease varies between 5-15 %. Although CBDS can be asymptomatic, the occurrence of complications can be associated with major morbidity and high mortality. Therefore, beside the detection of CBDS, it is crucial to also treat these patients. The majority of patients with CBDS can be treated with ERCP before cholecystectomy. Although this treatment modality is effective, almost in a half of patients ERCP proves to be normal and only diagnostic with subsequent complications, even if predictive clinical models are applied to assess the risk of CBDS. Randomized controlled trials have shown both endoscopic retrograde sphincterotomy followed by laparoscopic cholecystectomy (two-stage procedure) and laparoscopic common bile duct exploration (single-stage procedure) to provide comparable success rate and hospital stay in patients with CBDS. However, a significant higher morbidity and mortality has been reported following the two-stage procedure. Accordingly, laparoscopic common bile duct exploration is more efficient and is preferable when surgical proficiency in this technique is available, though decisions regarding individual patients will depend on local expertise.
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TEN EVIDENCE-BASED KEY-POINTS FOR THE MANAGEMENT OF ACUTE PANCREATITIS
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1. An objective evaluation of prognosis is mandatory as soon as the diagnosis of acute pancreatitis (AP) is established. Scoring systems tend to overestimate the severity of biliary pancreatitis. Whatever the scoring system chosen, they should be considered for their negative (discrimination of non-severe cases) rather than for their positive prognostic value.

2. Peri-pancreatic and pancreatic necrosis on CT-Scan are a sensitive but not a specific marker of severity. All severe AP are necrotizing, but all necrotizing AP (NAP) are not severe. CT-Scans performed before the 7th day after the onset of the disease tend to underestimate the extent of necrosis.

3. Medical treatment of AP is exclusively symptomatic. “Putting pancreas at rest” is an erroneous therapeutic concept. There is no pathogenic treatment for AP.

4. Antibiotic prophylaxis is useless in case of benign AP. Evidence for antibiotic prophylaxis in case of severe NAP is controversial. Antibiotic prophylaxis does not decrease mortality rates. Antibiotic prophylaxis might decrease pancreatic and extra-pancreatic infection rates, but at the expense of an increased severity of late infections related to selected bacterial species.

5. Parenteral or enteral nutrition is not required in case of benign AP. Early (first 72 h) resuscitation of severe AP has to pay more attention to the haemodynamic, renal and respiratory consequences of the Systemic Inflammatory Response Syndrome than to early nutrition. Severe ANP is a highly catabolic status. Starting from the 4th day after the onset of the disease, nutrition becomes a major aim. As soon as feasible, enteral nutrition is superior to total parenteral nutrition. Mechanical stimulation of peristalsism as well as gut mucosal protection might decrease the risks of bacterial translocation.

6. Urgent Endoscopic Sphincterotomy (ES) is not indicated in case of benign AP. Evidence for urgent ES in case of severe AP is controversial. About 15% of severe AP are associated with cholangitis. Urgent ES is beneficial in case of severe cholangitis or cholangitis associated with severe AP.

7. Timing of biliary surgery in case of AP is decided according to objective severity criteria. As soon as an acute bout of pancreatitis is demonstrated as benign, there is no reason to postpone biliary treatment. On the other hand, in case of severe AP, biliary treatment has to be delayed as long as complications of AP are not overcome.

8. AP is a complication associated with migration of small biliary stones through the papilla. Hyperamylasemia is a poor predictor of the presence of common bile duct (CBD) stones, moreover, it might even be a predictor of the absence of CBD stones. When biliary stones are diagnosed because of an AP, there is no indication for a preoperative (Endoscopic Retrograde Cholangiography, Biliary-MRI, Endoscopic-US) diagnosis or treatment (ES) of CBD stones before laparoscopic cholecystectomy.

9. In case of severe AP, early pancreatic resection, peri-pancreatic lavage or sterile necrosectomy are not indicated. These procedures increase mortality rates.

10. Infection of necrotic pancreatic or peri-pancreatic collections has to be demonstrated by percutaneous puncture. Surgical indications for severe ANP are restricted to the management of infected necrosis. The best compromise in terms of benefit-risks for infected necrosis management might be necrosectomy plus postoperative continuous lavage, but the evidence is weak. Minimal access surgery for infected necrosis is not evidence based.
SURGICAL TREATMENT OF CHRONIC PANCREATITIS
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Chronic pancreatitis (CP) is characterized by irreversible damage to the pancreas and development of histologic evidence of inflammation and fibrosis eventually leading to exocrine and endocrine tissue destruction. Different attempts to define CP have been done based on etiopathology, histology, clinical imaging and endoscopic retrograde pancreatography features; however lack in sensitivity is common in all. The estimated annual incidence of CP range from 3 to 9 cases per 100,000 population with substantial geographic variations. Prognosis (and mortality) is quite variable and affected by the presence of ongoing alcoholism in patients with CP. The 20-y survival is about 45% and the cause of death is usually due to other causes such as coronary artery disease, cirrhosis and pancreatic carcinoma.

Surgical therapy in CP is commonly considered in case of recurrent and persistent pain when conservative and/or endoscopic treatment fails, in case of biliary or duodenal stenosis and/or appearance of symptomatic pseudocysts not responding to endoscopic or interventional radiological drainage, as well as for exclusion of malignancy.

Surgery for Intractable Pain
Surgical options for pain include pancreatic duct drainage, partial or total pancreatic resection. This choice depends in part on the ductal anatomy and presumed pathogenesis of pain but also on associated complications and surgical expertise and preference. The rationale for ductal drainage procedures is to relieve ductal obstruction reducing intra-parenchymal pressure. This operation is indicated in case of dilatation of the duct of at least 7-10 mm. The most commonly performed is the lateral pancreatico-jejunostomy or Partington Rochelle procedure. The pancreatic duct is opened longitudinally and anastomosed to a defunctionalized small bowel limb on Roux-en-Y drainage. This procedure permits to remove stones and to deviate ductal stenosis. Its morbidity and mortality is very low and immediate pain relief is seen in 80% of patients. In long-term follow-up, 40% to 50% of patients still complain of recurrent pain. This is frequently due to persistent alcohol abuse but also to the progression of the pancreatic disease. To overcome the few early and frequent late treatment failure, approaches with drainage combined to resection have been advocated. This is in particular indicated when a concomitant inflammation of the pancreatic head is present, usually not decompressed by the longitudinal drainage (see accessory duct of Santorini or the small ducts draining the uncinate process).

A Whipple operation or pylorus preserving Whipple operation is the technique most used in these circumstances. Pain relief is observed in 65% to 95% of patients. These good results may be explained in part by the resection of nervous pancreatic afferents during a more extended dissection rather than the decompression of the small ducts in the pancreas head. When a Whipple procedure is associated to a longitudinal drainage in case of an inflammatory pancreas head, the risk of mortality reaches 1%-2% with a morbidity rising to 50% of the cases (duct leaks, outlet syndrome, motility disorders). The Beger and the Frey operation offer the advantage to preserve the gastrointestinal continuity. The former consist on the resection of the pancreatic head without interruption of the duodenal continuity (and of course the duodenal vascular arcade) skeletonizing the main portal confluence with a double pancreatico-jejunostomy. The latter consist in a longitudinal opening of the Wirsung all over the pancreatic tail with combined resection of a part of the pancreas head leaving a shell of the pancreas close to the duodenum, the biliary duct and the retropancreatic vessels. Both techniques appears to be equivalent in terms of efficacy and morbidity showing better early and late result respect to the Partington Rochelle operation, however with a little increase of overall morbidity. An extended resection for CP is rarely performed due to the induction of diabetes. When the risk of cancer cannot be excluded by preoperative or perioperative findings, pancreatic resection should be performed. Sometimes, for localized distal CP, the resection of the body and tail may be proposed. The interruption of the neural transmission by celiac plexus block or thoracoscopic splanchnicectomy is considered as an alternative treatment, basically indicated in patients who have failed medical therapy, unfit for surgical drainage or with "small duct chronic pancreatitis”. Success rate is lower and estimated in maximum 50% of cases.

Surgical Treatment of Pseudocysts
Pseudocysts occur in 25% of patients with CP. The natural history is not fully defined and complications occur from 5% to 41% of cases but few cysts smaller than 5 cm requires surgery. These consist on cyst decompression into the stomach -Jurasz operation- or into the small bowel -cystojejunostomy. Surgical therapy may achieve a long-term success rate of 90%. Pain has been noticed in up to 50% of patients with recurrent cysts. When COMMON BILE DUCT OBSTRUCTION occurs (10% of patients) with recurrent episodes of cholangitis and jaundice despite positioning of prosthesis or stents through ERCP, the decision to make a biliary by-pass should be taken into account. In all cases of a stenosis, pancreatic malignancy should be ruled out. Approximately 5% of patients with CP develop DUODENAL OBSTRUCTION. Surgery in indicated in those who fail medical therapy.
The simplest and safest approach is a Jurasz operation (cysto-gastrostomy). Drainage of the biliary duct with or without a Partington Rochelle operation may also be proposed. The Beger technique finds a place in selected patients with a large inflammatory mass of the head of the pancreas. Typical complications after surgery consisting on: pancreatic fistula, delayed gastric emptying, abscesses formation, pancreatitis, bile leaks and cholangitis. The pre and perioperative use of octreotide may reduce the risk of pancreatic fistula. Steatorrhea may occur in 30% to 40% of patients receiving drainage procedures and more frequently in those receiving resection. The use of pancreatic enzyme supplements should be considered in these patients.

**Clinical Pathways, an Instrument to Improve Quality**

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The complexity of the health care environment and the increasing intensity of patient need optimal coordination and management of care. This also impacts the work of the surgeon. Surgeons are asked to evaluate their practice in response to health care delivery cost pressures and review unnecessary diagnostic or therapeutic interventions when they are not contributing to improved surgical outcomes. Surgery becomes more and more teamwork, where the final result is not only determined by the success and the skills of the surgeon, but also by the effort of the whole interdisciplinary team.

Clinical pathways have demonstrated their capacity to enhance the effectiveness and efficiency of the care of patients with relatively predictable diagnoses. They provide a means for facilitating interdisciplinary team communication, collaboration, and cooperation for individual and populations of patients. They provide a vehicle for implementing evidence based findings and discoveries from quality improvement studies into daily practice as well as in providing the necessary organizational processes. Experience with clinical pathways in the 20 years since they were firstly developed in healthcare suggests that they fit well in the tools and processes for optimising patient care. A systematic review on the effectiveness of clinical pathways reveals that they result in mainly positive effects on clinical outcomes, patient satisfaction, cost reduction and team effectiveness.

As surgeons have searched for mechanisms to contain costs and minimize resource utilization while maintaining or improving the quality of patient care, clinical pathways have gained popularity largely because of their relative ease of implementation and extensive surgeon involvement. Many studies have demonstrated that the use of clinical pathways decreases length of stay, cost, or both, of several common and even more complex surgical procedures. The impact of clinical pathways for a variety of surgical procedures will be discussed.
With experienced surgeons the morbidity rate clearly decreased, therefore, if we accept that total thyroidectomy carries acceptable morbidity, I seem logical to purpose total thyroidectomy as the procedure of choice; in fact autoimmunity partly responsible for exophthalmia could persist if thyroid tissue remains in the neck.

Only very few prospective randomized studies have been realized on this subject.
PREVENTION OF MESH INFECTION AND THE USE OF MESH IN A CONTAMINATED ENVIRONMENT
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Deep infection involving a prosthetic biomaterial following incisional hernia repair is one of the most serious complications of the procedure and may occur in up to 5% of patients. In preparing the patient for operation prophylactic antibiotics are mandatory because infected stitch granulomas are often found related to previous surgery. Meticulous surgical technique, haemostasis and steps to minimise seroma formation such as limiting the size of skin flaps are all also inherently beneficial. Observational studies suggest that fibrin glues may reduce the incidence of seroma formation and therefore the risk of post-operative mesh infection.

In the contaminated environment the use of mesh is not absolutely contra-indicated if the amount of the contamination is kept to a minimum and broad-spectrum antibiotics are used during and after the operation for several days. Thus the infective complications after bowel re-anastomosis with simultaneous incisional hernia repair or parastomal hernia repair can be minimised and almost prevented. Where there is gross contamination and severe sepsis, synthetic biomaterials should not be used and additional steps taken such as leaving an open abdomen with a vacuum suction apparatus or laparostomy wound before abdominal wall reconstruction is contemplated. Collagen based biomaterials hold promise for use in an infected field because the material is designed to allow the migration of the patient’s own fibroblasts into the collagen fibres that make up the mesh to create a neofascia. It should be noted however that these products are relatively new and no controlled studies exist regarding their usage and they cannot be used in the presence of an intestinal fistula as this will result in resorption of the product.

In some patients post-operative infection may be indolent and not appear for some months or years after the original surgery resulting in pain, erythema, leucocytosis and finally the drainage of pus from around the surgical scar. The choice of treatment in this situation is open drainage with intravenous antibiotic treatment or mesh removal, which can result in significant morbidity.

Seroma formation is a frequent recurrence after incisional hernia repair and most resorb spontaneously. Repeated aspiration is not encouraged as it can lead to subsequent infection. Long standing seromas can become encapsulated, will not resolve and require decortication.

VACUUM-ASSISTED CLOSURE FOR ABDOMINAL WOUND DEHISCENCE WITH PROSTHESIS EXPOSURE IN HERNIA SURGERY
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Background
Prosthetic mesh exposure after abdominal wound dehiscence following hernia surgery is a challenging complication. This situation can lead to re-operation for complete prosthesis removal. Negative pressure therapy has recently been developed and has proved to be effective on complex acute and chronic wounds by accelerating wound healing. We report the successful use of negative pressure therapy as a conservative salvage procedure on patients in poor medical condition with prosthetic mesh exposure.

Methods
Seven consecutive ASA III patients with prosthesis exposure were treated in the same way: 1) any cavity was laid open and debridement of all necrotic tissue was performed; 2) VAC® therapy was initiated; 3) once the prosthesis was totally covered by homogeneous granulation tissue, the VAC® was taken over by the Mini-Vac® on an outpatient basis. Prosthetic material was non-resorbable in six patients (1 Marlex®, 1 Teflon®, 4 Mersilene®) and resorbable in one (Vicryl®). Wound healing was assessed by clinical examination.

Results
The median time of VAC® therapy was 30 days (range: 18-38). Two patients were allowed to heal by second intention (1 Teflon®, 1 Mersilene®), three needed skin grafting (1 Vicryl®, 2 Mersilene®), one needed surgical closure with prosthesis conservation (Mersilene®) and one required prosthesis removal (Marlex® – patient under chemotherapy for ovarian carcinoma). The wounds of the six patients treated with prosthesis conservation were stable on mid- to long-term follow-up (Vicryl®: 39 months; Mersilene®: 26, 12, 5 and 3 months; Teflon®: 24 months).

Conclusions
The preliminary results obtained with the negative pressure dressing for abdominal wound dehiscence with prosthesis exposure are encouraging. It is another option in the armamentarium of surgeons who have to treat patients in poor medical condition where re-operation is not recommended.
The blood supply of the skin of the abdominal wall is supplied by the (a) peri-
umbilical musculocutaneous perforators of the (b) superior and (c) inferior epi-
gastric arteries and the (c) intercostal arteries but also by branches of the super-
ficial epigastric artery and the superficial circumflex iliac and external pudendal
arteries (d).
The blood supply of the muscular layers of the abdominal wall comes from the
(e) superior and (f) inferior epigastric arteries, together with the intercostal
arteries (g).

Surgical Technique
The patient is placed under general anaesthesia and antibiotics are given. A
midline incision is performed and careful adhesiolysis is started.
The Rectus Abdominal Muscle is identified and overlying skin and subcutaneous
fat are dissected until the lateral border of the rectus sheath is reached.
The aponeurosis of the External Oblique Muscle is incised 1-2 cm from the lateral border of the Rectus sheath and extended upon the thoracic wall for at least 7 cm. This manoeuvre gives extra gain in medial mobilisation of the Rectus Muscle.

Than the External Oblique Muscle is separated from the Internal Oblique Muscle in an avascular plane between both muscles. This step is essential and only now maximum mobilisation of the Rectus can be accomplished to bridge large abdominal wall defects. At both sides 3-5 cm in the upper abdomen, 7-10 cm at waistline and 1-3 cm in the lower abdomen can be gained.

