Although the onset of inguinal and femoral hernias is often attributed to excessive physical strain, the development of a large hiatus hernia is rarely attributed to such exertion. Hiatus hernia can be progressive and is often associated with advanced age, obesity or pregnancy. It may present as an incidental finding in an asymptomatic patient or be associated with a broad range of symptoms. Such symptoms can extend from minimal gastrointestinal upset that is well tolerated to those involving obstruction, strangulation, perforation and hemorrhage. The most severe symptoms are usually associated with incarceration and require surgical management. We report a case of massive hiatal hernia with incarceration of antrum, pylorus, first part of the duodenum and transverse colon, resulting in obstruction of both the gastric outlet and the colon. The onset of symptoms was related to a single event of heavy physical exertion while weightlifting.

CASE REPORT

A 30-year-old man complained of inability to retain any oral feeding except clear fluids, no bowel movement except for occasional small amounts of flatus and mucus, and a 12-kg weight loss over a 30-day period. A committed weightlifter, training 3 to 4 days a week for approximately 3 years, he related the onset of his symptoms to a successful attempt to bench press 150 kg. While doing so, he felt a sudden “tearing” pain in his upper abdomen and chest. By the following morning the initial severe pain had abated considerably so that he was able to continue his normal employment as a mechanic. He had continued discomfort in his epigastrium and chest and any attempt to take solid food resulted in vomiting. The symptoms persisted for 30 days, and he existed only on clear fluids during that time. He sought medical help after 30 days. He denied any symptoms of gastroesophageal reflux or hiatus hernia before this event, and the rest of his medical history was unremarkable. On physical examina-

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Accepted for publication Nov. 25, 1997.
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tion he was 172 cm tall and weighed 82 kg. The remainder of the examination was unremarkable.

A nasogastric tube was easily inserted into the stomach and a small amount of gastric contents was aspirated.

A barium swallow examination showed free flow into the stomach (Fig. 1), which contained a moderate amount of food residue. The gastroesophageal junction and fundus were in their normal positions in the abdomen. No contrast medium was seen in the antrum, pylorus or duodenum although the outline of the antrum appeared to be above the diaphragm. The following day, repeat films of the abdomen and chest (Fig. 2) showed a moderate amount of contrast medium still present in the stomach and clearly outlined a loop of transverse colon, containing contrast medium above the diaphragm. These findings were interpreted as indicating gastric outlet obstruction and colonic obstruction due to incarceration of the these viscera through a defect in the diaphragm.

At laparotomy through a midline upper abdominal incision, the distal half of the stomach, pylorus, and first part of the duodenum were found to be incarcerated through the esophageal hiatus alongside the loop of transverse colon. The gastroesophageal junction was within the abdomen and the fundus of the stomach was in its normal position below the left leaf of the diaphragm. This configuration fits the criteria for the diagnosis of gastric volvulus of the mesenteroaxial type. The displaced viscera were reduced into the abdomen and the duodenum was found to be abnormally mobile with a short mesentery down to its second part. In spite of the prolonged incarceration, there was no evidence of vascular compromise. The enlarged hiatus readily admitted the surgeon’s 2 fists into the retrocardiac space.

The remnants of a markedly attenuated hernial sac were removed and, with a no. 56 Maloney bougie left in place, the margins of the esophageal hiatus were approximated posterior to

FIG. 1. Admission contrast radiograph.

FIG. 2. Posteroanterior (left) and lateral (right) radiographs obtained on day 2 of the patient’s admission, demonstrating colon in the chest.
the esophagus to reduce the hiatus to its normal size. Because of the extensive derangement of the supporting structures, including no identifiable phrenoesophageal ligament, Nissen fundoplication was performed.

The patient’s postoperative course was uncomplicated except for profuse diarrhea for several days. He was discharged from hospital 1 week after the repair at which time he was eating a full regular diet and was having normal bowel movements. At the 1-month follow-up he had no symptoms and was continuing to gain weight.

Discussion

Four types of hiatus hernia are recognized. In the commonest, type I or sliding hernia, the distal esophagus, gastroesophageal junction and stomach ascend through the esophageal hiatus into the thorax. Type II or paraesophageal hernia is rare and involves a hernial sac, usually containing stomach, extending into the mediastinum parallel to the esophagus, with the gastroesophageal junction remaining in its normal position. With enlargement of a type II hernia, a combined or type III hiatus hernia can result as the gastroesophageal junction ascends into the thorax. Other organs such as colon, small intestine, spleen and pancreas may enter the hernial sac resulting in a type IV hernia. Chronic increase in intra-abdominal pressure, such as that resulting from obesity, pregnancy and the presence of an abdominal mass, have been implicated in the development of hiatus hernias. The development of a massive hiatus hernia is thought to be the result of the stomach being pushed by intra-abdominal pressure and pulled by negative intrathoracic pressure through a yielding hiatus, generally a result of gradual progression of a sliding hernia. The fundus and body of the stomach usually serve as the lead point for this ascent into the thorax. The resultant intrathoracic viscera include the fundus within the hernia. The omentum and transverse colon may be pulled up during the process; the pylorus usually remains in the abdomen because of its relationship with the fixed duodenum and pancreas.

Massive hiatus hernia may be asymptomatic or may present with a variety of symptoms. Symptoms and signs described as peculiar to massive incarcerated hernias include postprandial precordial distress, upper gastrointestinal bleeding, severe dyspnea and complete obstruction. The potential for volvulus and subsequent severe sequelae mandate surgical intervention.

Our case was unusual in its putative etiology, presentation and operative findings. The mobile pylorus and first part of the duodenum could indicate a preexisting hiatal defect, yet the patient had never experienced any symptoms of hiatus hernia before the described event and only remnants of a hernial sac were found. The displacement of the viscera into the thorax appears to have been caused by a single episode of strenuous physical activity, the kind usually associated with inguinal and femoral hernias. The fact that the gastroesophageal junction and fundus were in their normal positions without obstruction was also unusual, because the development of massive hiatus hernia is almost always associated with displacement of either the fundus alone or both structures. Finally, the patient’s ability to tolerate the gastric outlet and colonic obstruction for 30 days is remarkable.

References