Reflux surgery

Basics

Reflux surgery describes the surgical therapy of gastroesophageal reflux disease (GERD). GERD results from the eating behavior (too much, too often, too sweet) and affects 20%-30% of the population. Due to the symptoms (heartburn, acid regurgitation, wheezing, asthma) GERD impairs the life quality. Over-eating induced gastric distentions stretch and weaken the antireflux mechanism (lower esophageal sphincter) within the lower end of the esophagus (gullet). As a consequence reflux and heartburn occur. Along its course from the neck to the stomach the esophagus passes through a little hole within the diaphragm. During GERD the dilated distal esophagus enlarges the diameter of the hole: the hiatal hernia develops.

In 20% to 30% of those with GERD, the reflux induced inflammation causes the development of Barrett’s esophagus: this is an abnormal tissue with an increased cancer risk (0.5% - 0.7% per year). Therefore the removal of Barrett’s esophagus is recommended in the presence of an increased cancer risk profile (GERD for more than 10 years, positive family history for cancer, hiatal hernia > 3.0 cm, inflammation of the esophagus), using radiofrequency ablation (HALO®).

If modification of the eating behavior and medical treatment fail to adequately resolve GERD, reflux surgery should be considered.

Indications for reflux surgery

Reflux surgery should be considered,

- if medical therapy (PPI) and life style measures (eating behavior) fail to adequately eliminate GERD symptoms;
- if there exists an at least partial response to medical therapy;
- if medical therapy causes symptoms (gas bloating, diarrhea, epigastric pain);
- if endoscopy excluded esophageal cancer;
- if esophageal manometry and reflux monitoring demonstrated abnormal reflux and acid exposure as the cause for the symptoms;
- if there exist no contra-indications against antireflux surgery.

Preparation and management

Reflux surgery is conducted as an inpatient procedure. The patient is admitted either the day before the operation or in the morning of the day of the reflux surgery. For admission the patient should bring the reports of the laboratory tests (blood clotting time, blood cell count, allergy pass, blood group, rhesus), endoscopy, manometry, reflux monitoring and internal medicine (absence of heart and lung disease).

Principle of reflux surgery

Reflux surgery is conducted under general anesthesia as a laparoscopic procedure. Via 5 small skin incisions (0.5 - 1.0 cm) the ports are inserted into the upper part of the belly for the introduction of the video camera and the instruments. Insufflation of air serves to elevate the abdominal wall to create the working space. Reflux surgery restores the competency of the lower esophageal sphincter either by
enwrapping the lower end of the esophagus with a part of the stomach (fundus; fundoplication) or a magnetic sphincter (LINX System). During reflux surgery the hole within the diaphragm is reduced without impairing the swallowing function of the esophagus. Effective reflux surgery eliminates reflux and symptoms (heartburn, acid regurgitation). The skin stitches are removed 10 days after the reflux surgery.

**Fundoplication**

During fundoplication the upper portion of the stomach (the fundus) is mobilized and pulled around the lower end of the esophagus (gullet). Thus it creates a competent reflux mechanism. There are 2 types of fundoplications applied for the treatment of GERD. During Nissen fundoplication the entire circumference of the esophagus is included into the fundic wrap. During Toupet fundoplication the fundic wrap only includes the dorsal (rear) 270° of the circumference of the esophagus (gullet). Both types of reflux surgery are equally effective to eliminate reflux and GERD symptoms. During the first 1-2 months after reflux surgery, gas bloat and diarrhea are more frequently observed after Nissen fundoplication, when compared to the Toupet operation. Prognosis after fundoplication: resolution of GERD in 80% after 5-10 years.

**Magnetic sphincter (LINX® System)**

During the magnetic sphincter reflux operation a ring consisting of magnetized titan pellets is placed around the lower end of the esophagus (gullet). A consequence the function of the lower esophageal sphincter is restored and GERD symptoms eliminated. Prognosis with the LINX system reflux surgery: resolution of GERD in > 80% after 4-5 years.

Contraindications: nickel allergy; requirement for an MRT (magnetic resonance tomography) for assessment of diseases of the joints and the spine.

**Reflux surgery: magnetic ring vs. fundoplication**

The magnetic sphincter operation is recommended for the treatment of GERD and a concomitant small hiatal hernia (For the treatment of a large hiatal hernia (> 3.0 cm) fundoplication is recommended. Implantation of a prosthetic mesh is recommended in the presence of a very large hiatal hernia (> 7.0 cm). During reduction of the size of the hiatal hernia care is to be taken not to impair the swallowing function of the esophagus.

**Complications of reflux surgery**

When performed in centers with adequate experience, fundoplication is save (2.5% intra-operative complications such as bleeding, injury to the esophagus, spleen, intestine). In 10% of the cases re-operation may be necessary due to slipping or break down of the fundoplication.

No slipping has so far been reported after more than 300 magnetic sphincter operations world wide (LINX System). Three had to be removed due to epigastric pain and requirement for an MRT test. Post-operative pain is managed by the administration of adequate medical therapy.

**Activities after reflux surgery**

One day after antireflux surgery the patients may walk and lift weights

**Literature**

