A New Type of Sliding Hiatus Hernia

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A series of patients showing a previously unrecognized type of sliding hiatus hernia is presented and analyzed. This type of hernia is characterized by reflux of the mucous membrane of the Hiss angle into the lumen of the esophagus. The occurrence of mucosal prolapse is a secondary phase of gastroesophageal reflux. The mucous plug prevents further reflux of the acid contents of the stomach into the esophagus and mouth. After the appearance of mucosal prolapse, the symptoms and signs of esophagitis disappear. The most characteristic complaint of the patients is retrosternal pain on lying and bending down. Endoscopy with provocative tests reveals the mucosal prolapse. Tooth erosions due to previous acid reflux into the mouth are diagnostic. The symptoms of this new subtype of sliding hiatus hernia were cured by the Nissen fundoplication.

IN MOST CASES of sliding hiatus hernia, a detailed symptomatology, roentgenograms, and endoscopy give reliable indications for operative treatment. For this study, over 200 patients showing symptoms of gastroesophageal reflux were evaluated using manometry and 18-hour pH monitoring. Six atypical patients showing mucosal prolapse above the lower esophageal sphincter (LES) are described.

Patients and Methods

The patients, five men and a woman aged 37 to 63 years, had a history of gastroesophageal reflux for 5 to 20 years. Four of these patients previously had long-lasting and severe regurgitation, and their teeth showed erosions due to the reflux into the mouth (Fig. 1). At the time of admission, regurgitation as a major symptom had subsided, but all patients experienced intensive retrosternal pain in connection with heavy exercise, bowing, or lying down.

Endoscopy was performed with an Olympus GIF Q gastroscope before operation and 6 months after surgery. The length of the mucosal prolapse was measured by endoscope in centimeters from the incisors. In addition, manometry and esophageal pH monitoring were performed before and after surgery. Manometry for the lower esophageal sphincter (LES) profile was performed by the continuous withdrawal method described by Waldeck et al.[1] A sealed polyvinyl catheter with four evenly located side holes on both sides was withdrawn from the fundus to the esophagus applying continuous perfusion. Thus, the length and the pressure of the LES was measured. Manometry was repeated five times at a constant speed and the mean LES profile was recorded. An esophageal pH study was performed by continuous 18-hour pH recording. The pH electrode (Beckman®) was placed 5 cm above the LES and was attached to a pen recorder. Gastroesophageal reflux was defined as a fall in intraesophageal pH below 4.0. The number and duration of reflux episodes were registered.

Results

In all cases, gastroscopy revealed a hiatus hernia varying in length from 3 to 6 cm. However, no esophagitis was observed on endoscopy, but a prolapse of gastric mucosa of 2 to 6 cm above the LES occurred in every case either spontaneously or when the intra-abdominal pressure was increased (Figs. 2 and 3).

The preoperative length of the LES was from 11 to 19 mm (mean 14.5), and the pressure was 6 to 14 mmHg (mean 10.0). Atypical changes in the LES profile during manometry were recorded when the mucosal prolapse protruded into the lumen of the esophagus. In three cases, pH monitoring was negative. One patient had a reflux lasting for 5 minutes and two patients had four and six reflux episodes, respectively, but the total duration was less than 10 minutes.

All patients were operated on using the Nissen fundoplication technique through the abdominal route. A standard 10-mm esophageal tube was kept in the esophagus during the operation to prevent too tight a fundoplication. The lowermost fundoplication stitch was anchored into the cardia. In two cases, four additional stitches were used to bring the right and left diaphragmatic crura closer together.

