

# GRANULOMA, ILEOCECAL REGION, DUE TO DIVERTICULA\*

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AN INFLAMMATORY PARACECAL mass may be encountered in patients presenting symptoms of acute appendicitis. Occasionally, a granulomatous mass is discovered during operation which does not appear to have origin in the appendix. The etiologic factor may be, as in the cases herein, attributed to diverticulitis. Three cases have recently been seen, only one presenting a mass clinically. All were perforated, two at the terminal ileum and the other at the cecum.

Diverticula are most commonly seen in the descending or pelvic colon, but may occasionally involve the cecum, appendix or the small intestine. Early they are globular pouches consisting of all the layers of the intestine. Later the musculature atrophies and the pouches become larger, having only mucosal and serosal linings. Inability to empty the diverticulum of its contents may be followed by inflammation, circulatory changes with perforation, abscess formation and granulomatous reaction. The granulomatous mass, according to Mock,<sup>4</sup> may be altered by low-grade infection and is characterized by necrosis, fibroblastic reaction and scar tissue formation.

Wilson<sup>7</sup> believes the main diagnostic features are a moderately severe crampy pain, often referred to as a soreness in the right lower quadrant. Nausea, vomiting, fever, anorexia, loss of weight, and obstruction are not common or severe. Anemia is slight, with a slightly increased white blood count, and the sedimentation rate is consistently increased, suggesting the inflammatory nature of the lesion.

The diagnosis preoperatively is usually that of an acute appendicitis. When a mass is palpable the condition must be differentiated from carcinoma of the cecum, salpingitis, obturator hernia, appendiceal abscess, benign ulcer of the cecum or ileum, and abscess of undetermined origin. Frequently, the diagnosis cannot be established until the time of operation.

Roentgen examination of the small and large intestine, with observations made repeatedly, may show dilated sacculations of the ileum or a pressure defect of the colon.

## TREATMENT

This is truly a surgical condition, but the surgical procedure should be minimal, with accurate eradication of the entire pathological process. The treatment will depend upon the extensiveness of the lesion, and it may be impossible to determine the exact nature of the lesion prior to exploration.

1. Simple drainage may be instituted if there is a localized abscess.

2. Right colectomy with primary ileocolostomy when the lesion is extensive and there is doubt as to the possibility of malignancy or a massive area of gangrene. This procedure was used in two of our cases.

3. Ileostomy or cecostomy at the site of perforation might be considered where gangrene is not present.

4. Exteriorization procedure may be recommended when there are localized gangrenous changes. This form of therapy was used in a third case.

Case 1. A white male, 27 years of age, entered the hospital complaining of pain in the right upper quadrant of the abdomen with nausea and vomiting for the past 24 hours.

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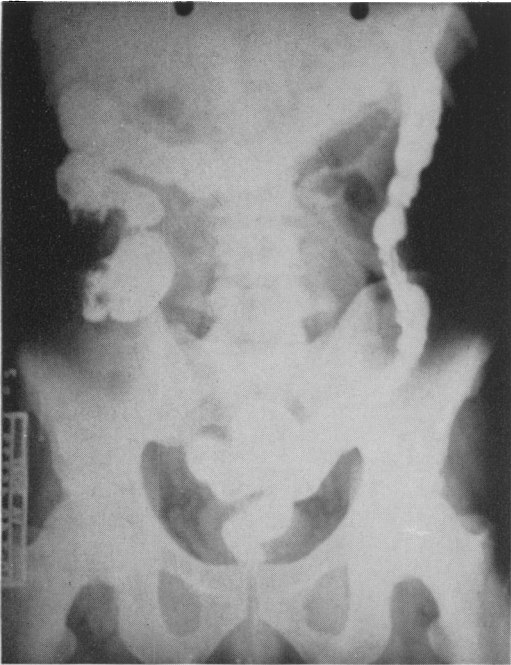


FIG. 1. Barium enema, extra luminal mass of cecum (Case 1).

*Past History.* A diagnosis of schizophrenia had been made at the time of discharge from the Armed Forces. He was operated on for acute appendicitis in 1940.

*Examination.* Examination revealed a well-developed, well-nourished male, who appeared to be in acute pain. Chest expanded equally and was clear to auscultation and percussion. The heart was not clinically enlarged and there were no murmurs present. Pulse rate was 76, blood pressure, 140/90. The abdomen was distended and there was tenderness over the right side which was exaggerated in the right lower quadrant. An appendectomy scar was present in the right lower quadrant. Rectal and sigmoidoscopic examination was normal.

*Laboratory.* Serology, negative; urinalysis, normal; red blood cells, 4,350,000; white blood cells, 12,500; hemoglobin, 11.6 Gm.; neutrophils, 73; lymphocytes, 23; monocytes, 4; sedimentation rate, 26 mm. per hour; urea nitrogen, 11.3 mg.; creatinine, 0.80 mg.; agglutination, normal; serum amylase, 60 units.