If at this stage the abdomen cannot be closed primary, a further gain of 2-4 cm can be reached by dividing the posterior sheath of the Rectus Muscle from the anterior sheath. Finally the abdomen can be closed with a running suture of PDS –loop and the length of suture should be 4 times the length of the incision. Suction drains are placed for 48 hours to drain the subcutaneous area. Defects up to 28 cm at waistline can be closed by this technique.
LAPBAND VS. OPEN VBG: A PROSPECTIVE RANDOMIZED TRIAL
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Morbid Obesity is a major problem in western society and carries considerable co-morbidities. Laparoscopic adjustable gastric banding (LAGB) and open vertical banded gastroplasty (VBG) are treatment modalities for morbid obesity. However, up till now no prospective randomised clinical trial (RCT) has been performed to assess the long-term-effectiveness of LAGB compared to open VBG. For this reason a RCT has been performed in our hospital.

From May 1999 till December 2001 100 patients were included in the study. 50 patients underwent VBG and 50 LAGB. Age and sex were comparable. Outcomes included length of hospital stay (LHS), direct postoperative complications, percent excess weight lost (%EWL), change in BMI, reduction in total co-morbidities and long-term complications.

Mean preoperative BMI (VBG/LAGB) was 46.4/46.7, total co-morbidities 1.3/1.3. LHS was significantly shorter in the LAGB group (3.5 vs. 6.8 days). Three LAGB were converted to open, 1 to gastric bypass.

Directly after VBG, in 3 patients relaparotomies were performed due to leakage. 2 of these patients died (4%) compared to 0 in the LAGB group (NS). After 2 years, BMI and %EWL were significantly decreased in both groups but significant more in the VBG group compared to the LAGB group (72.7% and 30.7 kg/m² vs. 53.3 and 35.0 respectively). Total co-morbidities significantly decreased and did not differ. Two years after LAGB, 21 patients needed revisional surgery, of which 14 due to pouch dilation/slippage, 2 due to band leakage, 2 due to band erosion and 3 patients for access port problems. In the VBG group 18 patients needed revisional surgery due to staple line disruption (n=15), to narrow outlet (n=2) or to insufficient weight loss (n=1). Furthermore, eight patients developed an incisional hernia in the VBG group.

This prospective randomized trial demonstrates that, despite the initial better weight loss in the VBG group, based on complication rates and clinical outcome, LAGB is safer, has a shorter LHS and postoperative less morbidity in the treatment of morbid obesity.

CONVERSION OF VBG INTO GASTRIC BYPASS: RESULTS
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In the treatment of morbid obesity simple restrictive methods often fail to control weight in the long run, or give rise to unwanted side effects. Reoperation is therefore an essential part of the work of a bariatric surgeon. In 30 to 40 percent a Mason procedure will lead to technical failure. Staple line disruption and the inability to control weight is the most common problem. Reflux whether or not in combination with esofagitis and stenosis of the gastric pouch outlet is seen less but also a reason for reoperation. We like to present the results of revisional surgery after previously Mason procedure as performed in our hospital.

In this period 61 patients underwent revisional surgery, 13 men and 48 women with a mean age of nearly 39 years. Most of the patients were operated within 4 years after the initial operation. Gain of weight, caused by staple line disruption was also in our group the main reason for reoperation. A much smaller group had complaints of stenosis and/or reflux.

The mean operation time for all the patients was nearly 4 hours. The mean hospital stay was 13 days. Both operation time and hospital stay showed a very wide range.

Leakage was the main and most demanding complication looking at the postoperative morbidity. Two patients died due to sepsis and multi organ failure. One of them had a leakage of the gastrojejunostomy and the other a perforation of the small bowel.

The mean operation time for all the patients was nearly 4 hours. The mean hospital stay was 13 days. Both operation time and hospital stay showed a very wide range.

Leakage was the main and most demanding complication looking at the postoperative morbidity. Two patients died due to sepsis and multi organ failure. One of them had a leakage of the gastrojejunostomy and the other a perforation of the small bowel.

The total postoperative complication rate was nearly 25 percent. With a mean follow-up of 13 months 14 patients developed a stenosis at the site of the gastrojejunal anastomosis. Endoscopic dilatation was successful in all cases. 3 patients had an incisional hernia, none of them required operative correction and only 6 patients had dumping syndrome-like complaints. Looking at our data a mortality rate of more than 3 percent and an early complication rate of nearly 25 percent are both in the higher range.

With an increasing obese population the number of patients in need for revisional surgery will also rise. A gastric bypass sure is an effective option for unsatisfactory weight loss or complications of previous bariatric procedures, but is it really safe?!

It is therefore very important to discuss the high risks with the patient before they decide to undergo revisional surgery!
GASTRIC BANDING, A BARIATRIC PROCEDURE FOR LIFE?
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Objective
To evaluate the use of a low-pressure gastric band in the treatment of severe obesity in a prospective study. To evaluate gastric banding in a bariatric surgery program.

Summary Background Data
Gastric banding for severe obesity has been associated with erosion and perforation of the stomach. The Swedish adjustable gastric band (SAGB) has been proposed as a low-pressure device.

Methods
From January 1998 to October 2001, 625 patients underwent laparoscopic SAGB. Median age was 36 years, and 80.4% of patients were female. Median preoperative body mass index (BMI) was 40. Previous upper abdominal surgery was reported in 36 (6%) patients. A five-trocar technique was used without a calibration balloon.

Results
Median follow-up was 19.5 months. All patients were treated laparoscopically with a median operating time of 80 minutes. Conversion was necessary in two patients (0.3%): one trocar injury of the mesentery and one esophageal perforation. Median hospital stay was 3 days; there were no 30-day deaths.

Early morbidity was present in 27 patients (4.3%). Late band reoperation was necessary in 49 patients (7.8%). Indications for reoperation were band slippage or pouch dilation, acute total dysphagia, and band leakage or malfunction. Median excess weight loss was 45.8%, 49.9%, and 47.4% after 1, 2, and 3 years, respectively, with a measurable beneficial effect on arterial hypertension, sleep apnea syndrome, and diabetes control. Quality of life measurement showed that more than 80% of patients would sign in again for the same operation.

Conclusions
SAGB is a safe and effective new method in the management of severe obesity. Long-term follow-up (>3 years) is necessary to confirm its effectiveness and safety.

An algorithm to treat morbid obesity based on these results is presented.

PSYCHOSOCIAL EFFECTS OF BARIATRIC SURGERY
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Morbid obesity is not only associated with an increased risk of morbidity and mortality, but also with debilitating psychosocial consequences. Many studies have shown improvement in psychosocial functioning after surgical treatment of morbid obesity; however they have not produced a clear picture of the psychosocial changes after bariatric surgery. The aim of the present study is to get a better understanding of the postoperative psychosocial functioning of former morbid obese patients on a variety of domains.

Five standardized psychological questionnaires were administered preoperatively and six months after vertical banded gastroplasty to 63 female morbid obese patients. Six months after vertical banded gastroplasty patients showed an improvement in most domains of psychosocial functioning which were related to the amount of weight loss. Concerning psychosocial functioning, postoperatively there appeared to be a heterogeneous patient group.

In conclusion, this study demonstrates that, six months after vertical banded gastroplasty, formal morbid obese patients show both considerable weight loss and significant improvement in psychosocial functioning, which provides an additional justification for this operation.
ADENOCARCINOMA OF THE POUCH AFTER SILASTIC RING VERTICAL GASTROPLASTY
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A 52-year-old woman was admitted because of epigastralgia, anorexia and recently increased vomiting, 2 years after silastic ring vertical gastroplasty. On gastroscopy, a tumor mass was visualized in the pouch near the “neo-pylorus”. Biopsies confirmed adenocarcinoma. She underwent total gastrectomy, and has no evidence of recurrence at 3 years. The literature on gastric carcinoma after gastroplasty is reviewed.

THE IMPORTANCE OF A COMPLETE FOLLOW-UP ON THE OUTCOME FIGURES FOLLOWING LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB)
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Background Data
LAGB is an effective method of achieving significant weight reduction in the morbidly obese.
Follow-up studies generally fail to report the percentage of patients lost to follow-up. Our goal was to evaluate the difference in outcome between patients in regular follow-up and those lost to follow-up.

Patients and Methods
Between October 1995 and December 2003, 346 patients underwent LAGB for morbid obesity (301 female, 45 male). The mean age was 48 years (range: 23-61 years). Mean preoperative weight was 142 kg (range: 107-207 kg) and mean body mass index (BMI) was 46.4 (range: 38.5-70).

Results
The number of patients in regular follow-up between October 1995 and December 2003 was 293 (85%), with a median follow-up of 39 months. The mean BMI reduction in this group was 9.6 quetelet-point. Fifty-three (15%) patients were lost to follow-up. Out of this group 50 patients could be traced and weight outcome could be assessed. The mean BMI reduction in this group was 2.1 quetelet-point, significantly worse compared to those in regular follow-up.
The weight reduction was thus 7.8 quetelet-point for the total patient group.

Conclusion
Weight outcome in patients lost to follow-up was significantly worse compared to those in regular follow-up. When reporting outcome figures in bariatric surgery the percentage of patients lost to follow-up should be included.
QUALITY-CONTROL OF LONG-TERM VENOUS ACCESS CATHETER TIP LOCATION: A PROSPECTIVE RANDOMIZED STUDY COMPARING FLUOROSCOPY AND INTRAVASAL ELECTROGRAM

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Background
Correct positioning of long-term venous access device (VAD) catheter tip is mandatory for optimal functioning. Standard quality-control technique is based on per-operative fluoroscopy, which carries a radiation risk to patients and physicians.

Aim
Evaluation of feasibility and accuracy of an alternative method based on Intravasal ElectroGram (IEG) recorded with 2 external ECG leads and 1 intravasal guide-wire connected to a classical ECG monitor.

Patients, M&M
Following written informed consent, patients who needed a VAD were randomised in 2 groups. Catheter tip progression into the SVC was controlled whether by Fluoroscopy (Port-a-Cath. Smiths Medical) or IEG (Celsite, BBraun), by tracking typical P-wave pattern change on the ECG monitor. Need for additional fluoroscopy or catheter manipulations in case of catheter malposition was recorded. Accuracy of both methods was evaluated by an independent reviewer (LDW) by measuring the distance between actual tip location and predefined anatomical landmarks on a standard chest x-ray performed immediately after the procedure, namely the junction SVC/right atrium (RA) or a point projecting 2 cm beneath the right main bronchus (RMB).

Results
Difference in numbers of catheters initially incorrectly located was statistically NS when comparing the 2 groups (p=0.1577). In the learning phase however, additional fluoroscopy for other reasons occurred more frequently in the IEG arm (p<0.0001).
Comparing the accuracy of catheter tip position on post-operative chest x-ray, there was no statistically significant difference between the 2 techniques regarding the RMB landmark (p=0.7323) nor the VCS-RA landmark (0.8923). Over 80% of the catheter tips were found within a distance of 2 cm from these landmarks. Per-operative adverse events or false-positive IEG changes were not encountered in this study.

Conclusion
IEG is an easy to learn, safe, reliable and accurate control technique for per-operative check of catheter tip location during surgical insertion of VAD’s. However, this method is not suitable in patients with cardiac pacemakers or heart rhythm abnormalities. In the absence of a clear P-wave change during catheter insertion, a wrong catheter location is to be suspected and additional fluoroscopy is needed. Since August 2002, IEG is our standard control technique during VAD insertion and allowed to avoid fluoroscopy in 90% cases.
OVER ONE YEAR EXPERIENCE WITH THE DA VINCI ROBOT - WHAT HAVE WE LEARNED?
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Since the installation of the da Vinci robot in May 2002 in our institution, 56 surgical procedures have been successfully undertaken covering upper GI surgery (9 transthoracic subtotal esophagectomies, 9 antireflux procedures, 7 bariatric surgical procedures, 1 Heller myotomy, 1 distal pancreatectomy, 1 splenectomy); lower GI surgery (6 partial colectomies, 1 APR), hepatobiliary surgery (7 cholecystectomies, 1 hepatoenterostomy), thoracic surgery (5 thoracic sympatectomies), endocrine surgery (1 adrenalectomy), cardiac surgery (5 epicardial lead placement procedures) and urology (radical prostatectomy 2).

Starting with "easy procedures" (3 lap bandings and 3 cholecystectomies) in order to get the OR nurses rapidly acquainted with the installation of the device we were very soon able to undertake more complex procedures. Setting up the system and draping took a mean of 35 minutes for the first ten procedures but this was reduced to a mean of 16 minutes for the last 10 procedures. Actual operating time of the different procedures is at the least the same as for standard minimal invasive surgery and often shorter. The system is particularly useful when working in confined spaces (upper GI surgery, pelvic surgery, HPB surgery, cardiac surgery and urology) but is less handy when large movements of the robotic arms are necessary as in partial colectomies. We had two leaks (33%,1, 1 reoperation) in the 6 partial colectomies caused in our belief due to the loss in tensile strength sensation when using the da Vinci robot resulting in tearing the suture material because of too much force used when making a running anastomosis. Therefore, early in our experience, we prefer to make an intestinal anastomosis with separate points.

ALVARADO SCORE IN THE DIAGNOSIS OF ACUTE APPENDICITIS: A USEFUL SCREENING TOOL, BUT NO SUBSTITUTE FOR CLINICAL SKILL
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Introduction
This study was undertaken to determine the value of the Alvarado score as an aid in the diagnostic work up of acute right fossa pain and more importantly to determine where it fails.

Materials and Methods
In January 2001 a prospective registration of all patients referred to our general and pediatric surgery departments with right fossa pain was started. The examining surgeon is asked, after clinical examination and technical examinations, to evaluate the diagnosis of acute appendicitis as ‘not likely’, ‘possible’ or ‘certain’. Alvarado scores are calculated afterwards by the authors. All results are based on the histology report.

Results
The study population consists of 647 patients. The median age is 16 years, with a mean of 22,0 years (range 1-91). Ultrasound or CT scan were only performed when requested by the surgeon. Four hundred eight patients were operated on (63,1%). In 13 patients the Alvarado score could not be calculated due to incomplete data (2,0%). The other patients were divided into three groups according to their Alvarado scores: Group I (n=191) with ‘low probability’ for appendicitis (Alvarado 0-4), Group II (n=262) ‘intermediate probability’ (Alvarado 5-7) and Group III (n=180): ‘high probability’ (Alvarado 8-10). The incidence of histologic acute appendicitis in these groups was 7,8%, 42,0%, and 81,1% respectively. The incidence of acute appendicitis in the group that was evaluated as ‘certain’ appendicitis by the examining surgeon (n=242) was 89%. A group of patients (n=80) who were evaluated as ‘certain’ by the surgeon, but had an Alvarado score lower than 8, and showed acute appendicitis on the histology report was identified. Their registration forms were checked to determine why there was a discrepancy between the Alvarado score and the evaluation of the surgeon. In 41 patients (51,2%) the diagnosis was made by ultrasound, in 2 cases (2,5%) by CT scan. In the 39 other patients the clinical picture and/or blood examination results were conflicting. In most cases these patients scored low on the ‘migration of pain’, ‘anorexia’ and ‘nausea/vomiting’ items of the Alvarado score.
Conclusions
The Alvarado score is a useful and efficient screening tool in the first evaluation of acute right fossa pain. As the Alvarado score is mainly based on clinical parameters, the skill of the examining surgeon remains essential in the decision making process.

EVALUATION OF THE ALVARADO SCORE IN DIAGNOSIS AND TREATMENT OF ACUTE APPENDICITIS
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Objective
Early diagnosis of acute appendicitis still presents a challenge in some patients with right iliac fossa pain. The use of scoring systems (Alvarado, Eskelinen, PAS…) could be useful to develop a standardised cost-effective diagnostic iter. The aim of this prospective study is to evaluate the diagnostic value of the Alvarado score and selective use of ultrasonography and/or CT scan in a subgroup of patients with right iliac fossa pain (Alvarado score ≥ 7).

Methods
Between April 2003 and December 2003 231 patients were admitted for acute right iliac fossa pain at the Emergency Department of the Gasthuisberg University Hospital. In all patients, the Alvarado score was calculated. The use of additional investigations (ultrasound, CT scan…) and the therapy were left to the discretion of the attending surgeon. Diagnosis of appendicitis was based on the histological result of the resected specimen.

Results
Seventy-three patients had an Alvarado score between 7 and 10. Sixty-three patients underwent surgery (86%). All patients (n=24) with an Alvarado score of 9-10 were operated. Ultrasonography or CT scan did not influence the decision for surgery. The positive predictive value (PPV) of the score was 91.7%.

Of 49 patients with an Alvarado score of 7-8, 39 (80%) were operated. The PPV of the score was 71%. In 84%, additional diagnostic tools (ultrasound and/or CT scan) were performed.

The PPV of the combination of score and ultrasound (performed in our hospital) increased up to 92%. The NPV of this combination was 67%. Limiting the use of CT scan to patients with inconclusive or normal ultrasonography findings could potentially avoid the need for CT scan in almost one third of these patients.

