CASE REPORTS

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Acute Diverticulitis of the Jejunum

Report of Two Cases

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DIVERTICULITIS most often occurs in the colon, for not only is the colon the site of greatest incidence of diverticulosis, but the factors predisposing to inflammation exist there to a greater extent than in any other portion of the gastrointestinal tract. In decreasing order of frequency, diverticula are found in the colon, ileum, duodenum, pharynx and esophagus, stomach and jejunum. In the jejunum, acute diverticulitis is an extreme rarity.

Diverticulosis of the jejunum occurs in both sexes equally. While it has been stated that the incidence is predominantly in the older age groups, several recent reports have included cases in persons in the second and third decades of life. In one of the two cases herein reported, in both of which diverticulitis developed in a solitary diverticulum of the jejunum, the patient was 23 years of age and in the other 38.

Most jejunal diverticula are multiple and most are situated in the proximal quarter of the jejunum. In contrast to the true or congenital Meckel's diverticulum, jejunal diverticula are usually acquired. In the opinion of most investigators the primary cause is weakness of the wall of the bowel at the point of penetration of the mesenteric vessels, permitting outpouching to either side of the mesenteric attachment at or near the point of penetration of the mesenteric vessels, presumably as the result of pulsive forces. As it enlarges, the diverticulum thus begun may insinuate itself within the leaves of the mesentery or enlarge tangentially to the mesentery. In contrast to Meckel's diverticulum, which theoretically may arise in the jejunum, these diverticula do not have their own mesentery, regardless of the size they attain. As the jejunum is mobile and the contents fluid, jejunal diverticula empty readily. Also, in most cases the stoma is of sufficient diameter that stasis does not occur. For these reasons, acute inflammation is a rare complication of diverticula in this location. However, if the diverticulum is narrow-mouthed it is conceivable that obstruction at the mouth by static, inspissated intestinal contents may initiate the sequence of obstruction, inflammation and finally perforation.

The signs and symptoms related to uncomplicated jejunal diverticulosis are usually vague in character, if present at all. Abdominal cramps, nausea, excessive borborygmi, flatulence and diarrhea have been reported, and are usually related to ingestion of food. Obstruction has been reported due to enteroliths and adhesions, and in such case the symptoms characteristic of high obstruction supervene.[6, 15] Occasionally serious bleeding occurs at diverticula in this location.[1, 9] In the cases reported herein, acute inflammation caused pronounced tenderness to pressure, rebound tenderness and rigidity. Both patients had nausea, vomiting and crampy abdominal pains. In both cases the tenderness was confined to the lower quadrants of the abdomen and was greatest on the left.

Laboratory and x-ray studies do not aid materially in the diagnosis. X-ray evidence of small intestinal diverticula, particularly solitary obstructed lesions, is notoriously difficult to demonstrate. Leukocytosis of moderate degree, with predominance of neutrophils, occurred in both the cases here reported, in keeping with the pronounced inflammatory process present in both.

Considering the paucity of specific symptoms, it is not surprising that correct preoperative diagnosis is rare.

The treatment of acute jejunal diverticulitis is dependent upon the position of the diverticulum and the presence or absence of associated diverticula. For a freely mobile solitary diverticulum, simple resection with repair of the wall of the bowel is the treatment of choice. If the diverticulum is intramesenteric and of considerable size, resection might compromise the blood supply of the involved segment of bowel, and for this reason it is wiser to resect the segment of bowel bearing the diverticulum and to perform end-to-end anastomosis. Multiple diverticulosis, when confined to the jejunal segment, calls for wider resection, the patient's condition permitting. Operation in stages, first a divert-

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ing enteroenterostomy, and later resection of the involved segment, has been advocated by some surgeons.

REPORTS OF TWO CASES

CASE 1: A 38-year-old white woman was admitted to the hospital with chief complaint of abdominal pain. Epigastric pain and nausea and vomiting had begun suddenly 48 hours previously. The pain, which became severe aching, later localized in the suprapubic area. There was no history of previous symptoms referable to the gastrointestinal tract or of menstrual abnormality.