*Barium Enema.* (On second admission.) Barium flowed freely throughout the length of the large bowel without evidence of obstruction. The terminal ileum did not visualize during fluoroscopy. The emptying film showed a pressure defect in the lateral aspect of the ascending colon.

*Preoperative Course.* Immediately following admission a soap suds enema was given, with fair

results. Fluid intake by mouth was limited and penicillin given intramuscularly. On the second day, due to vomiting and distention, a Miller-Abbott tube was passed into the stomach and 1000 ml. of dark green fluid and gas were obtained. As the Miller-Abbott tube progressed into the small intestine the patient began to improve rapidly. On the third hospital day the patient was taking liquids orally and developed a mild diarrhea. On the fifth day, the tube was removed and he was tolerating a soft diet well; the pain and tenderness had completely disappeared. Because of an emergency at his home the patient was given a leave for three days. On returning to the hospital he had a temperature of 103 and the white blood count was 13,200, with a marked shift to the left. There was a generalized abdominal pain which was more acute in the right lower quadrant. A barium enema at this time revealed the right-sided mass.

In preparation for operation sulfathaladine was given by mouth and rectal irrigation. After 72 hours the patient was taken to the operating room where, under spinal anesthesia, a right paramedian muscle-splitting incision was made and the peritoneum opened. There was a large extraluminal ileocecal mass. This mass was resected and an end-to-side ileotransverse colostomy was done. A small amount of pus was encountered during the dissection and a culture taken. A penrose drain was inserted into the right gutter and brought out through a stab wound. The wound was then reconstructed in anatomical layers.

The postoperative course was uneventful. Continuous suction was placed on the stomach tube for the first 72 hours, and after this period the diet was gradually increased. The patient was discharged from the hospital on his 19th postoperative day.

*Pathology—Gross.* The entire cecum, portion of the ileum and a small amount of adnexa. In the cecal wall there was a large abscess containing greenish yellow pus, with an opening traced posteriorly to a ruptured diverticulum of the ileum. There was a large amount of scar tissue in the area of the appendix. All sections were heavily infiltrated with eosinophils, polymorphs and plasma cells. No atypical cells were seen.

*Case 2.* A white male, 57 years of age, entered the hospital complaining of severe abdominal pain for the past 48 hours. The evening prior to the onset of the pain the patient had eaten some fresh pork. Early this pain was localized around the umbilicus, but later shifted to the right lower quadrant.

*Past History.* The patient had had an arrested pulmonary tuberculosis since 1926.

*Examination.* Examination revealed a well-developed, well-nourished male, complaining of

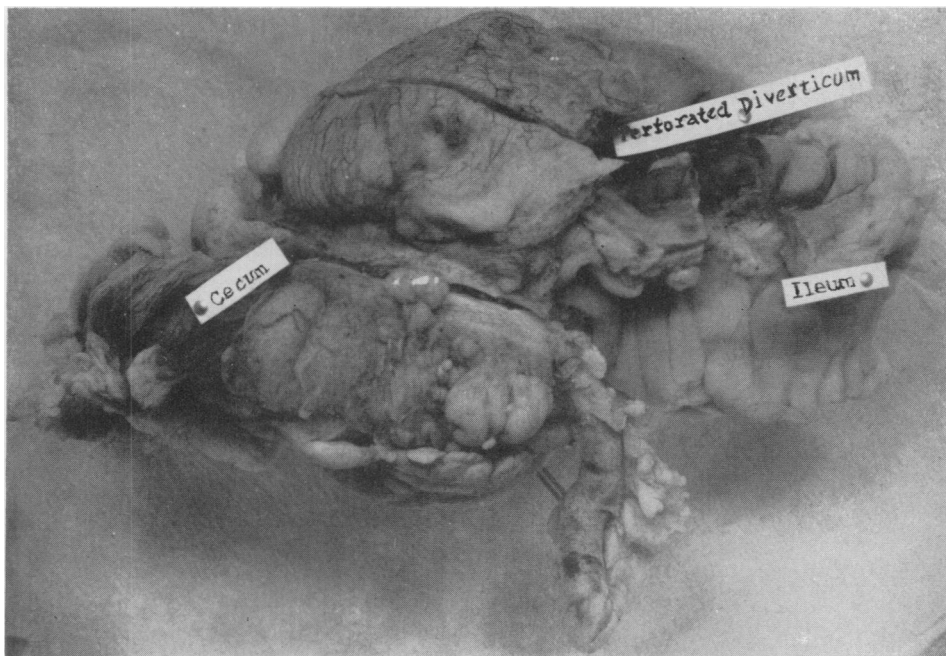


FIG. 2. Surgical specimen—terminal ileum, cecum and perforated diverticulum of ileum (Case 1).

severe abdominal pain. The chest was symmetrical and the lungs were clear to auscultation and percussion. No clinical cardiac enlargement or murmurs were present. Blood pressure was 130/80; pulse, 88. The abdomen was flat, no definite masses were palpable. There was marked tenderness in the right lower quadrant with rebound phenomenon present. There was rectal tenderness in right lower quadrant but no masses palpable.