Conclusion
Our data indicate that the use of ultrasonography and/or CT scan is useful in patients with an Alvarado score of 7 and 8, but probably not in patients with an Alvarado score of 9 and 10.

Larger prospective analysis is necessary.
USE OF THE ALVARADO SCORE FOR PREDICTION OF ACUTE APPENDICITIS IN CHILDREN
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Introduction
The Alvarado score has been proven to be a reliable parameter to assess the likelihood of acute appendicitis in adult patients. This study was undertaken to evaluate the performance of the Alvarado score in children.

Patients and Methods
Starting in January 2001 all children presenting to our paediatric emergency and paediatric surgery departments with right fossa pain syndrome were entered into a prospective registration. Alvarado scores were calculated retrospectively for all patients by the authors. Ultrasound examination or CT scanning were performed when requested by the surgeon. The diagnosis of acute appendicitis was defined as a transmural infiltrate of neutrophil granulocytes or a positive diagnosis of appendicular abscess or infiltrate on ultrasound or CT. Those children not operated on were observed or re-evaluated in the emergency department.

Results
In January 2004 the total population consisted of 316 children. In 6 patients the Alvarado score could not be calculated due to incomplete data. The remaining population of 310 children consisted of 163 boys and 147 girls, with a median age of 10 years (average 9.5, range 1-16). The Alvarado score was able to predict reliably the likelihood of acute appendicitis, ranging from 0% acute appendicitis for Alvarado score 0 to 100% acute appendicitis for Alvarado score 10. Ultrasound was performed in 92% of children and CT scanning in 1.5%. Of the 35 children 5 years old or younger, four had acute appendicitis with an Alvarado score of 5 or 6 on admission. However, these children were all operated on one or two days after admission (when their Alvarado scores may have been higher). All other children in this age group with acute appendicitis had Alvarado scores of 7 or higher.

Conclusion
The Alvarado score can reliably predict the likelihood of appendicitis in children over 5 years old. It may therefore serve as a first screening tool in the clinical diagnosis of acute appendicitis. We found no evidence that Alvarado score is less performant in younger children. Although this study is to our knowledge the largest ever published on the use of Alvarado score in children, the population is too small in the age group under five years to draw reliable conclusions.
F7

5 YEAR EXPERIENCE WITH VACUUM ASSISTED WOUND CLOSURE
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V.A.C. (Vacuum Assisted Closure) is a non-invasive active method for wound treatment by applying negative pressure to the wound site.

The technique of the V.A.C
A piece of foam with an open-cell structure is introduced into the wound and a wound drain with lateral perforations is laid on top of it. The entire area is then covered with a transparent adhesive membrane, which is firmly secured to the healthy skin around the wound margin. When the exposed end of the drain tube is connected to a vacuum source, fluid is drawn from the wound through the foam into a reservoir for subsequent disposal.

The benefit of V.A.C.
V.A.C. promotes rapid growth of granulation tissue. It evacuates interstitial wound fluids and reduces bacterial colonisation, while preserving a moist environment. It also stimulates the anchoring of applied skin grafts and due to negative pressure, it reduces wound size.

Since 1999 over 266 patients have been treated with V.A.C. for various indications: pressure sores, chronic wounds, diabetic foot wounds and postoperative wound infection after cardiac, abdominal and orthopaedic surgery. It is now also being used for primary wound management on skin grafts and fasciotomy wounds of compartment syndrome.

In summary, the V.A.C. seemed to accelerate the wound healing, reduce the workload and it has proven to be cost efficient.
THE USE OF A TRAMADOL DRIP IN CONTROLLING RENAL COLIC PAIN
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Renal colic is an excruciating form of pain, which often is difficult to treat. Regularly the clinical use of a continuous infusion of antispasmodic drugs is challenged. Hypothesis: a continuous IVC drip of tramadol could be an effective and safe alternative.

200 patients with renal colic were randomised in 4 treatment groups, single blind for the patients. At the start all received an antiflogisticum IM and an entiemenetic and antispasmodic IV. Group A was given the classical IV antispasmodic perfusion combined with a sham drip.

Group B received the classical antispasmodic perfusion in combination with a tramadol drip.

Group C had a sham perfusion and drip. Group D received a sham perfusion and tramadol drip. The pain was scored following the Visual Analogue Score at the start, 30 minutes, 1-hour and 4 hours after starting the treatment and at IV-uography. Side effects as well as the need for rescue medication were also registered.

Both the tramadol groups scored significantly better after 60 and 240 minutes and during IV-uography (p<0.005). There was no significant difference at 30 minutes. The tramadol groups needed significantly less rescue medication (p=0.001). There was no significant difference in the reported side effects. The combination spasmyotetics – tramadol drip scored the best but this was not significant. There was no significant difference between the groups concerning theVAS at the start.

We can conclude that our hypothesis has been proven and that a continuous tramadol drip is a safe and valuable analgesic regimen in renal colic.

A UNILATERAL PORCINE LUNG TRANSPLANT MODEL TO STUDY ISCHEMIA-REPERFUSION INJURY
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Aim
Innovations in lung preservation techniques should be tested in a reliable, large animal model. We report our initial experience with a unilateral porcine lung transplant model to study ischemia-reperfusion injury (IRI).

Methods
Pigs (n=46) were anaesthetized. Sternotomy was performed in donor animals (n=23). Both lungs were flushed in an antegrade way with cold Perfadex®, explanted and stored in the same preservation solution. Two groups of lungs differing in cold ischemic period were investigated.

Recipient animals (n=23) underwent left thoracotomy and hilar structures were encircled. The lung was explanted followed by implantation of the left donor lung in the following order: 1) left atrial cuff, 2) bronchus, 3) pulmonary artery.

After one hour of reperfusion, the native right lung was excluded by ligating the right pulmonary artery and bronchus making the animal dependent for survival on the function of the left graft. Pulmonary Vascular Resistance [PVR], mean airway pressure [AwP] and oxygenation Index [PaO2/FiO2] were continuously recorded during six hours followed by sacrifice of the animal.

Results
Data are presented in Table (mean ± SEM):

<table>
<thead>
<tr>
<th>Group</th>
<th>Ischemic time</th>
<th>Survival ≥ 3 h</th>
<th>Survival ≥ 6 h</th>
<th>PVR</th>
<th>Mean AwP</th>
<th>Mean PaO2/FiO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long ischemia (n=10)</td>
<td>1424 ± 131</td>
<td>2/10</td>
<td>2/10</td>
<td>214±70</td>
<td>11±0</td>
<td>346±33</td>
</tr>
<tr>
<td>Short ischemia (n=13)</td>
<td>345 ± 40</td>
<td>6/13</td>
<td>3/13</td>
<td>571±652</td>
<td>12±22</td>
<td>387±45</td>
</tr>
</tbody>
</table>

1 after exclusion of the right lung; 2 at six hours of left lung reperfusion.
Most animals died from right heart failure and reperfusion edema. A modification in arterial and venous anastomotic technique has resulted in an improved survival in the last 5 transplant experiments.

Conclusions
Single lung transplantation followed by native right lung exclusion is a critical model to study IRI, but is not limited by the cold ischemic interval. Further refinements in the technique will hopefully increase its success rate.

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THE AXIS-RING, A USEFUL DIAGNOSTIC AND DIDACTIC AID IN LOW (TYPE 3) ODONTOID FRACTURES
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Low odontoid fractures are frequently missed in the primary shock-room trauma evaluation, especially in unconscious patients where an open mouth view is not available. Evaluation of the Harris – or axis ring, a ring shaped cortical density, superimposed upon the superoposterior body of the axis, in the lateral cross table view can improve the identification rate as disruption of this ring seems to be pathognomonic. We studied the diagnostic values of this sign and the educational effect on trainees.

Material and Methods
12 CT confirmed low axis fractures and 13 controls were presented to 17 residents (traumatology, neurosurgery and emergency medicine) and 5 experienced bone radiologists.

After the residents were taught the use of the axis ring by one of the authors, they had to review the set. Diagnosis was scored with a degree of certitude from 5 to 1.

Results
The specificity and sensitivity for the radiologists was 91% and 83%. The educational effect was evaluated with the Wilcoxon-ranking test with a significant effect for the traumatologists (p=0.0008), emergency physicians (p=0.0005) and neurosurgeons (p=0.0087).

Conclusions
The use of the axis ring in the interpretation of cross-table lateral cervical spine X-rays helps to reduce missed low axis fractures. It can easily be taught to training residents, frequently responsible for the first evaluation of poly-traumatised patients. As it takes just a moment of time without any financial costs or extra radiation it should be included in standard clearing protocols of the cervical spine.
TREATMENT OF ILIAC AND FEMORAL PSEUDOANEURYSMS WITH ENDOGRAFT IN HIGH-RISK PATIENTS
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A retrospective study was undertaken to evaluate the results of treatment of iliac and femoral pseudoaneurysms in high-risk patients. In total, 9 patients with 11 clinically noninfected pseudoaneurysms were treated. There were 4 iliac and 7 femoral false aneurysms. In all cases, percutaneous access was possible by ipsi- or contralateral puncture of the common or profunda femoral artery. Excluder iliac endoprostheses or Hemobahn endografts were used. Immediate technical success was 100% and no major complications were noticed. All endografts were patent at the time of the study, and no endoleaks were discovered. There were no arguments for stent graft degeneration or fractures in grafts at the level of the femoral artery.

We conclude that exclusion of iliac and femoral pseudoaneurysms is technically feasible and reliable. At the iliac artery it is becoming the treatment of choice due to decreased morbidity compared with open procedure. At the femoral level, endograft exclusion can safely be used in high-risk patients unfit for surgery, or patients unwilling to undergo redo surgery. There remains concern about stent graft deterioration, although we could not confirm this in the present study.

VASULAR SURGERY IN THE ONCOLOGICAL PATIENT
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Purpose
To assess the reliability, complication and functional outcome of different vascular procedures in an oncological patient population with a limited life expectancy.

Materials and Methods
We reviewed the charts of our vascular unit for a two years period (from January 2002 to December 2003) to select patients referred for invalidating intermittent claudication that were simultaneously treated with chemotherapy and/or radiotherapy for an advanced neoplasm.

Results
We found 7 consecutive patients with a cancer-related 5-year survival rate of less than 45%. There were 5 males and 2 females with a mean age of 56.3 years (ranges 46-66). Neoplasm subtypes were as follows: 2 Duke’s D rectal adenocarcinomas, 2 stage III laryngeal squamous carcinomas, 2 stage IV non-small cell lung carcinomas, and one case of extensive stage small cell lung cancer. Preoperative Fontaine’s classification revealed 2 patients with stage IIb and 5 with stage III. Vascular procedures consisted in two aortobifemoral bypasses using the retroperitoneal approach, three percutaneous common iliac artery angioplasties, one femoropopliteal bypass, and one axillo-bifemoral bypass. There was no perioperative mortality and morbidity consisted in one case of wound seroma (14%). The median follow-up was 9.6 months (range, 5-23) with 100% patency and limb salvage rates. Improved quality of life was related to the significantly enhanced pain-free walking distances with 7 postoperative Fontaine stage I (p<0.001).

Conclusions
Minimal selective revascularization procedures in oncological patients with poor life expectancy undergoing chemotherapy and/or radiotherapy have proven to be safe without additional mortality nor morbidity and significantly improved quality of life.
**F13**

**KANGAROO AORTIC VALVES ARE HISTOLOGICALLY MORE SIMILAR TO HUMAN AORTIC VALVES - A COMPARATIVE STUDY OF KANGAROO AND PORCINE AORTIC VALVES**

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**Objective**
The precise mechanism of calcification of bioprosthetic valves is still controversial. Kangaroo aortic valves have been reported to calcify less than porcine aortic valves in the sheep circulatory model. This study aimed to highlight histological and ultrastructural differences between kangaroo and porcine aortic valves that may be related to calcification and to compare both valves with human aortic valve.

**Methods**
Ten aortic valves were examined (5 kangaroo and 5 porcine valves), by light microscopy, transmission electron microscopy and polarised light microscopy. Histological samples were stained with hema-toxillin-eosin, Sirius Red, Von Giesson's elastin stain and alcan blue. Sections for polarised light microscopy were dehydrated in ethanol before mounting. Samples for electron microscopy were fixed in a 2%/2.5% cacodylate buffered glutaraldehyde/paraformaldehyde solution.

**Results**
Three main structural layers were present in both types of valves. The proportional thickness of each layer in valve leaflets was different for kangaroo (K) and porcine (P) valves (fibrosa; K 30% vs P 50%, Spongiosa K 30% vs 45%, ventricularis; K 30% vs 5%). Collagen fibers were similarly oriented in both leaflets, with groups of parallel bundles at an angle of less than 25° to each other but more compact in kangaroo valves. Proteglycans are more uniformly distributed in kangaroo valves.

**Conclusions**
The ultrastructure and arrangement of the structural layers of the kangaroo and porcine aortic valves indicate similar micromechanics. Kangaroo and porcine valves differ however, in the relative proportions of their structural layers. Kangaroo valves could potentially calcify less than porcine aortic valves. Kangaroo valves are more similar to human aortic valves.

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**F14**

**CALCIFICATION OF KANGAROO VS PORCINE AORTIC VALVES AFTER GLUTARALDEHYDE FIXATION**

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**Objective**
Contemporary bioprosthetic valves are limited by their propensity to calcify. Most biological valve prostheses are made from glutaraldehyde fixed bovine or porcine tissue. We compared calcification potentials of glutaraldehyde fixed kangaroo and porcine aortic valves.

**Methods**
Two groups of Sprague Dawley (11 rats per group (n Total=22)) rats were implanted with aortic valve leaflets after fixation in 0.6% (11 kangaroo and 11 porcine leaflets) or 2% (11 kangaroo and 11 porcine leaflets) glutaraldehyde. Collagen solubility was determined as a measure of the extent of fixation. Animals were sacrificed after 24 hours and weekly for up to 10 weeks after implantation. Calcium was quantitatively determined by Inductively Coupled Plasma - Mass Spectrophotometry (ICP-MSP) and morphologically assessed by light (Von Kossa stain) and electron microscopy. Data were analysed statistically linear analysis of variance.

**Results**
Leaflets fixed in 2% glutaraldehyde showed >99% and those in 0.625% glutaraldehyde >98% cross-linking. Calcification increased in both species with time. There was no significant difference in calcification between porcine and kangaroo leaflets treated with 0.625% (range: porcine; 1.7 mg Ca/mg and 186 mg Ca/mg tissue dry weight) or 2% (range 0.6 mg Ca/mg and 232 mg Ca/mg tissue dry weight) glutaraldehyde in either group (p> 0.05). There was no significant difference between groups. Calcification was mostly in the spongiosa and ventricularis layers. We observed large variations within and between animals.

**Conclusion**
Kangaroo and porcine valves showed no difference in calcification in our subcutaneous model. Reported lower calcification potential of kangaroo valves in the sheep circulatory model imply mechanisms of calcification other than those tested in the subcutaneous model.
DELAY IN DIAGNOSIS OF SOFT TISSUE SARCOMAS
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Aim
We reviewed 100 patients referred with soft tissue sarcoma between May 1999 and May 2001 to determine doctor- and patient-related delay.

Methods
Patient delay is defined as longer than one month from first symptom till doctor's visit, doctor delay as longer than one month from first visit till definitive diagnosis.

Results
Forty-seven patients showed patient delay, with a median patient delay of 4 months, ranging from 2 to 240 months. The main reason for this delay is a painless mass that is mostly ignored. When pain is present, median delay is shorter. Twenty-seven patients experienced doctor delay, ranging from 2 to 79 months, with a median of 6 months. The most frequent reason was a misdiagnosis from the outset, on a clinical basis only, due to a wrong diagnosis on ultrasound. Only two of these patients had a biopsy, showing benign tumour. High-grade tumours are diagnosed earlier, 85% within 6 months.

Conclusions
Delay in diagnosis of soft tissue sarcomas is still a problem requiring better patient and doctor education.

LAPAROSCOPY INDUCES LESS PAI PRODUCTION COMPARED TO OPEN SURGERY - AN EXPERIMENTAL STUDY
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UZA, Antwerpen, Belgium.

Many observations and experimental studies have shown that laparoscopy induces less adhesions when compared to open surgery. Adhesions start with deposits of fibrin. Fibrin is the result of the coagulation taking place inside the peritoneum. After formation the fibrin is remodelled by the process of fibrinolysis. The amount of fibrin present at a certain time is the result of both coagulation and fibrinolysis. The process of fibrinolysis is predominantly regulated by the enzyme Plasminogen Activator Inhibitor.

