INSUPPORTABLE COST OF MEDICAL TREATMENT

Some patients can keep their symptoms well controlled by medicine, or careful avoidance of challenging the antireflux mechanism, but find that it is incompatible with a satisfactory normal life—usually this means they cannot do their job satisfactorily, eg, market gardening. If they relapse soon after reducing treatment, they require surgery.

TROUBLESOME CONCOMITANT DISEASE

If a peptic ulcer or gallstone requires surgery, and the patient also has reflux, it is sensible to deal with both simultaneously.

COMPLICATIONS

These are stricture or significant bleeding uncontrolled by medical means. The presence of a hiatal hernia alone is in no circumstances an indication for surgery.

Section 6  Surgical treatment

BRUCE TORRANCE

Surgeon, Department of Gastroenterology, Manchester Royal Infirmary

Indications for Surgery

Over the years, surgeons interested in the treatment of hiatal hernia have become more selective in their recommendations to operate and in the majority of patients the usual conservative measures are invoked. In particular, the patient is invited, if obese, to lose at least 1 stone in weight, and if successful this measure does seem to relieve symptoms in many patients. If the patient is still disabled by reflux symptoms after a reasonable trial of medical treatment then we operate.

I, too, have been impressed with the poor correlation between the degree of endoscopic 'oesophagitis', the histological changes in the oesophagus, and the severity of symptoms, but patients who complain of a scalding retrosternal pain on drinking hot fluids do tend to have quite severe endoscopic 'oesophagitis'. Endoscopic assessment of the degree of 'oesophagitis' was difficult and inaccurate with the primitive instruments of the past but the fiberoptic flexible oesophagoscope makes it much easier to examine the lower oesophagus in detail and to assess the degree of 'inflammation' present.

A barium swallow will only demonstrate oesophagitis if this is particularly severe, and all I personally expect from my radiological colleagues is the demonstration of the presence of the hiatal hernia, stating whether this is reducible or fixed, and giving some idea of the freedom of reflux of gastric contents into the oesophagus. Broadly speaking, clinical assessment takes pride of place over both radiological examination and oesophagoscopy but all three investigations are important in deciding at what stage severe and potentially irreversible changes are occurring, so that by earlier surgical intervention the onset of an irreversible stricture may be prevented. Patients with progressive dysphagia should be operated upon without delay.

Not uncommonly a gastric ulcer develops in the herniated stomach and sits astride the posterior limb of the oesophageal hiatus. Occult or torrential bleeding tends to occur from these ulcers and they should always be treated surgically at an early stage. The majority of ulcers will heal spontaneously after a simple repair of the hernia but, if the repair is through the abdominal approach, it is reasonable to add a vagotomy and pyloroplasty, following a four quadrant biopsy. When the herniation is paraoesophageal and the symptoms are minimal, the decision to recommend surgical treatment may be difficult. In younger patients with a large hernia and minimal risk of surgery a prophylactic operation seems reasonable. About 25% of patients with hiatal hernia whom I see have some associated upper abdominal pathology, usually gallstones or duodenal ulceration. Since these conditions may influence the clinical symptoms a careful assessment of their contribution must be made before deciding to repair the hernia. In addition the associated abdominal pathology may well influence the approach to the repair.
Surgical Treatment of Hiatal Hernia

Experience with a large number of patients has led to the firm conclusion that the antireflux mechanism will be restored to full functional activity if the lower end of the oesophagus is returned to the abdominal cavity and firmly anchored there. All our efforts must be directed to attain this goal, although it is not always possible to achieve it either because of oesophageal shortening associated with severe oesophagitis, or because of poor muscular tissue in the vicinity of the oesophageal hiatus. An adequate repair can be performed by the thoracic or the abdominal approach.

**Thoracic Approach**
If I am confronted with a large irreducible hiatal hernia with evidence of severe oesophagitis, implying that there may be also a severe degree of peri-oesophagitis, then I use a thoracic approach. The oesophagus is mobilized up to the level of the hilum of the left lung and it may be necessary to divide the vagus nerves to allow the oesophagus to be returned to the abdominal cavity. The limbs of the oesophageal hiatus are then clearly defined by blunt and sharp dissection and approximated, using a series of interrupted non-absorbable sutures, until the limbs gently embrace the oesophagus. The central tendon of the diaphragm is then divided and a rubber sling passed around the oesophagus and delivered through the hiatus and out through the hole in the tendon. Gentle traction on this sling reduces the oesophagus into the abdominal cavity, where it is retained by the technique described by Baue and Belsey (1967) (fig. 11). This consists of inserting a series of mattress sutures, of a non-absorbable material, from above the diaphragm through the oesophagus and returning through the diaphragm. This procedure is continued along the oesophagus and the fundus of the stomach. After tying the sutures, gentle traction on the oesophagus should not produce any evidence of movement at the cardia which should be firmly retained within the abdominal cavity. The central tendon is then closed with a continuous non-absorbable suture.