**Laboratory.** White blood cells, 10,000; neutrophils, 73; lymphocytes, 22; monocytes, 4; red blood cells, 4,620,000; hemoglobin, 12.8; urinalysis, normal except for an occasional white blood cell on microscopic smear; and serology, negative.

After preparation, the patient was taken to the operating room where, under spinal anesthesia, a right paramedian muscle-splitting incision was made and the peritoneum opened. A small amount of cloudy, yellow exudate was free in the peritoneal cavity; a culture was taken. Exploration revealed a high cecum with an inflammatory mass which also involved the terminal ileum. About 6 cm. from the ileocecal valve was a perforated ileal diverticulum which was walled off by the mesentery. Ten centimeters of the terminal ileum and two-thirds of the right colon were then freed from the vascular supply by clamping, cutting and tying the mesenteric vessels. The inflammatory mass with the bowel was then resected over Kocher clamps, and the bowel

ends brought out through a stab wound in the right lower quadrant. The rent in the mesentery was then closed and the bowel anchored to the fascial layers.

**Pathology—Gross.** A portion of ileum, cecum and appendix matted together and a ruptured diverticulum of the ileum over which was a large amount of fibrin. There was gangrene in one portion of the specimen and marked discoloration in the other parts. Sections showed intestinal tissue with large areas of necrosis. Some mucosa remained intact but showed acute infection.

**Case 3.** Patient entered the hospital complaining of attacks of umbilical pain which had been present for several months. Recently these attacks had increased in severity and he had noticed a bulging at the umbilicus.

**Past History.** During the past 4 years the patient had received treatment for osteoarthritis.

**Examination.** Examination revealed a well-developed, well-nourished male, 57 years of age, who did not appear acutely ill. Lungs were clear to auscultation and percussion. Heart was normal in size and position; no murmurs or arrhythmias were present. Blood pressure was 138/72. Abdomen disclosed no masses, tenderness or rigidity present. There was a small reducible umbilical hernia present.

**Laboratory.** Urinalysis, normal; serology, negative; white blood cells, 10,500; neutrophils, 63; lym-

phocytes, 25; monocytes, 4; eosinophils, 8; red blood cells, 4,200,000; hemoglobin, 12.8 Gm.; sedimentation rate, 21 mm. per hour; total protein, 7.7 Gm.; albumin, 4.4 Gm.; globulin, 3.3 Gm.; serum chloride, 495 mg.; urea nitrogen, 17.3 mg.; cholesterol, 145 mg.; creatinine, 1.05 mg.

*Course in Hospital.* For 8 days the patient was treated by the medical service for osteoarthritis. He was then transferred to the surgical service for repair of the umbilical hernia and excision of a papilloma of his nose. On the twelfth postoperative day he developed a pain in the right lower quadrant of his abdomen and the following day a mass was detected on physical examination. Temperature was 101° with a white blood count of 18,000. Following preparation, the patient was taken to the operating room where, under general anesthesia, a right rectus muscle-splitting incision was made and the peritoneum opened. The appendix was congested but otherwise normal. There was a mass 15 cm. in diameter on the mesenteric border of the cecum, with an inflammatory exudate on its surface. The lymph nodes were enlarged but soft. The cecum and this mass, with 6 cm. of the terminal ileum, were then excised and an end-to-end anastomosis done between the ileum and the ascending colon. Postoperative course was entirely uneventful and the patient was discharged from the hospital on his 20th hospital day.

*Gross Pathology.* Perforated diverticula. The appendix was thick walled, filled with fibrin, and showed evidence of previous infection. There was an enormous amount of fibrous tissue circumscribing the inner wall of the ileocecal valve. The lumen of the bowel was narrowed due to the abscessed area.

*Sections.* The intestinal tissue had lost its normal structure and the mucosa was infiltrated with plasma cells, lymphocytes, fibrous tissue and polymorphs.

#### SUMMARY

1. Three cases of perforated diverticula of the ileocecal region with formation of a granulomatous mass have been presented.
2. Perforated ileocecal diverticula present symptoms which are not unlike acute appendicitis. In only one case was a mass palpable.
3. We believe the only satisfactory treatment to be surgical eradication of the mass.

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