By now no studies could link the amount of PAI to the method of operation when this was studied in human models at the moment of surgery.

We performed an experimental study using male Wistar rats to study the effect of laparoscopy compared to open surgery on the production of PAI by the peritoneum. We wanted to prove the idea that laparoscopy induces less PAI production. Giving one explanation why laparoscopy induces less adhesions.

Two groups of 30 rats were used. In one group abdominal lavage was done by means of laparoscopy in the other group the abdominal lavage was done by open surgery. 48 hours after the surgery abdominal fluid was examined for the amount of PAI.

We could prove our hypothesis.

As far as I know this experiment is the first that links the difference in adhesions after laparoscopy compared to open surgery to a difference in the amount of PAI present in the peritoneal fluid.
SMALL BOWEL OBSTRUCTION: PREDICTIVE FACTORS FOR A SUCCESSFUL LAPAROSCOPIC APPROACH?
CHC Liège, Clinique Saint-Joseph, Liège, Belgium.

Aims
To review laparoscopic management of small bowel obstruction and determine the presence of predictive success factors.

Methods
A retrospective review of 103 patients treated by laparoscopy for small bowel obstruction between January 1991 and December 2003.

Results
The cause of obstruction was adhesions in 82% of the patients. Eighty-five patients (83%) had undergone previous abdominal operations, either one (n=63), two (n=15) or three or more (n=7). A laparoscopic treatment was performed successfully in 66 patients (64%). Reasons for immediate conversion included an inability to lyse all adhesions (n=18), a bowel ischemia (n=13) or a bowel perforation (n=3). There were 2 deaths in converted patients and 3 early reoperations for persisting ileus in patients treated by laparoscopy alone. The mean hospital stay was 5 days when a laparoscopic treatment was performed and 12 days when a conversion was necessary. The pre-operative biologic values (leukocytosis, LDH, C-reactive protein) were not predictive success factors. The delay between the beginning of the small bowel obstruction and the operation was not a predictor of success or failure. A significant correlation between the surgical histories of the patients and the success of a laparoscopic approach was not observed.

Conclusions
Small bowel obstruction can be treated successfully by laparoscopy in more than 60% of cases. There were no pre-operative predictive indicators for successful laparoscopy.

THE BURDEN OF EARLY RELAPAROTOMY: AN INTERNAL AUDIT 2001-2002
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Background
Reoperation for early postoperative complications is associated with important morbidity and mortality.

Aim

Patients and Methods
180 patients required relaparotomy during the same hospitalisation or rehospitalisation within 30 days after hospital discharge. 57 patients were referred for further treatment: 25 from other departments at the UZLeuven, 32 from other clinics. Planned relaparotomies were excluded.

Results
The relaparotomy rate after primary surgery in our own department was 2.4%. The incidence of reoperation was highest after pancreatic (8.6%), gastroduodenal (4.3%) and colorectal surgery (3.2%). Indications for relaparotomy included anastomotic leakage (38 pts), bleeding (34 pts), perforation (23 pts), wound dehiscence (16 pts), fistulas (15 pts), bowel ischemia (13 pts), deep abscess (13 pts), obstruction (7 pts), bile duct trauma (7 pts), and miscellaneous (14 pts). In 53 patients additional relaparotomies were necessary, with an average of 2.2 extra relaparotomies in these patients. The overall mortality was 17% and was highest for bowel ischemia (57%), perforation and leakage (21.3%). The mortality in the group with multiple relaparotomies was nearly twice as high as in the group with a single relaparotomy. The average length of stay from the first relaparotomy was 30 days with one third in the ICU.

Conclusion
Postoperative complications requiring early relaparotomy still have a high morbidity and mortality, despite modern surgical techniques and intensive medical support. The length of stay in the ICU and on the ward illustrate their economic impact.
Conclusion
When added to a TPN mixture somatostatin is still fully available in the TPN-mixture 24 hours after preparation. The mean serum level of somatostatin are comparable in both treatment regimens. Therefore somatostatin can be added safely to a TPN-mixture.

Study Objective
Somatostatin and total parenteral nutrition (TPN) are routinely used in the treatment of pancreatic and enterocutaneous fistula. This study was performed to determine whether somatostatin should be administered by a separate intravenous line, or could be added safely to the TPN-mixture. When somatostatin is added to a TPN-mixture, only one intravenous line is needed for administration of both drugs, leading to less manipulation by the nursing staff and therefore less administration errors.

Methods
8 patients with a pancreatic or a enterocutaneous fistula were treated with a standard TPN-mixture (Kabiven 14 - Fresenius) and somatostatin (Somatostatin-UCB ®) 6 milligram per day. When somatostatin was added to the TPN-mixture, samples drawn immediately after preparation, 4 and 24 hours after preparation were analysed to determine somatostatin availability. Patients were randomized to two possible treatment regimens: ‘TPN with somatostatin added – TPN and somatostatin separately – TPN with somatostatin added’ or ‘TPN and somatostatin separately – TPN with somatostatin added – TPN and somatostatin separately’. Each regimen consists of 9 days of therapy and was continued in a separate setting when clinically necessary. During treatment, serum levels of somatostatin were measured daily and pre- and post-treatment samples were also analysed.

Results
Samples drawn from the mixture, immediately, 4 hours and 24 hours after preparation demonstrated a somatostatin availability of more than 100.000 picogram per milliliter. Normal values of endogenous somatostatin rank below 110 picogram per milliliter. When somatostatin was infused through a separate intravenous line, the mean patient’s serum level of somatostatin was 932 picogram per milliliter (SD = 546). When somatostatin is added to the TPN and infused ‘all in one’, mean serum level of somatostatin was 905 picogram per milliliter (SD = 477). The mean pre- and post-treatment serum level was 19 picogram per milliliter (SD = 7).
QUALITY CONTROL: REVIEW OF OUR CURRENT PRACTICE IN YOUNG FEMALE PATIENTS WITH ACUTE RIGHT FOSSA PAIN
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Introduction
In female patients of childbearing age, the diagnostic work up of acute right fossa pain is difficult and high negative appendectomy rates have been described. This study was undertaken to re-evaluate our current practice with acute right fossa pain in young adult females.

Materials and Methods
In January 2001 a prospective registration of all patients referred to our general surgery and emergency departments with right fossa pain was started. Alvarado scores were calculated afterwards by the authors. Ultrasound or CT scan were performed as requested by the surgeon. The decision to operate was made by the surgeon and all operations were performed by laparoscopy. All results are based on the histology report. A study population of 136 female patients between 16 and 40 years old was identified.

Results
Out of the total population, 58 patients were operated on (42.6%). In 40 (69.0%) of the operated patients acute appendicitis was confirmed, in 11 patients another diagnosis was made (mostly gynecological) and in 7 patients no clear pathology was found (NSAP). In retrospect, 18 patients (31.0%) did not require surgery. No CT scans were performed in this group. An ultrasound examination was performed in only 5 of these patients, 3 were negative and 2 of the ultrasound protocols mentioned doubt over the diagnosis. Of the 78 patients who were not operated on, 15 had urinary tract infections, 4 had gynecological pathology and one patient had Crohn's disease. All other patients were diagnosed as NSAP (non specific abdominal pain). In the total population urinary tract infections were found in 12% of patients.

Conclusions
Our diagnostic approach to young female patients with acute right fossa pain resulted in 31% unnecessary operations. This might be the group of patients who could benefit most from additional medical imaging in the workup of acute right fossa pain.

THE CASE FOR IMMEDIATE COLONIC ANASTOMOSIS IN DIVERTICULAR PERITONITIS IN DIVERTICULAR PERITONITIS
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Background
Despite the well-documented morbidity associated with its reversal, Hartmann’s procedure remains the favoured option in patients with complicated diverticular disease especially in the presence of diffuse peritonitis. A prospective study was conducted to determine whether primary anastomosis with diverting colostomy constitutes a valid alternative to the Hartmann procedure.

Methods
A consecutive group of patients with diffuse peritonitis due to perforated diverticulitis of sigmoid origin underwent resection and primary anastomosis with diverting colostomy.

Results
Operative mortality and morbidity was 15% (n=3) and 50% respectively. No patients showed signs of suture disruption and this was confirmed by routine radiological controls of the anastomoses. Mean length of hospital stay was 20±10 days (SD, median=18 days). Closure of the colostomy using a small peristomal incision was performed in all surviving patients after a mean delay of 45±9 days (SD, range 28±67 days). Mean length of hospital stay for colostomy closure was 7±3 days (range 3-18 days), without mortality.

Conclusions
Applied systematically to all patients with diffuse peritonitis due to perforated diverticular disease, primary anastomosis was found to be as safe as the Hartmann procedure but it appears to be superior in terms of total length of hospital stay, interval to stoma closure and rates of stoma closure. Primary anastomosis with diverting colostomy could constitute a valid alternative to the Hartmann procedure in selected patients with complicated diverticular disease, even in the presence of diffuse peritonitis.
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**EXPERIENCE IN TREATMENT OF HAEMORRHOIDS WITH DOPPLER GUIDED HAEMORRHOID ARTERY LIGATION (DGHAL)**

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DGHAL is a new alternative to conventional surgical haemorrhoidectomy. Treating haemorrhoids is treating symptoms. The purpose of this study is to determine the feasibility and the best indications for this functional treatment.

From October 2000 to December 2002, 64 patients (49 male, 18 female) between age 19 and 89 were treated with DGHAL. Indications were based on major symptoms: bleeding (87,5%), pruritus (39%), prolapse (37,5%) and pain (23,4%).

The procedure was performed mainly under conscious sedation and local anaesthesia (Xylocaine Gel® 2%) in one day surgery. Efficacy of treatment was evaluated on an 18 months medium time follow-up.

After one month, bleeding decreased in 52 of 56 patients (93%) with complete response in 24 patients (43%). At the end of the follow up, bleeding remained full corrected in 36 patients (64,3%) and widely diminished in 15 patients (26,8%). Pruritus persisted in 40% and prolapse in 42%. Complementary treatment with rubber band ligation was necessary in 15 cases (26,8%), mainly for persistent prolapse (62%) and bleeding (33%). Complications were minor pain after procedure (13 patients), dysuria (5 patients), anal fissure (2 patients). One patient developed perianal abscess one month after treatment.

DGHAL is an elegant and less aggressive surgical procedure to treat internal haemorrhoids.

We think that the best indication for DGHAL is bleeding on haemorrhoids grade II or III after failure of conservative treatment and rubber band ligation. If necessary this procedure can be always completed by other treatments.

**F23**

**RECTAL ADVANCEMENT FLAP REPAIR IN THE TREATMENT OF COMPLEX ANAL FISTULA**

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Introduction

Surgical treatment of anal fistula must combine the highest rate of fistula healing with the lowest risk of functional sequels. In case of high or complex fistulas, fistulotomy or cutting seton technique achieve fistula healing in more than 90% of the patients, but at the expense of 45% postoperative anal continence impairment, going up to 64% and 67% in female or in case of redo surgery respectively. Rectal advancement flap technique (RAF) has been reported to achieve healing of fistula, while avoiding continence impairment.

Aim

To assess retrospectively the success rate of RAF for anal fistula, in terms of primary healing (PH), delayed recurrence (DR) and postoperative incontinence.

Patients

Between 1989 and 2003, 53 patients underwent RAF for trans- or suprasphincteric fistula (41) or rectovaginal fistula (12). The fistula was associated with Crohn’s disease in 12. DR was defined as fistula relapse after PH, occurring more than 6 months post surgery.

Results

PH was achieved in 38 patients (72%). Out of 15 patients with primary failure, 3 were successfully treated by a second RAF, giving a 77% (41/53) overall success rate. Mean FU was 12 months. DR occurred in 4/38 patients (11%) after 6,9,12 and 60 months: 2 were successfully treated by a second RAF. PH and DR were 83% and 30% in Crohn’s patients compared with 68% and 4% in non-Crohn’s patients (P=0.34 and 0.034*, respectively). RAF was protected by a discharge stoma in 8 patients: PH was 88% and 69% with and without stoma respectively (P=0.32*). In the group without stoma (45 patients), PH rate was 27% and 79% in presence or absence of postoperative diarrhoea (P=0.003*). No patients reported postoperative anal continence disturbances after RAF only.
LONG-TERM RESULTS AFTER SURGICAL CORRECTION FOR HIRSCHSPRUNG’S DISEASE

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Introduction
Only limited information is available concerning the long-term results after surgical correction for Hirschsprung’s disease. This is partly due to the fact that bowel control improves with age and that many patients are accustomed or lost for follow-up by the treating doctors during childhood.

Material and Methods
Thirty patients (m/f=21/9) operated on for Hirschsprung’s disease from 1968 to 1979 in our department were evaluated by answering a questionnaire. Their actual age is 25 years (range 21-35) and the mean follow-up is more than 20 years. Of the 20 patients with a classical rectosigmoid aganglionosis (classic group), 19 underwent a resection according to Swenson and one according to Soave. Eight patients with a long colonic aganglionis (long group) also underwent a Swenson procedure. In 2 patients with an ultra-short aganglionosis (short group) a sphincteromyomectomy was performed.

Results
Defecation habits were subjectively evaluated as good in 15/20 patients of the classic group and in 6/8 patients in the long group. In the short group, both patients have complaints of constipation (± incontinence). Constipation occurs in 3/20 patients of the classic group and 1/8 patients in the long group. Dyschezia occurs in both the patients of the short group and in 3/20 patients of the classic group. Incomplete rectal emptying is seen in both patients of the short group, 6/20 patients of the classic and 4/8 patients of the long group. Using a faecal continence grading scale according to Wexner (0 = no incontinence, 20 = extreme faecal incontinence), faecal incontinence is most obvious in the short group (7.5/20), followed by the classic group (4/20). The long group scores excellent (2.1/20).

Urinary incontinence occurs in 1 patient of the short group and in 2 patients of the classic group. Sexual activity is good in the male population. In the female group one patient has complaints of dyspareunia (short group). Professional integration is excellent in the classic and long group. Both patients in the short group are unemployed. Quality of life, based on a visual analogue scale is the best in the classic and long group (8.6/10 and 8.7/10). The short group has the poorest quality of life (4/10) mainly due to constipation (n=2) and incontinence (n=1).

Conclusions
RAF achieves a 72% primary success rate (77% including redo surgery), with no reported effect on anal continence. This technique should be used as first choice procedure for high or complex anal fistulas.


* Two sided Fisher’s exact test
Conclusions
Three quarter of all patients have no subjective bowel dysfunction, whereas 14% has subjective complaints of constipation. In 68% of all the cases there is an objective faecal incontinence and in 7% a urinary incontinence. There are no signs of urogenital dysfunction in 21 male patients. Sphincteromyectomy has poor long-term results due to incontinence and constipation. Regular long-term follow-up, objectivation of the complaints with scoring systems and comparison with a control group is necessary to get a better view on the actual bowel function after surgical correction for Hirschsprung’s disease.

SYSTEMATIC MALONE’S APPENDICOSTOMY WITH TOTAL PERINEAL RECONSTRUCTION AFTER ABDOMINO-PERINEAL RESECTION FOR RECTAL CANCER
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Introduction
Defaecation disorders and faecal impaction after total perineal reconstruction (TPR) with double dynamic graciloplasty (DG) after abdomino-perineal resection (APR) for rectal cancer is a major cause of concern. In order to avoid these disorders after TPR, we have proposed the systematic adjunction of Malone’s appendicostomy (MA) allowing anterograde colonic enema.

Objective
To evaluate morbidity, functional outcome and quality of life (QOL) after MA performed in combination with APR and TPR.

Patients and Methods
Nine patients [6 females, 3 males; mean age: 42 y. (range, 32-55)] underwent TPR with DG and MA after APR for rectal cancer. TPR and MA have been performed synchronously with APR in 8 cases and secondarily in 1 case. All patients had a temporary ileostomy. Stimulation device (Interstim®, Medtronic, Inc) has been placed during TA in 2 cases, secondarily in 6 cases. In 1 case, electrostimulation has been omitted because of pulmonary metastases. Intra- and postoperative morbidity related to MA, functional results and QOL have been assessed prospectively. The EORTC QLQ-C30-CR38 has been used (with permission).

Results
There was no mortality. There were no complications related to the MA construction. Later, 1 patient had a MA stenosis requiring a plasty. One patient developed chronic MA discharge after a barium enema requiring anti-reflux valve revision. One patient required stimulation device explantation because of erosion of the tendon intro the neorectum. No patient experienced MA catheterization problems. There was neither episode of stool impaction nor colonic emptying disorders.
Conclusions
Our preliminary results of systematic adjunction of MA with TPR after APR for rectal cancer, seem to show that defaecation disorders could be avoided by anterograde colonic irrigation.
Three patients presented distant metastasis and were reoperated. All the patients are still alive, free of disease.