**Abdominal Approach**
If the hernia is small and reducible and the degree of oesophagitis does not appear to be severe, an adequate repair of the hernia can be achieved by the abdominal approach. This approach is particularly valuable in those 25% of patients with associated cholelithiasis or peptic ulceration, where a cholecystectomy or a vagotomy and pyloroplasty can be easily carried out at the same time. Through a mid-line upper abdominal incision the peritoneum over the anterior aspect of the hiatus is divided and by blunt finger dissection the hernia and lower end of the oesophagus are fully mobilized. It is often convenient to divide the coeliac branch of the vagus, which runs across the field of vision. A rubber sling is then passed around the lower end of the oesopha-

---

Fig. 11 Thoracic repair. The oesophagus has been mobilized.

a  A rubber sling draws the oesophagus into the abdomen through a hole made in the central tendon. The hiatus is repaired.

b  The oesophagus is sewn to the underside of the diaphragm.

c  The fundus is rolled across and stitched to the front of the oesophagus.
gus which is retracted towards the left, and by surrounding the oesophagus with a Kocher’s thyroid retractor the assistant can displace the oesophagus towards the left (fig. 12). The limbs of the oesophageal hiatus are then cleared of fat and their margins defined. When this is achieved, the limbs are sutured together using non-absorbable sutures continued from below upwards until the oesophagus is snugly surrounded by muscular tissue. The ends of the sutures are left long with the needles attached and they are used to attach the lower one to two inches of the oesophagus to the lower surface of the diaphragm and sometimes to roll the fundus of the stomach across the front of the oesophagus and the diaphragm. On conclusion of this procedure, quite forceful manipulation should not allow any movement to occur at the level of the hiatus.

**RESULTS**

Operations for hiatus hernia in the pre-stricture phase carry a very low mortality which is mainly from pulmonary embolism and other pulmonary complications.

There have been a number of reports on the relatively poor results of surgical treatment but, in contrast, we have been most impressed with the long-term beneficial effects of these operations. Some 15 years ago, I had an opportunity of independently assessing a large series operated on by Mr Andrew Logan in Edinburgh and a careful follow up at three to five years after operation showed that over 90% of patients were relieved of their symptoms of reflux. The follow up of my own cases has shown similar results.

I want to stress that the results are very closely related to the surgical technique applied, and there seems little doubt that many of the poor results are due to a lack of understanding of the basic pathophysiology of the condition and to an inadequate surgical technique. The most important aspect of the surgical repair lies in successful and permanent fixation of the lower oesophagus and its intrinsic sphincter, so that it can withstand the constant pull of its longitudinal musculature and the pressure gradients between the abdominal and thoracic cavities. A variety of operative techniques have been employed, including repair of the phreno-oesophageal ligament as originally described by Allison (1951); the technique already described in this paper by Baue and Belsey (1967); the attachment of the cardia to the pre-aortic fascia as recommended by Hill (1967); and the fixing of the stomach to the anterior abdominal wall as described by Nissen (1961) and by Boerema (1958). Nissen’s (1961) technique of fundoplication is popular in some centres, and the anterior closure of the hiatus as recommended by Collis (1968) also appears to provide a satisfactory repair, although the operation itself is more extensive than other alternative operations. Mustard (1970), in an extensive review of the surgical treatment of hiatus hernia, concluded that Belsey’s operation provides a very high success rate, and this view has been confirmed by Urschel and Paulson (1967) who reported a 96% success rate. This operation is easy to perform and the technique
can be standardized. I regard it as the most appropriate operation for the uncomplicated hiatal hernia whether it be performed by the thoracic or abdominal approach.

The Management of True and Pseudo-strictures

During the past 10 years two types of oesophageal stricture, requiring different therapeutic approaches, have become recognized: true fibrous strictures and what may be termed pseudo-strictures. The radiological differentiation between these lesions is not easy and requires special skills, but at oesophagoscopy the pseudo-stricture dilates fairly readily with a bougie, whereas the true fibrous stricture does not. This distinction requires considerable oesophagogastroscope experience, but it is vital for the further management of the patient. In the true fibrous stricture there is deep circumferential ulceration and fibrosis with irreparable damage to the whole thickness of the oesophagus, and nothing short of resection of this lesion with an oesophagogastric anastomosis will relieve the dysphagia. The only alternative to this procedure is the oesophagogastrectomy fundoplasty technique described by Collis (1968). Sometimes it is difficult to differentiate between a benign and a malignant stricture and even biopsy does not necessarily provide the answer. However, the tightness of the stricture on passing a bougie will detect the necessity for an oesophagostomy, so that in practice the appropriate line of treatment will be carried out.

The pseudo-stricture, on the other hand, is not fibrous but is due to a combination of oedematous inflammatory reaction and muscle spasm and recovery will take place if hydrogen ions can be excluded from this segment of the oesophagus. Sometimes this can be achieved by a careful repair of the hiatal hernia associated with forceful dilatation of the oesophagus, either by bougies passed from above or by a finger inserted through the fundus of the stomach. If the oesophagus is too short to permit an adequate repair, a good alternative is a gastrectomy with a Roux-en-y anastomosis and a vagotomy, again digitally dilating the pseudo-stricture from below. I think this operation is particularly valuable in the elderly patient with a pseudo-stricture. I want to emphasize the importance of the Roux-en-y anastomosis, because a Polyga gastrectomy allows bile to regurgitate into the oesophagus, and bile is at least as destructive as acid to the oesophageal mucosa.

For historic reasons, surgical treatment of hiatal hernia has largely been in the hands of the thoracic surgeon, but at the present time it is difficult to support the view that this should continue. The modern-day thoracic surgeon is orientated strongly towards cardiovascular surgery and has little or no training in the field of gastroenterology. A certain flexibility in surgical approach is necessary, and I think this condition should become the province of surgeons accustomed to dealing with other aspects of peptic ulceration. I think that the routine type of hiatal hernia could well be dealt with at district general hospital level. On the other hand, oesophageal strictures do pose some finer problems in management and the patient would be better served by referral to a centre with a special interest in gastrointestinal surgery.

References


Symposium on gastrooesophageal reflux and its complications