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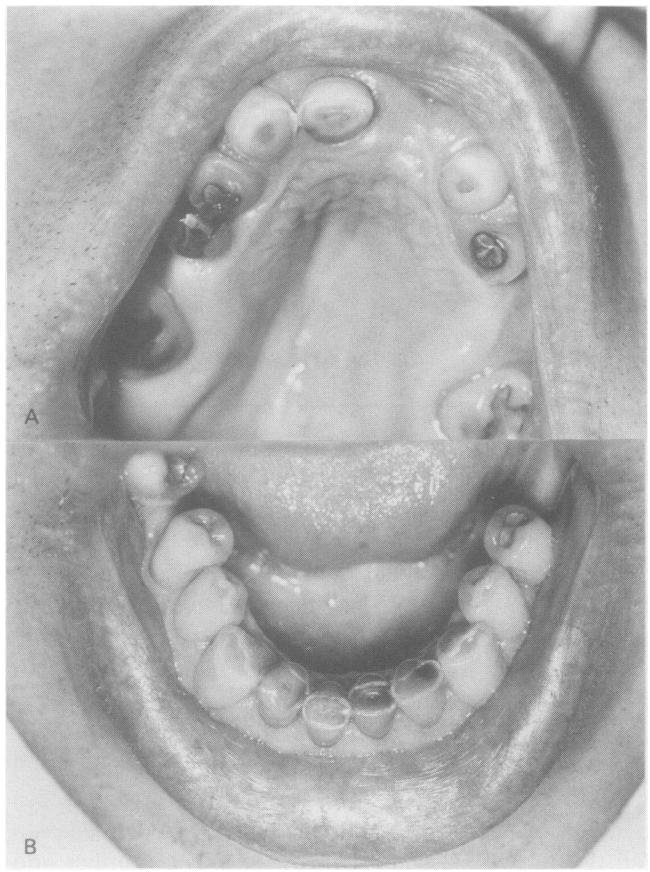

FIG. 1. Lingual erosion in upper (*A*) and lower (*B*) teeth in a 59-year-old man who had suffered from gastroesophageal reflux for over 10 years.

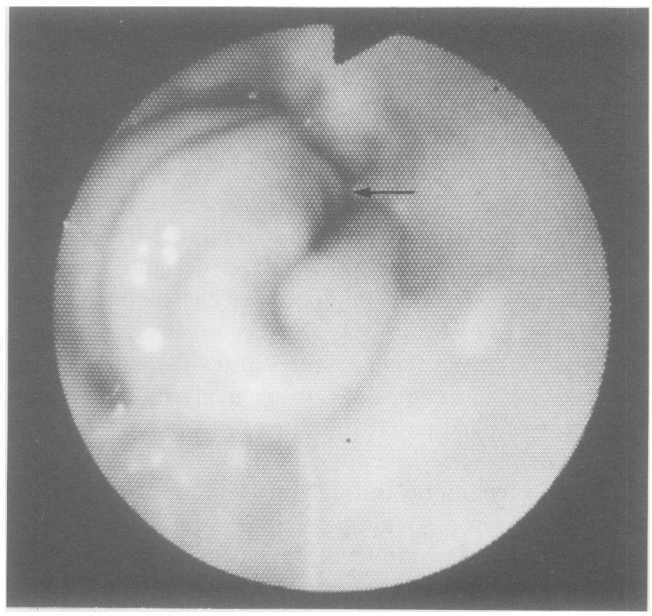

FIG. 2. Intraesophageal mucous prolapse of the Hiss angle seen during esophagoscopy in a 43-year-old man. The lumen of the cardioesophageal junction is indicated by an arrow.