**Functional results:**
The mean Wexner’s score was 7 (range from 5 to 10) (with a mean of 4 points only due to a precautionary used pad). Following the functional score as Baulieux, 60% had good to fair results, and following the functional score of Lehur 70% had good results and 30% had mean results. 8/10 patients have a normal social life.

**Conclusion**
The delayed coloanal anastomosis represents an efficacious alternative technique that permit to avoid a diverting stoma for patients with neoplasia of the low rectum, even after a pre-operative radio(chemo)therapy. The carcinologic and functional results of our series were not different from the literature, but absolutely need confirmation by a larger study with a longer follow-up.


**OMISSION OF PROTECTIVE ILEOSTOMY FOR ILEOANAL ANASTOMOSIS BY SYSTEMATIC PRESERVATION OF RIOLAN’S ARCADE**

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**Introduction**
After restorative proctocolectomy (RPC) with endoanal mucosectomy, to perform an ileal pouch-anal anastomosis (IPAA) at the dentate line without any tension is a major cause of concern.

**Objective**
Systematic preservation of the right colic bordering arch (PRCBA) could provide sufficient mesenteric lengthening in order to achieve a tension-free pouch-anal anastomosis (IPAA) allowing omission of a protective ileostomy (PI).

**Patients and Methods**
103 consecutive patients underwent (RPC) with IPAA for familial adenomatous polyposis (n = 40) or ulcerative colitis (n = 63). There were 35 women and 68 men [mean age: 33 y. (12-64)]. 31 patients have had a PRCBA without PI. The ileocolic artery (ICA) and/or the distal end of the superior mesenteric artery (SMA) have been systematically divided after PRCBA. For 25 patients, the intraoperative mesenteric lengthening has been measured. Mortality, intra and post-operative morbidity have been compared for 4 groups of patients: IPAA without PRCBA with PI (GI; n = 62); IPAA without PRCBA without PI (GII; n = 5); IPAA with PRCBA without PI (GIII; n = 31); IPAA with PRCBA with PI (GIV; n = 5).

**Results**
For GI and GII patients, IPAA has been performed under some degree of tension in all cases whereas for GIII and GIV patients, without any tension. Division of the distal SMA allowed mesenteric lengthening of 4.5 cm (range: 1.5-8.0) and division of the ICA, 3.5 cm (range: 1.5-6.0) with a mean total gain of 7.0 cm (range: 4.0-11.0). There were 2 cases of intraoperative pouch ischemia (1 GI, 1 GIV). There was no death. There were 9 general (6 GI, 1 GII, 1 GIII, 1 GIV) and 5 pelvic complications: 4 fistulas (1 GI, 3 GII, none for GIII and GIV) and 1 collection, none of them requiring surgery. After ileostomy closure, 1 patient had a bleeding and a patient had a small bowel injury requiring surgery.
LONG-TERM FOLLOW-UP AFTER LAPAROSCOPIC SURGERY FOR COLORECTAL CANCER
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Purpose
Laparoscopic colorectal procedures are increasingly being used in the last decade. In the oncologic surgery the role of laparoscopy is still controversial. The aim of this study is to review retrospectively our long-term survival results of laparoscopic and laparoscopic-assisted procedures for colorectal cancer in those patients with a complete five-year follow-up.

Methods
From May 1995 to February 2004, 997 laparoscopic or laparoscopic-assisted procedures were performed for colorectal diseases in our institution. We performed 458 procedures for colorectal cancer. We included our first year of experience only elderly patients, patients in bad condition and stage I or stage IV patients believing that a laparoscopic approach would be less invasive and with less postoperative complications than a laparatomy. The second year we included all patients. The first two years we did not include rectosigmoidectomies as we believed that we could not do safely a no-touch laparoscopic technique in the beginning of our experience. The abdominoperineal rectal resections were included from the onset of our laparoscopic program. We performed a retrospective review of 80 patients with a complete five-year follow-up in February 2004. We analysed age, gender, conversion rate, peroperative and postoperative complications, in-hospital mortality, length of hospital stay, survival rate and recurrence rate.

Results
We reviewed 80 patients (38 men and 42 women) with in total 83 tumours. The mean age was 68.8 years (range, 29-89). We performed 15 sigmoidectomies, 19 rectosigmoidectomies, 22 abdominoperineal rectumamputations, 4 left colectomies, 2 transverse colectomies, 19 right colectomies and 2 repair of continuity. The overall conversion rate was 6 percent (5 cases). We had 4 peroperative complications (4.8 percent) and no peroperative death. Twenty-nine early minor postoperative complications occurred in 25 patients. Eight patients suffered early major complications and needed reoperation. The overall mean hospital stay was 9.5 days.

Conclusions
PRCBA with division of one or two main mesenteric vascular pedicles provided sufficient mesenteric lengthening for tension-free IPAA allowing omission of the PI.
RESULTS AFTER SURGERY FOR RECTUM CANCER REVISITED
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Background
In 1968 our department published the results after rectal cancer surgery (ref.).

Aim
To evaluate how much and in what aspects improvement was achieved.

Methods
Published data on 252 patients with rectum cancer up to 17 cm operated between 1951-1967 (comparator group) were compared with outcome in 147 patients operated in 1997-1998 (study group). Follow-up was minimum 5 years.

Results
In the study group the male/female ratio was higher (1.83 vs 1.33), the tumour was more frequently located below 8 cm (59% vs 43%), Dukes stage distribution after curative resection was different (Dukes A 38%, B 32%, C 30% vs A 13%, B 68%, C 19%) influenced by neoadjuvant radiotherapy (13) and radiochemotherapy (38). Adjuvant chemotherapy and radiochemotherapy were applied in 36 and 11 patients of the study group. Radio- or chemotherapy were not applied in the comparator group.

Significant improvement has been achieved in all aspects:

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<tr>
<td>curative resection</td>
<td>66%</td>
<td>71%</td>
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<tr>
<td>postoperative mortality</td>
<td>8.3 %</td>
<td>0%</td>
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<tr>
<td>5 year survival after curative resection</td>
<td>48%</td>
<td>80%</td>
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<td>abdomino-perineal resection rate</td>
<td>34% (after 1960)</td>
<td>17%</td>
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Also, the mean survival after palliative surgery (and other treatment modalities) increased significantly from 11 to 31 months.

Conclusion
Multidisciplinary curative and palliative treatment of rectal cancer resulted in major advances.

Actually, 29 out of 100 patients still cannot be resected for cure. Of the remaining 71 patients 57 will survive 5 or more years after curative resection. This compares very favourably with only 29 out of 100 patients surviving 5 years, three decades ago.

Conclusions
Within a single institution and surgical team laparoscopic colonic and rectal resection for malignant lesions is technically feasible and safe. Our long-term results are similar to other reports on laparoscopic resection for colorectal cancer. The overall morbidity and mortality is acceptable in our series when compared to open procedures. Although our series is rather small, our data suggest that long-term survival after laparoscopic resection for malignant cases are comparable with those achieved in open surgery.

[Key words: Laparoscopy; colorectal cancer; complications; survival rate]
EX VIVO AND IN VIVO SENTINEL LYMPH NODE MAPPING IN COLO-RECTAL CANCER: PROSPECTIVE EVALUATION IN 103 PATIENTS
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Introduction
Accurate pathologic assessment of nodal involvement in colorectal cancer (CRC) is a major prognostic factor. Indeed after surgery, treatment will depend on the node status. Sentinel lymph node mapping (SLNM) has been used in CRC with controversial results.
The aim of this study was to evaluate the feasibility of both ex vivo (EVT) and in vivo (IVT) sentinel lymph node technique in CRC and to analyse their impact on tumour staging.

Patients and Methods
From February 2001 to November 2003, patients with colorectal tumours were prospectively included. An EVT was used for rectal tumours and an IVT for colonic tumours. Peritumoral injection of patent blue dye (0.5 to 1 ml) was injected subserosally (IVT) or submucosally (EVT). Histological specific study of SLN associated 3 levels of HE and immunohistochemistry if negative.

Results
SLNM was performed in 103 patients (52w, 51m). EVT was performed in 47 patients and IVT in 56. The technique was successful in 98 (95% feasibility; 89% for EVT and 100% for IVT). The median number of lymph nodes examined and of SLN was respectively 20 (range 5-55) and 2 (1-4). An only positive SLN was discovered in 7/56 (13%) pN0 cases where HE was used on multisection levels, thus becoming pN1. In 7 of the 56 patients (13%), SLNM allowed to guide the surgical procedure because of atypical lymphatic drainage. SLN was positive in only 18 of the 34 positive lymph node patients (53% sensitivity).

Conclusion
SLNM performed by IVT is more successful than EVT for CRC. Classical analysis using HE remains the gold standard. However, SLN detection can change tumoral staging by ultra-staging near 13% of T1, 2, 3 N0 as N+.

Reference
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RETROSPECTIVE STUDY OF LAPAROSCOPIC VENTRAL HERNIA REPAIR DURING THREE YEARS
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Background
The aim of this study was to evaluate the feasibility of laparoscopic ventral hernia repair during three years, including the learning curve period, with respect to intraoperative and postoperative early complications and recurrence rate.

Materials and Methods
Sixty-nine patients were operated laparoscopically for ventral primary (n=33) or incisional hernia (n=36) between January 2000 and March 2003. Intra- and postoperative complications were registered. Four patients (5.8%) were lost to follow-up.

Results
A composite prosthesis or PTFE mesh was used. Fixation was performed with fixation devices alone or combined with sutures. Three (4.3%) laparoscopic procedures had to be converted because of extensive adhesions. In one of them an accidental small bowel enterotomy needed to be sutured. An accidental perforation of the umbilicus occurred in one patient, which was sutured laparoscopically. During hospitalization reintervention was needed in 3 patients (4.3%): 2 patients with incisional hernia developed a faecal peritonitis at day 1 and 5 postoperative due to small bowel perforation. A laparotomy was performed and the mesh was removed. The hernia defect was closed primarily with additional use of a Vicryl® mesh in one patient. Both patients recovered well after intensive care treatment. The third patient had a negative explorative laparoscopy on the second postoperative day because of paralytic ileus and increasing inflammatory signs. One patient developed a wound infection which was treated by opening of the wound. Two patients developed cellulites at the level of the hernia sac, treated with antibiotics. Abdominal wall seromas were noted in 10 (14.5%) patients. Mean hospitalization was 4.75 days. The mean follow-up period was 184 days. More than 18 months after surgery, one patient (1.5%) who underwent an open hernia repair after conversion needed a surgical excision of a sinus to the mesh. Another patient developed a mesh infection with need for mesh excision. This resulted in a hernia recurrence. One patient (1.4%) died during follow up due to breast cancer. One patient (1.4%) needed a repair of a hernia at a 10 mm trocar site. Two patients (2.9%) developed a recurrent hernia.

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PRE-OPERATIVE POSTERIOR WALL IRRADIATION FOR RETROPERITONEAL LIPOSARCOMA - A FEASIBILITY STUDY
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It is known that surgical treatment of retroperitoneal liposarcoma in the long term fails in about 50 % of the patients, mostly because of local recurrence. Postoperative radiation therapy remains a significant source of morbidity because large treatment volumes are needed.

In 2000 an original concept for the implementation of pre-operative radiotherapy was developed based on an analysis of the surgical margins. The target volume of irradiation was limited to the contact area between the tumour and the abdominal wall posterior to the great vessels. The advantages of this technique are a relatively small radiation volume, almost complete shielding of the intestines by the tumour and even of the kidney in case of anterior displacement. Between May 2000 and January 2004 a pilot study was performed in 15 patients with retroperitoneal liposarcomas.

Three-Dimensional Conformal pre-operative Radiotherapy (50 Gy in 2 Gy fraction) was delivered to the volume at risk for positive margin: the treatment was very well tolerated with only erythema of the skin in 3 patients, nausea in 6, weight loss in 3. Complete surgical resection of the tumour was possible in all patients 14 days (5 – 25) after the end of pre-op RT; hemicolecetomy in 6 patients, nephrectomy in 6, decapsulation of the kidney in 5. Omentoplasty was performed in 11 patients. Only one cachectic patient had a complicated postoperative course. The median postoperative hospital stay was 11 days.

This original method of pre-operative posterior wall irradiation followed by surgical resection is feasible and well tolerated.
**Conclusion**

Laparoscopic ventral hernia repair is safe, even in the learning curve period. Careful patient selection is necessary. We suggest to start with patients with primary ventral hernias. The threshold for conversion should be low and extreme care should be taken in performing adhesiolysis, preferably using no electro-surgery. Short-term recurrence rates are low. Meticulous closure of trocar sites ≥10mm is necessary.

**Background**

Inguinal hernia repair in newborn infants and in particular in premature infants can be technically more demanding than at older age. Therefore we investigated whether there is an increased risk for testicular complications after inguinal hernia repair in boys operated at a lower body weight (<5kg vs ≥5kg) and whether testicular malpositioning is associated with a reduced testicular volume.

**Method**

During 1995-1996, 45 boys aged 7 weeks to 32 months underwent unilateral inguinal hernia repair. The median follow-up period was 40 months. Testicular volume was measured by ultrasound and testicular positioning was determined on a scale from 0 to 6 based on physical examination and ultrasound evaluation. The ratio r, i.e. testicular volume at the operated vs. non-operated side and the ratio r’, i.e. volume of the testicle with the highest vs. lowest position were calculated.

**Results**

The incidence of testicular atrophy (r ≤ 0.25) and hypotrophy (0.25 < r < 0.75) was 0% and 13.3% respectively. There was no significant difference in ratio r of boys <5kg (n=15) vs ≥5kg (n=30) at time of operation. Four patients (8.8%) had a difference in position of both testicles ≥2 on the scale (r’=0.98). Three of them had a malpositioned testicle on the operated side (6.7%).

**Conclusions**

We propose ultrasound criteria for accurate definition of testicular atrophy and hypotrophy. Although postoperative testicular hypotrophy and malpositioning are not frequent after inguinal hernia repair in this age group, there does not seem to be a relation between malpositioning and hypotrophy. We did not observe an increased risk for testicular hypotrophy or atrophy in boys operated at lower weight. In order to distinguish retractile testicles from testicular malpositioning, we believe it is more accurate to define the latter based on both physical and ultrasound examination.
PROGNOSTIC FACTORS PREDICTIVE OF RECURRENCE AFTER LAPAROSCOPIC REPAIR OF ABDOMINAL WALL HERNIAS
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The aim of the study was to identify factors predictive of postoperative recurrence after laparoscopic repair of abdominal wall hernias. The series consisted of 79 consecutive patients operated on between 2001 and 2003. There were 48 men and 31 women with a median age of 57 years (range: 27-89), 54 primary and 25 incisional hernias and the median size of the fascia defect was 2.5 cm (range: 1-8). All the patients had a laparoscopic repair, without fascia closure, by intraperitoneal placement of a composite mesh centered on the hernia and fixed to the abdominal wall with helicoidal tacks. The mesh was always large enough to overlap the fascia defect by at least 3 cm on each side.

With a median follow-up of 20 months (range: 3-30), we noted 5 (6%) recurrences. Multivariate analysis showed that the recurrence rate increased with the size of the fascia defect (p<0.04). We observed a recurrence rate of 0% (0/49) with a defect smaller than 3 cm, 14% (3/21) with a defect of 3 to 4 cm and 22% (2/9) with a defect larger than 4 cm. In addition, the recurrence rate was higher in case of hernia located close to bone structures (suprapubic or sub-costal) (p<0.01): 33% (2/6) versus 4% (3/73) for the other locations. Finally, the most relevant factor to recurrence appeared to be the ratio between the width of the mesh and the size of the defect (p<0.003): 38% (5/13) for a ratio equal or inferior to 3 versus 0% (0/66) for a ratio superior to 3.

In conclusion, hernias close to bone structures and larger than 4 cm were poor indications for laparoscopic repair. But, we mainly realised that the rule according to which the mesh must overlap the fascia defect by at least 3 cm was incorrect. Our study demonstrated that to minimize the risk of recurrence, the mesh must be more than 3 times larger than the fascia defect.

QUALITY OF LIFE FOLLOWING ADJUSTABLE GASTRIC BANDING: RESULTS AFTER MEDIUM TERM FOLLOW UP
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Introduction
Surgery is the mainstay of treatment of clinically severe obesity. Laparoscopic adjustable gastric banding has been shown to be safe and effective in well-selected obese patients and is the method of choice in our department. We analysed postoperative quality of life in a subset of patients with at least 3 years follow-up.

Method
A standard telephone questionnaire was assembled with items related to gastrointestinal signs and symptoms, general and psychological well-being, and satisfaction with the outcome of surgery.

