Antireflux Procedure After Previous Esophagogastrectomy

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THE INCIDENCE of intractable reflux esophagitis after esophagogastrectomy has been variably reported to range from 20% to 50%.[1] A Nissen wrap as described by Bombeck et al[2] has been recommended to treat this condition, but the classical Nissen valvuloplasty is not feasible when there is insufficient stomach tissue for the traditional wrap. This problem can be overcome by using an intussusception type of wrap. Sufficient laxity of the stomach is usually present in the longitudinal axis for this type of repair.

CASE REPORT AND METHOD

A 68-year-old white man with a ten-year history of a sliding hiatal hernia (diagnosed by upper GI series) and reflux esophagitis was lost to follow-up after diagnosis. He was next seen six months after an esophagogastrectomy, done elsewhere, through a left thoracotomy incision for squamous cell carcinoma of the middle third of the esophagus. The patient had done poorly after operation, with weight loss of 40 lb, persistent esophageal reflux, and early satiety after meals. Antacids and anticholinergic agents had failed to provide relief. A barium swallow revealed a patent esophagogastric anastomosis with no recurrence of tumor (Fig 1). Esophagogastroduodenoscopy revealed grade 3 esophagitis; multiple biopsy specimens showed chronic inflammation with ulcerations, but no malignant foci. Attempts at further intensive medical management of the esophagitis under close outpatient care again failed, and the patient had an additional 30 lb weight loss in this interim. The patient was hospitalized for a Nissen repair.

At operation, the stomach and esophagus were mobilized through a right posterolateral thoracotomy for fundoplication. The proximal part of the stomach remnant was found to be tubular and narrow and only slightly larger than the esophagus. Fibrosis from previous surgery and fear of compromising the vascular pedicle of the stomach remnant limited the extent of mobilization. Despite tedious dissection, there was not enough stomach tissue to perform the traditional wrap in the sagittal plane (Fig 2). However, there was sufficient laxity of stomach tissue in the longitudinal plane to allow a modified "inkwell" type of procedure. Three successive layers of interruped 3-0 Prolene suture were circumferentially placed,

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FIGURE 1. Preoperative barium swallow shows esophagogastric anastomosis with stomach remnant only slightly larger than esophageal lumen.

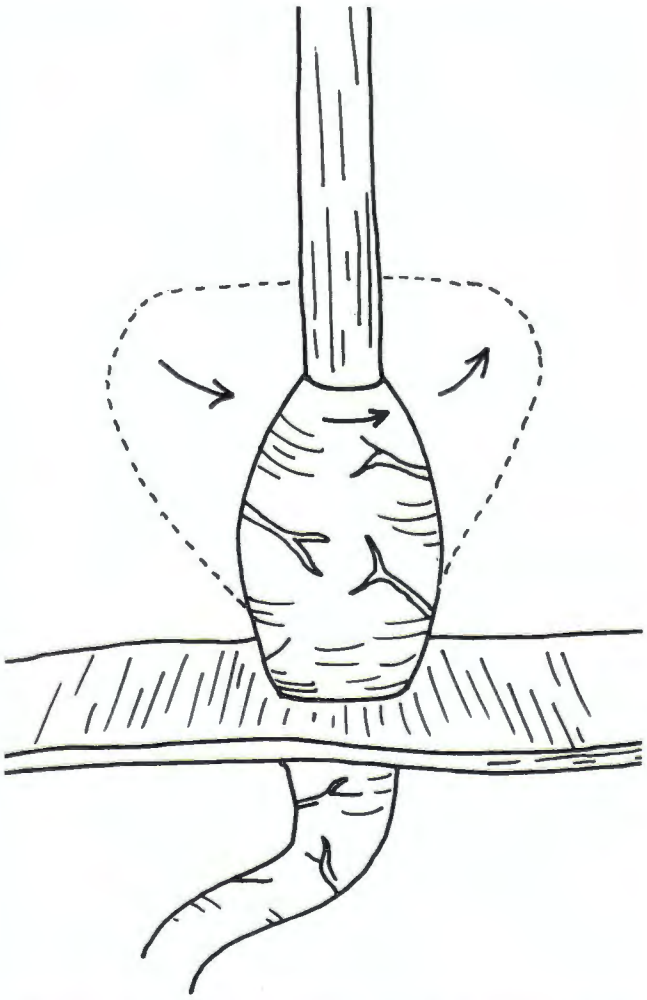

FIGURE 2. Traditional Nissen fundoplication requires fair amount of stomach tissue, which was absent in this instance.