There was rather pronounced muscle spasm over the suprapubic area, the rigidity decreasing laterally. Tenderness was present in the same region but seemed a little greater to the left of the midline. Rebound tenderness was present over the entire lower half of the abdomen. Bowel sounds were hypoactive.

The temperature was 102.4°F., the pulse 104 and the blood pressure 110/64 mm. of mercury.

Leukocytes numbered 22,000 per cu. mm. of blood, with 92 per cent neutrophils. Results of urinalysis were within normal limits.

The diagnosis was acute appendicitis, probably ruptured.

A right lower paramedian incision was made and when the peritoneal cavity was opened a moderate amount of turbid yellowish fluid was noted. An inflammatory mass was observed contiguous with the jejunum about 30 cm. from the ligament of Treitz. Lysis of fresh inflammatory omental adhesions in this region exposed a globular diverticulum, approximately 7x5x3 cm., arising from the mesenteric border of the jejunum and extending between the two leaves of the mesojejunum. The neck of the diverticulum was approximately 1.0 cm. in diameter. Patches of fibrinopurulent exudate were present over the diverticulum and the adjacent mesentery, which appeared edematous and indurated. A 12.0 cm. segment of jejunum, the mesenteric wedge containing the diverticulum and the contiguous indurated mesentery, was resected and end-to-end anastamosis was performed. Several flakes of inspissated fecal material impacted in the mouth of the diverticulum were noted on a section of the specimen. The pathological report was "Acute suppurative inflammation of jejunal diverticulum." No organisms grew on a culture of the peritoneal fluid.

Postoperatively, nasogastric suction was continued for 48 hours, and antibiotics were given for 6 days. Discharged from the hospital on the eighth postoperative day, the patient remained well thereafter. Barium x-ray studies showed no other small intestinal diverticula.

CASE 2: A 23-year-old white man was admitted to the hospital with chief complaint of crampy lower abdominal pains of 13 hours' duration. There was no nausea or vomiting but the patient was anorexic. On the evening of admission he had had chills and felt "feverish." He had had a normal bowel movement on the day of admission.

The patient had had appendectomy several years before.

The temperature was 100.8°F. and the pulse rate 100.

Voluntary rigidity was present in both lower quadrants of the abdomen and rebound tenderness was noted. Tenderness seemed to be consistently more pronounced on the left side. No abnormality was noted in a rectal examination.

Leukocytes numbered 17,850 per cu. mm. of blood, 82 per cent neutrophils. Results of urinalysis were normal. No abnormality was noted in a plain film of the abdomen.

The provisional diagnoses were (1) Meckel's diverticulitis, and (2) incomplete small intestinal obstruction due to postoperative adhesions. The abdominal signs became more pronounced and the patient was prepared for laparotomy 11 hours after admission.

The abdomen was opened through an upper right rectus muscle-splitting incision. A solitary diverticulum of the jejunum, measuring 3x1x1 cm., arose from the mesenteric border, 10 cm. from the ligament of Treitz. The serosal surface of the diverticulum as well as the adjacent mesentery were reddened and on them were patches of fibrinopurulent exudate. The diverticulum was dissected bluntly from the adjacent mesentery, exposing a narrow neck measuring about 1.0 cm. in diameter. The diverticulum was transected at its neck and the resultant jejunal defect was closed with a purse-string suture. The postoperative course was uneventful and the patient was discharged on the tenth hospital day. No follow-up gastrointestinal series could be obtained.

The pathological report was "Acute suppurative inflammation of a jejunal diverticulum."

SUMMARY

Two cases of acute suppurative inflammation of solitary diverticula of the jejunum, occurring in relatively young persons, are presented. Because of the infrequency of this condition, it is doubtful that a correct preoperative diagnosis can be made in the absence of previous studies revealing diverticula. However, the condition should be considered in the differential diagnosis of acute abdominal conditions.