Results
From a subset of 450 patients operated before 1/1/2001, complete results were obtained from 292 (65%).

1. Gastrointestinal symptoms: frequent acid reflux, pyrosis and vomiting were reported by 23%, 14%, and 39% of the studied patients respectively. Post feeding satiety was satisfactory in 76%.

2. General QoL: General well-being was improved in 80%. Social and professional activities were enhanced in 59% and 54% respectively. The ability to perform sport activity was enhanced in 48% and unchanged in 52%.

3. Sexual QoL was improved in 36% and unchanged in 63%.

4. Satisfaction with surgery results: outcome was perceived as very positive (54%), positive (35%), negative (8%) or very negative (3%) when asked if patients would opt for the same procedure again, the answer was ‘yes’ in 82%, ‘maybe’ in 5% and ‘no’ in 13% of patients.

Conclusions
General quality of life substantially improves after laparoscopic gastric banding and this improvement persists after a follow up of at least 3 years. Excessive vomiting and reflux symptoms occur in a substantial number of patients without influencing general QoL.
**LAPAROSCOPIC COMMON BILE DUCT EXPLORATION; EARLY SINGLE-CENTRE EXPERIENCE**

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**Introduction**

Although both endoscopic retrograde sphincterotomy (ERS) + laparoscopic cholecystectomy (two-stage procedure) and laparoscopic common bile duct exploration (single-stage) provide comparable success rate and hospital stay in patients with common bile duct stones (CBDS), a significant higher morbidity and mortality has been reported following the two-stage procedure. The aim of the present study is to assess the clinical outcome in patients with CBDS following laparoscopic common bile duct exploration (LCBDE) in our early experience.

**Materials and Methods**

Between 2001 and 2003, 42 consecutive patients (M/F: 11/31; mean age: 64 y) with CBDS and cholecystolithiasis underwent laparoscopic cholecystectomy and LCBDE with stone extraction. Surgery was performed following failed ERCP in 12% and as an urgent procedure in 43%.

**Results**

Stone extraction was completed using intra-operative cholangiography in 81% and choledochoscopy in 19%. Median duration of surgery was 106 minutes. No intra-operative complications occurred, whereas the conversion rate was 9.5%. Post-operative mortality and major morbidity rate were nil. Mean post-operative stay was 4 days (1-24). The success rate of stone removal via laparoscopy only was 83% and via laparoscopy with conversion 85%. Patients who failed to be cleared from common bile duct stones at the time of surgery were treated successfully by post-operative ERS.

**Conclusion**

Single-stage LCBDE + laparoscopic cholecystectomy is feasible and safe, and can be advocated as the first therapeutic option in patients with CBDS and cholecystolithiasis.

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**LAPAROSCOPIC TREATMENT OF BARRETT ESOPHAGUS: LONG-TERM RESULTS**

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**Background**

Barrett esophagus (BE) with its potential malignant evolution is one of the main complication of Gastro-Esophageal Reflux Disease (GERD). The different therapeutic options are still controversial. The aim of this study was to evaluate the long-term results of laparoscopic fundoplication in the treatment of BE.

**Methods**

Data of patients who had a laparoscopic fundoplication done for the treatment of BE were collected prospectively and retrospectively reviewed.

**Results**

92 patients with a mean age of 53 years old (24-81) were operated between 1993 and 2001. All had endoscopically-proven BE. Gastric fundoplication was done laparoscopically in all patients (360°-fundoplication in 88% of the cases and partial fundoplication in 12%). Per-operative complication rate was 1%. Post-operative mortality and major morbidity rate were nil. Mean post-operative stay was 2.5 days (1 to 8 days). Mean follow-up rate was 4.2 years (0.5 to 11 years). Follow-up rate was 76% (22 patients lost of follow-up). Out of the remaining 70 patients, 33% were completely cured of their BE (n=23), 21% experienced a decrease in the degree of metaplasia/dysplasia (n=15), 39% had a stabilization of the disease (n=27) and 7% an aggravation (n=5). Reoperation rate was 5% (GERD-recurrence (n=2), increase in the degree of dysplasia (n=2) or slipped Nissen (n=1). No patient evolved to esophageal carcinoma.

**Conclusion**

These results suggest that laparoscopic fundoplication provides a safe (0% mortality rate) and efficacious treatment for BE (stabilization of the disease or better in 93% of the cases). Laparoscopic fundoplication can thus be considered an effective long-term treatment for BE.
**URGENT OR DELAYED LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS: A COMPARATIVE STUDY**

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**Objective**

Laparoscopic cholecystectomy for acute cholecystectomy can be performed within five days after the onset of symptoms (urgent cholecystectomy) or after six weeks of antibiotic treatment (delayed cholecystectomy). We looked at the advantages and disadvantages of both methods in clinical outcome and economic impact.

**Material and Methods**

We retrospectively looked at all laparoscopic cholecystectomies performed for cholelithiasis (n patients = 128) in our department in 2001-2002 and divided them in three groups; we excluded combined surgical procedures. The first group were the urgent cholecystectomies for acute cholecystitis (n patients= 39); the second group were the delayed cholecystectomies for acute cholecystitis (n patients= 36); the third group were elective cholecystectomies for symptomatic cholelithiasis (n patients= 53): they were used as a control group. We reviewed the medical history, the therapeutic success of prolonged antibiotic treatment, the surgical conversion rate, the complication rate and the final outcome. We attempted to make an economic analysis of both approaches: we compared the duration of hospital stay and the cost for antibiotics. We did not take into account the cost of preoperative diagnostic means and surgery, because they were similar in all groups.

**Results**

Demographics and medical history were similar in groups 1 and 2. In group 2, antibiotic treatment was unsuccessful in 23/36 patients (65%); in these patients, laparoscopic surgery was performed earlier than six weeks after the onset of symptoms (mean 33 days after onset of symptoms). This was due to ongoing symptomatic cholecystitis. The surgical conversion rate was 0/39 in group 1 and 2/36 in group 2 (0% vs. 5.6%). Postoperative complication rate were similar in both groups. There was no postoperative mortality. Hospital stay was much longer in group 2 than in group 1 and 3 (15,4 vs. 6,9 vs. 5,1 days). Costs for antibiotics were higher in group 2 than in group 1 and 3 (373 vs. 200 vs. 31 €).

**Conclusion**

Antibiotic treatment is not successful in delaying surgery for 6 weeks in 2/3 of the patients. There is no extra postoperative morbidity and mortality in urgent cholecystectomy compared to delayed cholecystectomy. There is an important extra cost when delaying cholecystectomy. This is due to longer hospital stay and more antibiotics. We advise whenever possible to perform urgent cholecystectomy in acute cholecystitis.
The Place of Radiofrequency Ablation in Hepatic Surgery: Experience of 67 Consecutive Procedures in the Treatment of Liver Tumors

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Background
Radiofrequency ablation has become a new interesting therapeutic option, but it remains difficult to precise how much the technique has gained in importance in liver surgery. So we made a retrospective study including all our procedures for liver tumors since the introduction of radiofrequency in the aim to evaluate the place of this technique, in terms of frequency, morbidity and survival.

Material and Method
From September 1999 to September 2003, 62 patients have been treated for liver tumours and underwent 67 procedures. These were divided in 2 groups: the first one included 49 hepatectomy (group 1) and the second one included 18 RFA with or without hepatectomy (group 2). The RFA was always indicated because the liver resection was not feasible. These groups were compared for 20 different variables.

Results
For group 1 and 2 respectively, the results are: sex ratio (H/F): 0.7 versus 1.57; mean age: 62.7 years old (27-83) versus 69.4 years old (53-80); ASA 1-2: 79.6% versus 61%; ASA 3-4: 20% versus 39% (p<0.2); cirrhosis: 2 versus 6 (p<0.01). The indications were respectively 29 and 10 colorectal metastasis, 6 and 2 others metastasis, 2 (with normal liver) and 6 (with cirrhosis) hepatocarcinoma, 5 and 0 bile duct neoplasia and 7 and 0 benign tumours. Pre-op. chemotherapy: 5 versus 1; previous hepatic treatment: 8 (hepatectomy) versus 6 (3 hepatectomy, 2 alcoolisation and 1 RF). Concerning the distribution of the lesions, we had respectively 82% versus 44% unilobar lesions and 18% versus 56% bilobar lesions (p<0.005); number of resected lesions >= 3: 10 (20.4%) versus 10 (55.6%) (p< 0.005). Approach: 47 versus 17 laparotomy, 2 versus 0 laparoscopy, 0 versus 1 percutaneous approach; major hepatectomy (3 or more segments): 13 (26.5%) versus 3 (16.7%); non-curative procedure, 2 (for diagnostic purpose) versus 3 (1 debulking in neuroendocrine tumor, 1 incomplete RFA for HCC…, 1 incomplete treatment for colorectal metastasis….)
The morbidity represented 31% of the first group and 67% in the second one (p<0.01). The postoperative mortality was respectively 0 and 16% (3 patients). The mean follow-up for all the patients is 18.4 months. Among the patient of the first group with cancer, 88% are alive with a mean follow-up of 19 months. For the second group, 61% are alive with a mean follow-up of 14.5 months.

**Conclusion**

Since the introduction of the technique in our unit, RFA was used in 27% (18/67) of all the hepatic procedures, alone or in combination with a hepatic resection. His use was limited to patients or lesions unsuitable for a curative conventional resection and so for a selected group with more risk factors, more multiple and bilobar lesions. Despite the fact that hepatic resection is still the best treatment for liver neoplasia, RFA permitted to give a good survival rate in these unresectable cases and represent thus a really important tool for hepatic surgery.

**IMPACT OF NEOADJUVANT CHEMOTHERAPY ON OPERATIVE RISK IN LIVER RESECTION**

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**Background**

Liver toxicity of systemic chemotherapy is well-recognised but potential negative effect on liver surgery remains poorly documented.

**Aim of the study**

Analyse the impact of preoperative chemotherapy on operative and postoperative complications in patients undergoing liver resection.

**Patients and methods**

Data of 63 patients undergoing liver resection for malignant tumour were reviewed. Patients with chronic liver disease were excluded. Patients receiving chemotherapy within 6 months before liver resection (n= 39) (C+) were compared with those without preoperative chemotherapy (n=24) (C-). Among these, data were separately analysed for patients undergoing major resection (M) (at least 3 liver segments) (MC+=21, MC-=18).

**Results**

Population data were identical in C- vs C+ and in MC- vs MC+ groups. There was no difference in the operative and postoperative mortality and morbidity in C- and C+ groups. In patients with major resection, peroperative blood losses were significantly increased in C+ as compared with C- (MC+: 4816±4563 ml vs MC-: 2518±1250, p=0.04), requiring more blood transfusions (MC+: 5.4±6 units vs MC-: 2.2±2.4, p=0.04). Postoperative morbidity and mortality were identical in MC- vs MC+. Postoperative liver tests were identical in C- vs C+, but in patients with major resection, highest postoperative bilirubin level tends to be higher in C+ patients (MC+ 6.7±8.4 mg/dl vs MC- 2.8±3, p=0.06).

**Conclusions**

Neoadjuvant chemotherapy should be considered as a risk factor for major liver resection as it increases operative bleeding and could potentially worsen early postoperative liver function. However, this has no significant influence on operative mortality and postoperative complications.
**F43**

**PANCREATIC CANCER: ACCURACY OF THE MODERN PREOPERATIVE EVALUATION OF RESPECTABILITY**

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**Introduction**

Modern radiological and scintigraphic findings affect the preoperative staging and thus the management of pancreatic cancer. This study evaluates the accuracy of preoperative assessment of patients with pancreatic cancer operated on with a curative intend, as compared to the perioperative and pathological diagnosis.

**Material and Method**

Retrospective cohort of 63 patients who underwent surgery for pancreatic carcinoma between 1997 and 2002. Mean age was 58 years (range: 37-80); 62% were men. Surgical procedures included 35 proximal pancreatectomies (Whipple procedure with or without portal vein resection), 4 total pancreatectomies, 9 distal pancreatectomies. Fifteen interventions were palliative (derivations) or explorative laparotomies. Patients operated on for chronic pancreatitis, but with an intraoperative histopathological diagnosis of pancreatic neoplasm, were excluded from the analysis (n=2).

**Results**

Histopathological analysis revealed pancreatic adenocarcinoma (n=53), neuroendocrine carcinoma (n=5), mixed (exocrine and endocrine) carcinoma (n=1), and mucinous neoplasms (n=4). Mean tumour size was 2.9 cm (range, 0.9-7 cm). Fifty-six patients (91.8%) were classified with “possibly resectable” disease after radiological staging; 8 did not undergo resection (14.3%) because of intraoperative upstaging, mostly for liver metastases. Malignancy and resectability were correctly assessed by computed tomography in 77%, magnetic resonance imaging in 88.2%, and PET-scan in 31.2% of the cases. In some cases, only one type of study was accurate (computed tomography or magnetic resonance imaging).

**Conclusions**

The present study shows that modern preoperative imaging does not reliably predict the surgical resectability of pancreatic cancer in all cases. The combination of several imaging techniques increases accuracy. Remarkably, PET-scan is less efficient than expected in the detection of small peritoneal or hepatic metastases.
LASBG: ALL THE COMPLICATIONS WE HAVE OBSERVED FOR ELEVEN YEARS
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Endoscopic gastroplasty by adjustable band has proven to be a good surgical alternative for the treatment of morbid obesity. However, many studies dealing with this concept seem to minimize some of the complications we have observed in our patients after such surgery.

The aim of the present work is to expose all the complications we have observed in our patients.

A total of 165 patients who underwent gastroplasty by adjustable banding by two different surgeons in the CHNDRF were reviewed. All patients were contacted for the follow-up. Average weight loss is 10.65 Kg/m² in average post-operative time of 34.39 months (range: 14-142 months). 51.51% of our patients have at least one complication: from severe post-operative dysphagia to gastric erosion passing by ascension, problems related to the catheter, the port, incisional hernias, cholecystitis, … 42.42% of the patients have been re-operated because of the gastroplastic device itself.

We observed 18.48% ascension, 10.30% erosion, and 13.93% catheter and port problems. If we include post-operative cholecystitis, occlusions and incisional hernias, 60 patients were re-operated one time, 23 twice, 6 three times and one four times.

THE EVALUATION OF PYROSIS AND LONG-TERM SATISFACTION AFTER GASTRIC RESTRICTIVE PROCEDURES: A RETROSPECTIVE STUDY
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Objective
To compare gastric banding (GB) and vertical banded gastroplasty (VBG) with respect to evolution of gastroesophageal reflux (GER) and patient satisfaction.

Summary Background Data
Although weight loss is the most immediate end-point in the evaluation of surgical treatment of obesity, the demonstration of changes in long-term patient satisfaction and in comorbidity, like reflux, is an essential outcome measure. Generally VBG is considered to have anti-reflux properties.

Methods
Retrospective study of 243 morbidly obese patients accepted for GB or VBG between 1986 and 2001. Besides looking up information in their files, all patients received a questionnaire regarding the evolution of reflux symptoms and satisfaction after surgery.

The evolution of reflux symptoms was compared between 2 patient-groups who had different oesofagitis stages. One group had oesofagitis I, or none at all (group A), and the other had oesofagitis II, III or IV.

Results
After GB, 22.2% of patients in group A had more reflux, after VBG 22.5%. 50.0% of patients in group B have less reflux after GB, 66.7% after VBG. 69.1% of the patients were satisfied with the long-term results of GB, respectively 47.9% with VBG. 7.3% of the patients treated with GB were dissatisfied, compared to 24.5% of the VBG patients.

Conclusion
VBG and GB have a similar effect on gastroesophageal reflux. Patients with grade II, III or IV oesofagitis before the operation, tended to have significantly less reflux afterwards. Patients without reflux or grade I before the operation, have more chance that reflux symptoms increase afterwards. Long-term patient satisfaction is higher after GB.
**LAPAROSCOPIC REPAIR OF INCISIONAL AND VENTRAL HERNIA**

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**Background**

After reports in the literature on the safety and feasibility of laparoscopic repair of ventral hernia, and with the potential advantages of the minimal invasive approach, we started to perform this technique in 2001. This study was done to evaluate the results of our initial experience.

**Methods**

From March 2001 to October 2003, all patients with a ventral hernia greater than 4 cm were planned to have a laparoscopic repair. Patients were studied prospectively, collecting data on preoperative and intraoperative variables, complications and recurrences.