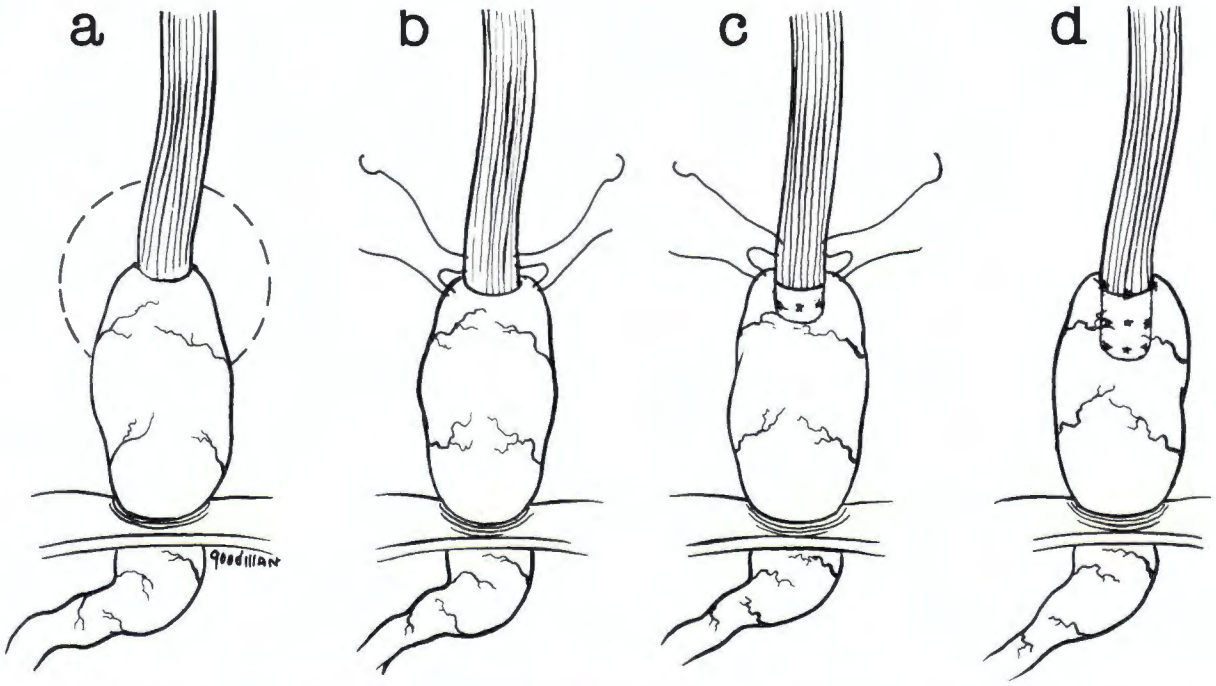

FIGURE 3. Steps in performing modified inkwell-type antireflux procedure. Three layers of successive inverting sutures are placed to produce intussusception of esophagus into stomach remnant for length of approximately 5 cm.

rolling the stomach onto the adjacent esophagus and creating an esophagogastric intussusception. When the first row of sutures was tied, the net effect was an invagination of the esophagus into the gastric remnant, producing an acute angle of entry (Fig 3). Each successive row of suture burying the previous suture line created an intussusception approximately 5 cm long. All sutures were placed with a 40 F bougie in situ to prevent narrowing at the site of repair. There were no immediate signs of vascular embarrassment of the stomach remnant. There was no evidence of tumor recurrence, and biopsy of regional nodes revealed no evidence of metastasis.

Postoperatively the patient did well, and a barium swallow on the eighth postoperative day revealed no reflux or anastomotic leakage. The patient was discharged in the third postoperative week, tolerating six unrestricted divided meals per day without complaints of reflux or early satiety.

At five-month follow-up, esophagogastroscopy with multiple biopsies showed normal mucosa, without tumor recurrence. A barium swallow done at that time revealed no reflux, with an intact inkwell appearance (Fig 4). At his last clinic visit, the patient had gained 45 lb and is seen regularly as an outpatient.

FIGURE 4. Eight months after antireflux procedure, limited intussusception is clearly visible on barium swallow.

COMMENT

The technique used in this case is a modification of the inkwell procedure originally described by Ottosen et al,[3] who used only one row of invaginating sutures and performed it as a primary reconstructive procedure at the time of esophagogastrectomy. The reported results have varied from good[4] to poor.[1] Poor results with recurrent reflux were possibly related to breakdown of the wrap caused by tearing out of the single row of sutures from the friable esophageal muscle. In our modification, the three rows of invaginating sutures lessen the likelihood of such breakdown and create a deep inkwell. We used the procedure many months after esophagogastrectomy, under conditions in which few of the traditional antireflux procedures were available for technical reasons mentioned. The modified inkwell procedure was possibly the only one we could have used, and the results were gratifying.

SUMMARY

We have described a modified "inkwell" antireflux procedure that was particularly useful after esophagogastrectomy in a patient who lacked sufficient stomach tissue for the traditional wrap.

References

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