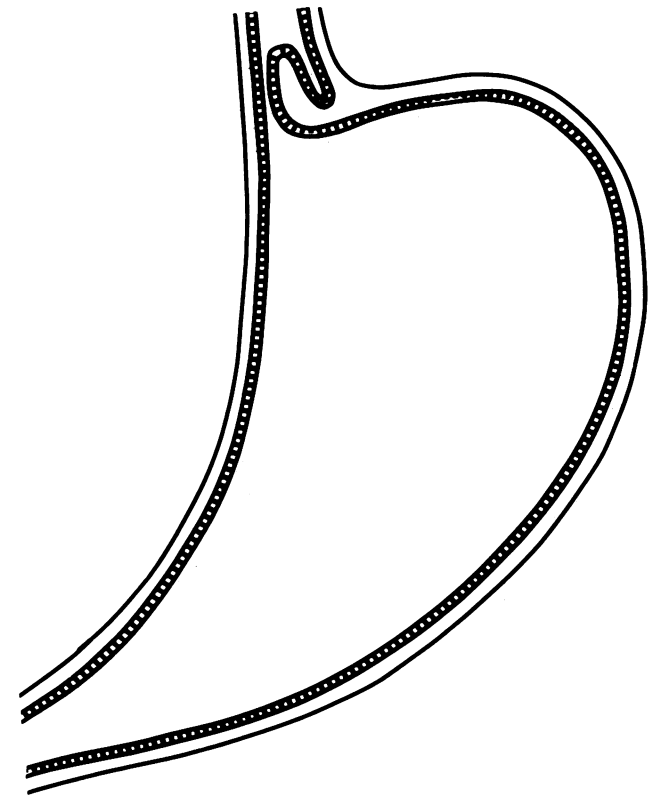

FIG. 3. A schematic drawing of the intraesophageal sliding type of hiatus hernia.

The patients were followed for 6 months. They no longer experienced substernal pain or any other symptoms. Endoscopy was normal in all cases and the fundoplication closed the esophagus at or just above the gastroesophageal junction. The postoperative length of the LES was from 23 to 34 mm (mean 28.3) and the pressure was from 15 to 27 mmHg (mean 19.8). No episodes of gastroesophageal reflux were revealed by pH monitoring.

Discussion

The indications for operative treatment of patients showing gastroesophageal reflux and esophagitis are clear. However, there are patients showing hiatus hernia without esophagitis, and there are also patients showing esophagitis but no hiatus hernia nor any symptoms of gastroesophageal reflux. In these cases more specific methods are needed for the evaluation of the symptoms. The authors used endoscopy, manometry, and 18-hour pH monoitoring in the preoperative studies of patients showing symptoms of gastroesophageal reflux. Six symptomatic patients showing hiatus hernia without esophagitis or any major reflux during endoscopy and pH monitoring were detected, although endoscopy and pH

monitoring probably are the most sensitive and specific methods in the diagnosis of reflux esophagitis.[2-4]

Four patients had previously shown very severe and long-lasting acid regurgitation as the major symptom and their teeth exhibited erosions due to the acid reflux into the mouth. The regurgitation had subsided and, on admission to the hospital, the major symptom was substernal pain. The possibility of other reasons for tooth erosions or abrasions (*i.e.*, acid juices and beverages, mechanical causes, and bad oral hygiene and caries) was excluded through dental analysis. A detailed analysis of the tooth erosions in patients with gastroesophageal reflux into the mouth is in preparation. In this controlled clinical trial, it was demonstrated that the typical tooth erosions were caused by acid reflux into the mouth.[5]

A small hiatus hernia was diagnosed in all cases and manometry revealed a hypotensive LES. A mucosal prolapse varying in size up to 6 cm above the LES occurred during endoscopy either spontaneously or when the intra-abdominal pressure was increased. In one case the mucosal prolapse seemed to be cyanotic and subject to insufficient circulation. All patients were operated on using the Nissen fundoplication technique and recovered during the following 6 months. The Nissen fundoplication results in a collar of twice as much pressure and length as before the operation.

The mucosal prolapse probably acts as a valve mechanism in the LES preventing further reflux from the stomach. This kind of mucosal prolapse may be overlooked in specific esophageal studies. It may be overlooked even in roentgenograms. Endoscopy with provocative tests plays a significant role in the diagnosis in these cases. Tooth erosion in four patients was a very interesting observation. This finding correlated with previous, long-standing, and severe regurgitation into the mouth, and was helpful in diagnosing the mucosal prolapse in these patients. We have found in the literature[5,7-9] only a few reports on oral manifestations of regurgitation. However, examination of teeth should be done routinely in patients showed symptoms of gastroesophageal reflux.

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