**Results**

In 49 patients, out of 52 patients planned, laparoscopic repair was performed. The indication was incisional hernia in 88% and recurrence after open hernia repair in 43%. The mean hernia surface area was 86.6 cm² and 43% had a width greater than 10 cm. There were no intraoperative complications and the mean operating time was 103 min. Postoperative complications were seen in 9 patients (18.4%). Mean hospital stay was 5.9 days. Mean follow-up was 14.3 month. Late complications were seen in 3 patients (6.1%). Recurrence was present in 1 patient (2.0%).

**Conclusions**

Laparoscopic repair of incisional and ventral hernia is a safe alternative for open mesh repair. Further definition of indications is needed on the basis of the dimension and the localisation of the hernia. If the omission of transabdominal wall sutures, as has been proposed by some authors, improves the postoperative course with no adverse affect on recurrence rate, will be the subject of a randomised trial we have started this year.

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**LAPAROSCOPIC GASTRIC BANDING (LASGB): 8 YEARS EXPERIENCE**

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**Aims**

Around Europe, LASGB is a common bariatric procedure. Only a few long-term results are actually available. Our purpose is to analyse safety, complication rate and efficiency of weight loss over an eight year period.

**Methods**

227 patients underwent LASGB and were divided in 2 groups. From January 1995 to April 1999, 95 patients underwent LASGB positioned by retrogastric technique. In the second group (122 patients) we switched to the Swedish route (May 1999 - May 2002). Initial mean BMI was 40.11 kg/m².

**Results**

78% were available for follow-up in the first group and 88% in the second group (maximum follow-up 8 years). Neither intraoperative nor postoperative death occurred. Long-term complications notified in the first group were: 28.42% slippage, 3.16 % erosion, 13.68% port problems and in the second group: 3.78 % slippage, 1.51% erosion, 9.8% port problems. Mean BMI loss was 8 kg/m² in both groups (maximum follow-up 8 years).

**Conclusions**

This study suggests that the choice of surgical technique (Swedish route) is determinant to lower the long-term complication of slippage. BMI evolution is good, but it seems that the results in terms of efficiency and durability of weight loss depend largely of initial BMI. Long-term follow-up are still necessary to confirm results.
SUBLAY MESH REPAIR OF LARGE MIDLINE INCISIONAL HERNIAS WITH A LIGHT WEIGHT, LARGE PORE POLYGLACTIN COATED MESH

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Introduction
Mesh repair has become the standard therapy of large incisional hernias. In order to reduce foreign material related complications such as deep infection and excessive fibrosis, lightweight meshes have recently been proposed. We reviewed our experience with this type of prosthetic material in midline incisional hernia repair.

Methods
Sublay mesh repair (Rives Stoppa technique) was used in all patients. When closure of the posterior rectus sheath was not possible, omental tissue or a resorbable mesh was employed to bridge the defect. A lightweight, large pore polyglactin coated polypropylene mesh (Vypro II ®, Ethicon-Johnson and Johnson, Norderstedt, Germany) was positioned retromuscularly and fixed with resorbable or non absorbable sutures. When needed, component separation was used to close the anterior fascial layer. Drains were used routinely. Following discharge, all patients were seen regularly at the outpatient clinic.

Results
63 patients (62% male, median age 56y, median BMI 28 kg/m²) were treated from 7/00-9/02. Twenty-nine % of the patients underwent one or more previous surgeries for incisional hernia. Median largest hernia diameter was 15 cm (95% CI: 9.7-15.2); a median mesh size of 450 cm² (370.2-517.2) was implanted. Median total wound drainage was 330 ml (274.2-377). Median hospital stay was 8 days (7.5-9.4). There was no 30 day mortality, and in this period complications were observed in 9 patients (14%): seroma (6), hematoma (2), skin necrosis (1) and superficial infection (1). None of the patients developed a mesh infection. With a median follow-up period of 17 months (16.2-20.3), a recurrence was observed in 6 patients (9%), 3 of who underwent additional hernia surgery.

Conclusion
The use of a polyglactin coated lightweight mesh in large incisional hernia repair is associated with a very low rate of infectious complications. The recurrence rate is acceptable after medium term follow-up.


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180 inguinal or femoral hernias were treated by the Mesh plug Hernioplasty as described by Gilbert in 1992 and by Robbins and Rutkow in 1993. This technique consists in the placement of a Marlex cone shape plug in the defect through a minimal dissection preserving the peritoneum. The entire region is then reinforced in the second operative time by the placement of an onlay mesh, split for the cord, lying sutureless just below the anterior surface of the posterior wall of the inguinal canal. The aponeurosis is closed without tension. All patients were operated under spinal anaesthesia. For this study all were contacted as to ask them about the existence of a recurrent hernia at the operated site, their degree of discomfort or pain and their overall satisfaction about the operation.

Results
Average operative time 20 min
Release day 1.7
Pain (or heavy discomfort): 2 (1.1%)
Discomfort (Light): 15 (8.3%)
Overall Satisfaction: 91.7%

Conclusions
This procedure preserves the residual anatomy and reinforces the sphincter mechanism of the internal ring. The nerve and vascular injuries are decreased by minimal dissection. The operative time is short, the cost in hospital stay and surgical equipment is low. Daily activities are allowed immediately and full activities within 10 days. As in laparoscopy and the Stoppa technique, the use of prosthesis reduces the recurrence rate. There is no need for general anaesthesia. The procedure fits the requirements of ambulatory surgery. This operative technique has replaced the conventional and laparoscopic approach in the treatment of inguinal hernias in our department.
LAPAROSCOPIC APPROACH FOR SIGMOID DIVERTICULITIS
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Aim of the Study
Evaluation of the results of laparoscopic surgical treatment for sigmoid diverticulitis.

Patients and Methods
This retrospective study evaluates the outcome of 51 patients (27 male and 24 female) operated by laparoscopy for sigmoid diverticulitis. The mean age was 61.2 ± 13.4 years, the body mass index (BMI) 46.3 ± 8.7 kg/m². The indication for surgery was 2 episodes of acute diverticulitis or one episode of perforation. 37% of patients presented with significant comorbidity and 41% of patients had prior laparotomy or local peritonitis.

Results
The mean operating time (OT) was 172 ± 60 minutes, the mean blood loss estimated at 286 ml. There is no relationship between OT and BMI. The histological examination confirms chronic diverticulitis with inflammatory peri-verticulitis and in 22% a perforation with abscess. Among the peroperative complications (12%) attention is drawn to iatrogenic lesion of the spleen. A conversion to open surgery was necessary in only 2 patients (4%). Surgical complications were noted in 14%, medical complications in 6% of the patients. The mean hospital stay was 9.8 ± 5.4 days. There was no postoperative mortality.

Conclusions
Laparoscopic treatment of sigmoid diverticulitis is feasible with a low complication rate, a conversion to open surgery in 4% and no mortality. The most common technical complication is a lesion of the spleen.
**F52**

**PELVIC MAGNETIC RESONANCE IMAGING IN THE PROTOCOL FOR PRE-OPERATIVE STAGING OF RECTAL CANCER**

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**Introduction**

Neo-adjuvant radiotherapy has an important place in the treatment of rectal carcinoma. Patients with locally advanced disease benefit from this treatment. In patients with limited disease surgery alone (TME) is an adequate treatment. Therefore it is imperative to have a reliable pretreatment staging. Local staging of a rectal carcinoma can be achieved by endoluminal ultrasound or MRI. In our hospital we introduced a protocol based on MRI staging.

**Materials and Methods**

We prospectively collected data of all patients, operated on in our department between December 2000 and January 2004, with a rectal carcinoma within reach of the palpating finger. There were 43 patients (27 men and 16 women, median age 71 (range 32-95)).

**Results**

Twenty-three patients (53.5%) strictly followed the protocol. Fourteen (14/23) patients had neo-adjuvant radiotherapy (50.4 Gy). In 5 patients (5/14) no involved lymphnodes were found in the resection specimen. In 1 patient, there was no tumour left on histological examination of the resection specimen. In patients who had no neo-adjuvant radiotherapy pre-operative MR-staging turned out to be reliable. In 20 patients no pre-operative staging MRI was done. The main reason was that the patients had pre-operative staging by endorectal ultrasononography elsewhere and had neo-adjuvant radiotherapy and were operated on in our centre. In some elderly patients (over 85y) it was decided to offer only surgery. In 4 patients we diagnosed a T4 tumour on clinical grounds only and these patients had neo-adjuvant treatment without MR-staging of the pelvis. In 2 patients (over 75y) the tumour was thought to be limited and these patients were operated on without further local staging.

**Conclusion**

MRI for pre-operative staging in case of rectal cancer is a reliable basis to select the patients who would benefit most from neo-adjuvant treatment.

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**LAPAROSCOPIC ILEAL POUCH-ANAL ANASTOMOSIS WITHOUT ILEOSTOMY: PRELIMINARY RESULTS**

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**Introduction**

Laparoscopic restorative protocolectomy (RPC) with ileal pouch-anal anastomosis (IPAA) has already been reported for ulcerative colitis (UC) and for familial adenomatous polyposis (FAP). We have chosen to perform laparoscopic RPC with Riolan's arcade preservation (RAP) and IPAA at the dental line without ileostomy as previously described for open surgery.

**Objective**

The aim of this study was to compare morbidity, mortality and late functional results of laparoscopic RPC, RAP and IPAA with open surgery.

**Patients and Methods**

Twelve patients underwent a laparoscopic RPC with IPAA from March 2001 to March 2003 (LS). They were compared with 12 patients who underwent an open RPC with IPAA from February 2000 to March 2003 (OS). The two groups were similar for age (LS: 35.2±3.6; OS: 32.3±2.7), sex (9 women, 3 men in each group), body mass index (BMI) (LS: 24.4±1.6; OS: 24.4±0.9), and pathology (LS: 8 UC, 4 FAP; OS: 9 UC, 3 FAP). The mean follow-up was respectively 13.9±3.8 and 22.6±2.6 months for LS and OS.

**Results**

Riolan arcade was respectively preserved in 9/12 and 11/12 patients in OS and LS groups (ns). Three patients of OS group underwent an ileostomy and one in LS group. There was no conversion in LS group. Two patients in the OS group had a complication (one dehydration, one ascitis infection in a patient with liver transplant) and three patients in the LS had a complication (one presacral collection, one portal thrombosis and one wound abscess). There was no mortality in either group. Length of hospitalization was 14.2±2 days in OS group versus 15.5±1.8 days in LS group (ns). Eleven patients in each group had a normal fecal continence (Wexner score - OS group: 2.8±0.7; LS group: 2.8±0.8). Number of daily stools, use of antidiarrheal drugs, fecal continence and diet were not statistically different. Sexual and urinary functions were normal for all patients. Quality of life was similar in both groups (SF36 score in OS group: 0.78±0.05 versus 0.77±0.04 in LS group; ns).
Conclusion
Our preliminary results suggest that it is possible to perform all the specific technical steps of an open RCP with IPAA and RAP by laparoscopy. The functional result of the laparoscopic technique seems to be at least equivalent to open surgery.

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SURGICAL TREATMENT OF ATHEROSCLEROTIC POPLITEAL ANEURYSMS: RETROSPECTIVE STUDY
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Introduction
Aneurysm of the popliteal artery is the most common of peripheral aneurysms. The aim of the study is to evaluate the results of the surgical treatment.

Patients and Methods
From 1987 to April 2003, 77 patients underwent 99 interventions for popliteal aneurysm in our institution. They were reviewed retrospectively. All were men except one. Mean age was 66 years old. 46% used to smoke, 45% had arterial hypertension, 25% dyslipemia and 10% diabetes. At the time of operation, 40% had simultaneous or past history of abdominal aorta aneurysm. Mean follow-up was 38 month.

Results
40 procedures were performed for asymptomatic patient, 41 for patient with acute ischemia, 15 for patient with intermittent claudication, 2 for patient with blue toe syndrome, 2 for patient with signs of compression and one for ruptured aneurysm.
43% of the patients had bilateral popliteal artery aneurysms. Aneurysmal mean diameter was 28.4 mm (14 to 76 mm).
We used the medial approach of the popliteal artery for bypass grafting in 83 cases and the posterior approach for graft replacement in 16. The graft used was in 77 operations the saphenous vein, in 21 a prosthesis and in one a composite prosthesis-vein.
Primary graft patency was 79% and limb salvage 93% at 38 months.

Conclusions
Popliteal artery aneurysms are often bilateral and associated with abdominal aorta aneurysm.
Thromboembolic complications occur frequently with a significant risk of amputation.
Surgical treatment is indicated in asymptomatic patients when aneurysmal diameter is upper than 2 cm or even lower if there is thrombus at ultrasonography.
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INCIDENCE OF MRI DETECTED CEREBRAL ISCHEMIC LESIONS AFTER CAROTID STENTING - RESULT OF A PROSPECTIVE STUDY
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Objectives
To evaluate the incidence of symptomatic or asymptomatic new cerebral lesions detected by MRI after carotid stenting.

Methods
From December 2002 to January 2004 we performed 30 carotid stenting for the treatment of stenosis superior to 70%. Patients were offered carotid stenting because they were considered at high surgical risk, according to the SAPPHIRE Trial criteria. Prestenting assessment was a non-invasive cardiac evaluation, carotid duplex, a diffusion weighted brain MRI and a clinical neurological examination made by an independent neurologist. All procedures were performed with a protection device (EPI – Boston Medical – 19, Spider – eV3 – 11). We deployed a carotid wall stent in all cases. All patients were re-evaluated within 6 to 24 hours after the procedure by neurological examination and a diffusion weighted brain MRI.

Results
The success rate of the procedure was 100%. One patient, presenting marked tortuosititis of the arch and common carotid, presented a transient hemiparesis. Another one presented a transient quadranopsia. Post procedure MRI detected new lesions in 10 cases (33%) with 2 bilateral, 3 contra-lateral and 5 homo-lateral brain lesions.

Conclusion
MRI detected new cerebral lesions in a significant number of cases after carotid stenting with protection devices. However, the vast majority of these patients remained asymptotic, and the clinical role of MRI needs to be determined.

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CAROTID ENDARTERECTOMY UNDER LOCOREGIONAL ANAESTHESIA, OUR INITIAL EXPERIENCE
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Cerebrovascular disease is nowadays the third leading cause of death in the western society, atherosclerotic disease at the base of the carotid bifurcation accounts for 20 to 30% of all strokes. Large randomised trials have proven the benefit of carotid endarterectomy in case of symptomatic and significant stenosis, though there is still discussion about the optimal technique of peroperative cerebral monitoring and use of a arterial shunt.

During this presentation we display the technique and results of the initial 50 cases of carotid endarterectomy under loco-regional anaesthesia at our department. Between September 2000 and September 2003, 48 patients, 37 male and 11 female underwent a total of 50 endarterectomies. The average age at the time of operation was 70.31 years. Indications for surgery were symptomatic (> 50 % stenosis) carotid lesion in 33 cases (12 strokes, 18 tia, 3 amaurosis fugax), and asymptomatic (> 70% stenosis) lesion in the remaining 17 cases. Carotid lesions were diagnosed preoperatively by ultrasound in 48 and by MRI in two cases. All patients were operated in theatre under locoregional anaesthesia, three times conversion to general anaesthesia was required due to peroperative pain or discomfort of the patient.

In conclusion we can state that for our initial series of 50 cases, carotid endarterectomy under locoregional anaesthesia is a feasible procedure, with little cerebrovascular or cardiac complication. Furthermore, cerebral ischemia and need for shunt placement can easily be detected and the technique requires only short learning curve compared to endarterectomy under general anaesthesia.
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SPINAL CORD STIMULATION IN THE TREATMENT OF CRITICAL ISCHEMIA OF THE LOWER EXTREMITIES

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Critical chronic lower extremity ischemia presents a major risk for limb amputation when reconstruction is impossible. In selected cases Spinal Cord Stimulation (SCS) has shown to present a therapeutic option in an effort to treat rest pain and avoid a major amputation.

From April 2001 the Belgian Ministry of Health allowed the implantation of SCS devices under a strict study protocol of inclusion and implantation criteria and follow up judged by the Peer Review Committee on Spinal Cord Stimulation.

From April 2001 until September 2003, 20 patients were included, nine (45%) were male and eleven (55%) were female. Mean age was 65.3 years (range 42-82 years). Four patients (20%) were diabetic, nine (45%) had previous lumbar sympathectomy. Fontaine stage III disease was present in eight (40%) patients and Fontaine stage IV in 12 (60%). All presented nonreconstructable occlusive atherosclerotic disease. Mean follow-up was 8.4 months (range 6-24 months).

Before SCS treatment the patients required a mean of 2.2 (range 1-4) different analgetic drugs, after SCS treatment this dropped to a mean of 0.37 (range 0-2) (p<0.05). Ischemic rest pain intensity on visual analogue scale dropped from 7.24 (range 4-9) to 2.1 (range 0-9) (p<0.05). A major improvement in the quality of life was demonstrated in 18 (90%) patients.