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Diaphragmatic Hernia Simulating Hydropneumothorax

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ALTHOUGH protrusion of the stomach and colon into the thoracic cavity, closely simulating hydropneumothorax in roentgenographic appearance, is quite unusual, the medical literature is replete with descriptions of the diagnostic and therapeutic aspects of herniations of portions of the gastrointestinal tract into the thorax. Certainly little can be added to the roentgenological knowledge of this abnormality, except to better delineate the various types of hernias preoperatively. In that regard the case here reported presents some unusual aspects which warrant recording. The roentgenographic appearance of the chest was so typical of hydropneumothorax that thoracentesis was done, in an effort to relieve the symptoms, before the correct diagnosis was established.

CLINICAL HISTORY

A white woman 45 years of age was admitted to the Palo Alto Hospital with severe respiratory distress, marked by cyanosis, dyspnea and pain in the left side of the chest. The patient was nauseated and had vomited repeatedly during the several hours preceding admittance. The symptoms had begun about 36 hours previously and had gradually increased in severity. The patient was admitted directly to the x-ray department of the hospital with a request for roentgen examination of the chest and abdomen. The referring physician was aware that a diaphragmatic hernia had been demonstrated several years previously, but this information was not immediately available to the roentgenologist. Films of the chest (Figure 1) were made. It was the opinion of the roentgenologist that there was extensive hydropneumothorax on the left. As the patient was in severe distress, paracentesis was carried out, but aspiration was immediately discontinued when it was noted that the fluid withdrawn bore strong resemblance to gastric contents. An x-ray film of the abdomen with the patient supine was made (Figure 2, A). There appeared to be very little gas in the intestines, and an area of increased density in the left side of the abdomen extended into the left side of the chest. The left hemidiaphragm could not be delineated. It was presumed that the stomach, grossly dilated and containing a large amount of fluid, was in the chest. The stomach was intubated, a few liters of gastric contents withdrawn, opaque material introduced. X-ray films then showed the stomach in the thoracic cavity (Figure 2, B and C). Subsequent studies showed portions of the transverse and descending colon in the chest also, with the splenic flexure at the level of the left first interspace (Figure 3).

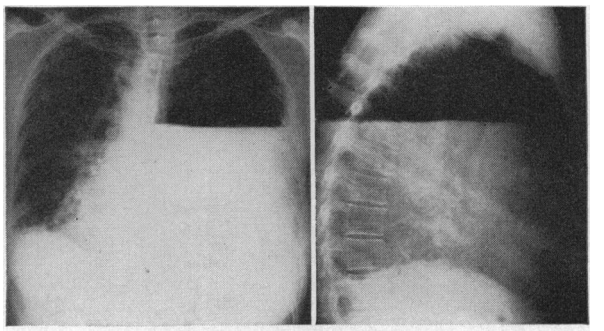

Figure 1.—Chest films before intubation, showing gas and fluid-filled stomach filling left side of chest.

At operation it was noted that the entire stomach and about four inches of duodenum were in the left side of the chest. A loop of colon lay anterior to the stomach, extending to the apex of the thoracic cavity. The lower lobe of the lung was entirely collapsed and there was only a small amount of air in the upper lobe. There were extensive defects at the mid-line of the diaphragm, one of them anterior to a normal esophageal hiatus, through which the colon passed, and another posterior through which the stomach and duodenum passed. There was no sac over the stomach or colon. The appearance suggested that injury had caused the displacement, but no history of significant trauma could be obtained. The stomach and colon were returned to the abdominal cavity and the defects in the diaphragm repaired. Both lobes of the lung reexpanded. The patient recovered without complications.

In subsequent roentgen studies of the gastrointestinal tract, the organs were in normal position, and no abnormality was evident, except that even one year later the stomach still emptied quite slowly.