One (5%) patient had a major amputation and two (10%) required a forefoot amputation. One (5%) patient died from unrelated cause.

In conclusion, after a mean follow up period of 8.4 months, patients with non-reconstructable critical lower extremity ischemia treated with SCS, showed a clinically significant relief of ischemic rest pain and diminution of analgetic drug consumption, together with a major improvement in the quality of life. The eventual benefit in avoiding a major amputation remains unproven.

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SLEEVE RESECTION OF PULMONARY ARTERY FOR CENTRAL LUNG CANCER

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Background
Pneumonectomy has a high mortality and long-term morbidity. Therefore bronchoplastic procedures are widely used and accepted in the treatment of patients with non-small cell lung cancer (NSCLC). Sleeve resection of the pulmonary artery (PA) combined with lung resection is a technically feasible alternative to pneumonectomy in patients with central lung cancer. However, concern about postoperative complications and long-term survival has limited its acceptance so far.

Methods
Between February 1992 and February 2003, we performed 74 sleeve resections of the bronchus and/or the PA for NSCLC. A sleeve resection of the PA was performed in 12 patients. In seven of them, a combined sleeve resection of the bronchus was performed (double sleeve). All patients were male, the age range was 50 to 77 years with a mean of 66 years In 10 patients, the tumour was located in the left upper lobe. All of them underwent a mediastinoscopy. Pathological node (N) staging showed pN0 in 5 patients, pN1 in 3 patients en pN2 in 4 patients. One patient was operated after induction chemotherapy. The mean follow-up was 18.5 months and is complete for all patients.

Results
One patient died postoperatively due to ARDS (operative mortality rate of 8.3%). Hospitalization ranged 7 to 28 days with a mean of 14.5 days. The incidence of complications was 33.3% (4/12). There were no bronchial fistulae or anastomotic dehiscences. After 3 years, survival was 47.1%. Two patients died due to distant metastasis, three patients developed local recurrence in the chest and/or mediastinum.

Conclusion
Sleeve resection of the pulmonary artery can be performed with acceptable morbidity and mortality. Overall survival and recurrence are comparable as obtained after pneumonectomy.
EFFECTS OF AORTIC COARCTATION ON CARDIAC PERFORMANCE AND MECHANICAL EFFICIENCY ARE NOT BAROREFLEX MEDIATED

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Background
This study aimed at evaluating left ventricular (LV) response to afterload augmentation. Furthermore, to assess baroreflex intervention, we compared the effects of afterload increase on the intact cardio-vascular system and under hexamethonium infusion.

Methods
Six open-chest pigs, instrumented for measurement of aortic pressure and flow, LV pressure and volume, were studied under pentobarbital-sufentanil anaesthesia. Vascular properties [characteristic impedance (R1), peripheral resistance (R2), compliance (C), arterial elastance (Ea)] were estimated with a windkessel model. LV function was assessed by the slope (Ees) of end-systolic pressure-volume relationship (ESPVR) and stroke work (SW). Ventriculo-arterial coupling was defined as Ees/Ea, and mechanical efficiency as SW/pressure-volume area (PVA). After baseline recordings, LV afterload was increased by means of an aortic coarctation. Haemodynamic measures were obtained after 30 minutes. The coarctation was then lifted, and after 30 minutes of rest, the autonomous nervous system was inhibited by continuous infusion of atropine and hexamethonium. The coarctation was reinstalled, and haemodynamic measurements repeated 30 minutes later. Results are presented as mean ± SEM.

Results
Aortic coarctation increased R1 (from 0.132 ± 0.010 to 0.352 ± 0.007 mmHg.sec/ml; p<0.001) and decreased C (from 0.57 ± 0.04 to 0.41 ± 0.05 ml/mmHg; p<0.005) independently of hexamethonium infusion, R2 and heart rate increased (from 1.50 ± 0.11 to 1.70 ± 0.06 mmHg.sec/ml and from 115 ± 5 to 125 ± 2 beats/min, respectively; p<0.05) only when the autonomous nervous system was intact. Independently of hexamethonium infusion, Ees increased from 2.81 ± 0.18 to 3.69 ± 0.20 mmHg/ml, while dead volume Vd decreased from −3.6 ± 0.2 to −6.8 ± 0.3 ml (p<0.01). Ees/Ea remained unchanged (0.84 ± 0.14 at baseline, 0.81 ± 0.11 with coarctation; NS) in both conditions. At matched end-diastolic volumes and independently of baroreflex integrity, SW and PVA increased (from 2012 ± 168 to 2912 ± 114 mmHg.ml and from 2874 ± 352 to 4520 ± 224 mmHg.ml, respectively; p<0.005) and SW/PVA decreased (from 0.70 ± 0.12 to 0.64 ± 0.10; p<0.05).

Conclusions
Our results demonstrate that an augmentation in afterload has a composite effect on LV function. Ventricular performance is increased, as demonstrated by ESPVR leftward shift, increased Ees and SW, but the efficiency of the energetic transfer from PVA to external mechanical work is reduced. These changes, observed independently of baroreflex integrity, are of paramount importance in heart transplant patients, which although lacking cardiac innervation, can adapt their cardiac output, stroke volume, end-systolic and end-diastolic pressures without simultaneous changes in heart rate.
Objective
Thoracic aorta surgery sometimes requires circulatory arrest for open reconstruction of the aortic arch. Therefore, deep hypothermia (< 20°C) is generally induced for ischemia management. With selective carotid perfusion, a tepid arrest can be warranted still enabling open aortic arch surgery. In this case, what are the operating conditions tolerated by the body?

Materials and Methods
From 1992 to 2003, ninety-four patients underwent thoracic aorta surgery in our department. Among them, and consecutively, 20 were operated on with circulatory arrest, selective carotid perfusion and moderate rectal hypothermia at 30°C for open arch surgery. In 9 out of 20 cases, surgery was urgent for type A dissection whereas in 11 cases, elective surgery was performed for aneurysms. A retrospective study was carried out including a specific analysis of postoperative blood markers (SGOT, SGPT, Amylase, Lipase, BUN, Creatinin) and an analysis of clinical evolution according to the duration of circulatory arrest.

Results
The mean duration of circulatory arrest was 37 ± 15 min. at 30 ± 4.7°C mean rectal temperature with a mean CPB time of 192 ± 40 min. The mean blood values at ICU admission, at 24 hours and at 72 hours were respectively noted: SGOT: 85, 188, 177 MU/ml; SGPT: 42, 92, 99 MU/ml; Amylase: 58, 97, 143 MU/ml; Lipase: 38, 41, 31 MU/ml; BUN: 42, 62, 68 mg%; Creatinin: 1.1, 1.4, 1.3 mg%. Hospital mortality was 4 patients, but none died directly from surgical technique related problems: HF at POD 1 with previous CHD; PA rupture caused by Swan Ganz catheter at POD 3; Lethal subsequent distal aortic dissection type B at POD 21 and uncontrolled pulmonary infection at POD 66. Among the 16 survivors, 5 had non lethal major complications with an ICU stay 3 times longer as well as higher blood marker values: SGOT: 243, 574, 98 MU/ml; SGPT: 102, 302, 98 MU/ml; Amylase: 48, 110, 82 MU/ml; Lipase: 27, 36, 33 MU/ml; BUN: 42, 95, 110 mg%; Creatinin: 1.1, 2, 1.6 mg%. Each of these five patients had a circulatory arrest exceeding 50 min. In the entire series, no carotid perfusion related problem was noted.

Conclusions
This technique is suitable for extensive aortic arch reconstruction. It decreases bleeding, inflammatory and vasoactive risks usually associated with deep hypothermia. From our short experience, a bilateral carotid perfusion with moderate hypothermia allows up to 50 min circulatory arrest without impairment of cerebral, medullar or splanchnic functions. However larger series are necessary to confirm these results. This technique remains our team’s preferred method for aortic arch surgery.
SENTINEL LYMPH NODE BIOPSY IN HEAD AND NECK CANCER: PRELIMINARY RESULTS  
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Introduction
Sentinel lymph node (SLN) biopsy is a new technique in staging the clinically N0 neck. Tumour spread to the neck is the most important prognostic factor in head and neck squamous cell carcinoma (HNSCC).

Patients and Methods
Patients with histologically confirmed HNSCC with no clinical and no radiological (CT or MRI) evidence of cervical lymph node involvement were eligible for this prospective study. The lymph node mapping was performed by preoperative lymphoscintigraphy and intraoperative use of hand-held gamma probe. Four injections (with nanocolloid isotope) were administered around the circumference of the primary tumour. The SLN and the neck dissection specimen were sent separately for histologic analysis. The search and the presence of occult metastasis in the SLN and in the neck dissection specimen were compared.

Results
Eight consecutive patients (7 males, 1 female) with a mean age of 61 years (range 47 to 74 years) were prospectively entered into the study. The primary tumour was located on the oral tongue in 4 cases, in the floor of the mouth in 4 cases. Seven primary tumours were staged T2, one tumour T1 according to UICC 1997. All tumours were clinically staged cN0 by palpation and computed tomography (or MRI). Lymphoscintigraphy was performed and revealed a SLN in all cases. The sentinel node biopsy technique permitted an upstaging of the clinically N0 neck in 4/8 cases.

Conclusion
SLN evaluation in HNSCC is feasible and provides a highly accurate staging of N0 necks in oral and oropharyngeal carcinoma.

INITIAL STAGING OF MALIGNANT MELANOMA BY POSITRON EMISSION TOMOGRAPHY AND SENTINEL NODE BIOPSY  
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The presence of distant metastasis has an important impact on the prognosis of the patient. It is therefore of considerable value to know whether lymph node involvement is present. Sentinel node biopsy has proven to be an important prognostic factor. However, to avoid this invasive technique, F-18-fluorodeoxyglucose (FDG) positron emission tomography (PET) has been proposed for detecting early metastasis.

Methods
Every patient presenting with a malignant melanoma without clinical lymph node involvement and a Breslow index over 0.7mm or a recurrence was subjected to both a preoperative PET scan and a sentinel node biopsy.

Patients
In 10 months time 5 patients were included.

Results
In all patients the PET scan showed no signs of lymph node involvement or distant metastasis. Two patients however, both with a Breslow index of 1.4, had micrometastasis in the sentinel node. In the consecutive lymphadenectomy they had one and two residual involved lymph nodes.

Conclusion
Already in this small group of patients, PET scanning missed two metastasis (40%). This is confirmed by several recent publications stating that the resolution of positron emission tomography is about 5mm and thus insufficient to detect micrometastasis. Several larger series showed a sensitivity of PET to detect lymph node involvement of 15-50%. Therefore we conclude that PET is of limited use in these patients without palpable lymph nodes. Sentinel node biopsy however is a useful tool and should be considered in the initial staging of malignant melanoma without palpable lymph node or distant metastasis.
RETROSPECTIVE ANALYSIS OF 110 SENTINELS LYMPHATIC NODES IN BREAST CANCER
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Background
Sentinel lymph node biopsy may provide accurate staging of lymph node status in breast cancer with less morbidity than radical axillary clearance. The aim of this study was to evaluate the technical feasibility of sentinel node biopsy and to compare the results with the axillary clearance for discuss the predictivity of axillary node status of the sentinel lymph node biopsy.

Patients and Methods
Between January 2000 and December 2003, 110 patients with invasive breast carcinomas from T1 to T4 underwent lymphatic mapping and sentinel node biopsy followed by axillary clearance (Berg’s level I to II).

Results
Sentinel node mapping was successful in 92.7% we obtained the sentinel node by elective biopsy and analysed them in all the cases. The overall false-negative rate of sentinel node biopsy was 12.7% for all patients and 8.8% for the T1 tumours. Sentinel lymph node was involved in 29.4% of T1 cases. The overall internal mammary sentinel node rate was 36.4% and metastases nodes were found in 7.2% for all patients.

Conclusion
This study confirms the feasibility and reproducibility of lymphatic mapping and sentinel node biopsy. The false-negative rate above all for the T1 patients remains high. We observed a significant high rate of involved internal mammary lymph nodes also for external breast carcinoma. We need further more précised criteria’s for tumour staging before considering the sentinel node biopsy for breast cancer as the standard of care as related to the false-negative rate and the frequent metastases internal mammary lymph node chain.

COSMETIC OUTCOME OF BREAST CONSERVING THERAPY IS SUPERIOR AFTER SENTINEL NODE BIOPSY COMPARED TO AXILLARY LYMPH NODE DISSECTION
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Introduction
Next to locoregional control, good cosmetic outcome is one of the main goals of breast conserving treatment (BCT) for breast cancer. Factors affecting cosmetic outcome include tumor location, tumor size, specimen volume, infectious complications and radiotherapy. For the majority of the patients, the sentinel node (SN) procedure will avoid lymphedema in the breast, as in the arm. Despite radiotherapy, this might influence positively cosmetic outcome. The aim of this study was to evaluate the cosmetic outcome of BCT after SN procedure compared to ALND.

Material and Methods
Patients in follow-up for breast cancer were asked to take part in this study. Of a group of 15 patients who underwent an ALND and a group of 21 patients after SN procedure standardized photographs were taken after a minimal follow-up of 42 months. Identical photographs were taken of a control group of 15 healthy women. To compare cosmetic outcome between these groups the breast retraction assessment (BRA) value was calculated. Earlier investigations confirmed the breast retraction assessment as a valid tool for this purpose. To correct for the influence of magnification of photographs the percentage BRA (pBRA=BRA / reference length X 100) was used for comparison in statistical analyses.

Results
The cosmetic outcome represented by the BRA is worse in the ALND group compared to the SN group. The median pBRA in the ALND group and SN group are respectively 13.8 and 7.1 and are significantly different (p=0.005). The pBRA of the SN group is comparable to the pBRA of the control group (6.1; p = 0.229).

Multivariate regression analysis retained the treatment of the axilla as the only significant (p = 0.008) prognostic factor for the cosmetic outcome represented by the pBRA.
Conclusion
Cosmetic outcome after SN procedure only, appears to be superior compared to outcome after ALND. As cosmetic outcome is an important endpoint of BCT, another important advantage is added to the sentinel node procedure. This can be an additional reason to implement sentinel node procedure in routine daily practice.

Fig. BRA calculation

\[ \text{BRA} = \sqrt{(a_1-b_1)^2 + (a_2-b_2)^2} \]
\[ \text{Reference length (Ref.)} = \sqrt{b_1^2 + b_2^2} \]
\[ \%\text{BRA} = (\text{BRA}/\text{Reference length}) \times 100 \]

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EXTENSIVE CYTOREDUCTION FOLLOWED BY HYPERTHERMIC INTRAPERITONEAL CHEMOPERFUSION IN THE MANAGEMENT OF PERITONEAL CARCINO MATOSIS WITHOUT DISTANT SPREAD

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Introduction
Peritoneal carcinomatosis carries a dismal prognosis. Recently, extensive surgery followed by hyperthermic intraperitoneal chemoperfusion (HIPEC) has been proposed in the management of these patients. We reviewed our experience with this treatment modality.

Patients and Methods
Eligible patients suffered from peritoneal carcinomatosis without evidence of systemic disease. Following extensive cytoreduction, HIPEC was performed with a closed technique at 42-43° Celsius using mitomycine C, cisplatinum, mitoxantrone, or paclitaxel administered with a closed perfusion circuit during 90 minutes. All patients were followed closely and survival data are updated until 12/2003. Data are expressed as median (95% confidence interval).

Results
From 1/99 until 12/03, 55 patients were treated. Median age was 56y (54-59); 56% were male. Primary pathology was as follows: colon carcinoma (42%), ovarian cancer (20%), stomach cancer (11%), peritoneal mesothelioma (9%), pseudomyxoma peritonei (9%) and miscellaneous (9%). Median operating time (including perfusion) was 540 min (443-556). Postoperative 30 day mortality was 2/55 (3,6%). Major complications occurred in 10 patients (18%): anastomotic leak (n=5), abdominal abscess (n=4), and pulmonary embolism (n=1). Frequent minor side effects were prolonged ileus (18%) and transient rise of hepatic enzyme chemistry (most patients). Median hospital stay was 20 days (21-30) while median ICU stay was 2 days (1,6-3). With a median follow-up of 31 months (25,4-35,5), five year actuarial overall survival is 28%. Survival was significantly worse in stomach cancer patients and in patients with residual disease implants exceeding 5 mm in diameter.

Conclusion
In patients with peritoneal carcinomatosis, cytoreductive surgery followed by HIPEC can be performed with acceptable morbidity and mortality. Long-term survival can be achieved depending on the completeness of cytoreduction and the type of disease.