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Case Report: Diverticulitis Involving a Meckel's Diverticulum

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Case Report: Diverticulitis involving a Meckel's Diverticulum

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Abstract:

We report a case of a 65-year-old female who presented with abdominal pain and was diagnosed with diverticulitis involving a Meckel's Diverticulum. The differential diagnosis of abdominal pain is vast, in this age group includes, but is not limited to: appendicitis, diverticulitis, cholecystitis, and small bowel obstruction. In the absence of complicated features, conservative management with oral antibiotics and close outpatient follow is advised. However in the case of complicated diverticulitis and a rare manifestation such as a Meckel's Diverticulum careful management is indicated.

Case Presentation:

A 65-year-old female presented to the emergency department (ED) with a complaint of abdominal pain of one day's duration. She had a past medical history of hypertension and hyperlipidemia. She reported an episode of acute pain twenty-four hours prior to presentation, described as sharp in nature. She admitted that her presentation to the ED that day was similar to her diverticulitis manifestation in the past. She had accompanied nausea without emesis. She denied melena, hematochezia. She denied any fevers, chills, diarrhea. She had a history of an appendectomy (1997) and cholecystectomy (1997). There was no family history of inflammatory bowel disease or gastrointestinal malignancies.

The patient's vital signs were as follows: blood pressure 148/70, heart rate 80, respiratory rate 18, oral temperature 36.9oC, SpO2 99% on room air. The physical exam showed generalized abdominal tenderness, with no rigidity, guarding, rebound, peritoneal signs. Her white blood cell count was 16,200 per microliter with 85% neutrophils. Electrolytes and lipase were unremarkable. A computerized tomography (CT) scan of the abdomen and pelvis without intravenous contrast showed scattered colonic diverticula; with an elongated blind-ending tubular structure arising from the distal small bowel in right abdomen with a calcification near its terminus. The impression was diverticulitis involving a Meckel's diverticulum with a probably calculus near its terminus of the elongated diverticulum.

The patient was seen in the ED by General Surgery. She was admitted to the hospital, under the hospital medicine service and received intravenous fluids, intravenous antibiotics (Ciprofloxacin & Metronidazole) and pain medications as needed. A gastroenterology consultation was obtained. The patient received an exploratory laparotomy with lysis of adhesions and small bowel resection the following day. Gastroenterology recommended outpatient colonoscopy.

Discussion:

The patient presented with abdominal pain and tenderness that was demonstrated on CT scan to be due to diverticulitis involving a Meckel's diverticulum.

Incidence of Meckel's Diverticulum

Meckel diverticulum is a congenital, intestinal pouch that is formed from the incomplete obliteration of the vitelline duct during gestation. This incomplete obliteration of the vitelline duct can result in not only Meckel diverticulum but also is involved in the formation of enterocysts, fistulas, and mesodiverticular bands (1). Meckel's diverticulum is the most common congenital abnormality of the GI tract that is categorized with the commonly quoted "rule of 2s": 2% of the population affected, approximately 2 inches in length, found within 2 feet of the ileocecal valve, and often found in children under 2 years of age (2).

Incidence of Diverticulitis

Diverticulitis is the manifestation of an infected diverticula and is extremely common in Western society affecting 5-10% of the population over 45 years of age, and 80% over 85 years of age. Of those affected, approximately 20% will develop symptomatic diverticulitis (3). Complications of diverticulitis include: abscess, intestinal obstruction, perforation, fistula, and strictures (4).

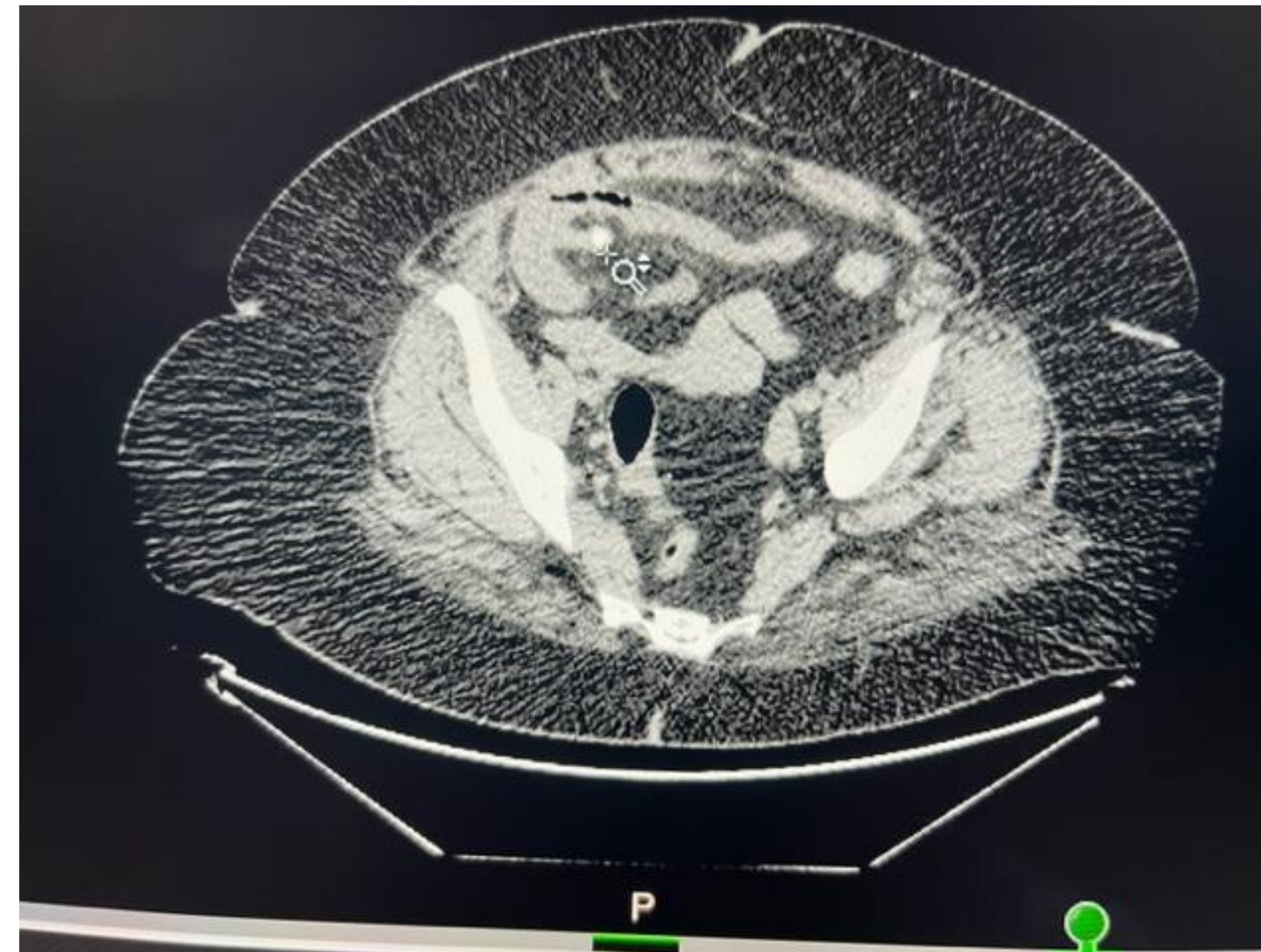


Figure 1: CT scan, axial view. Index marker identifies the Meckel's Diverticulum with calcification

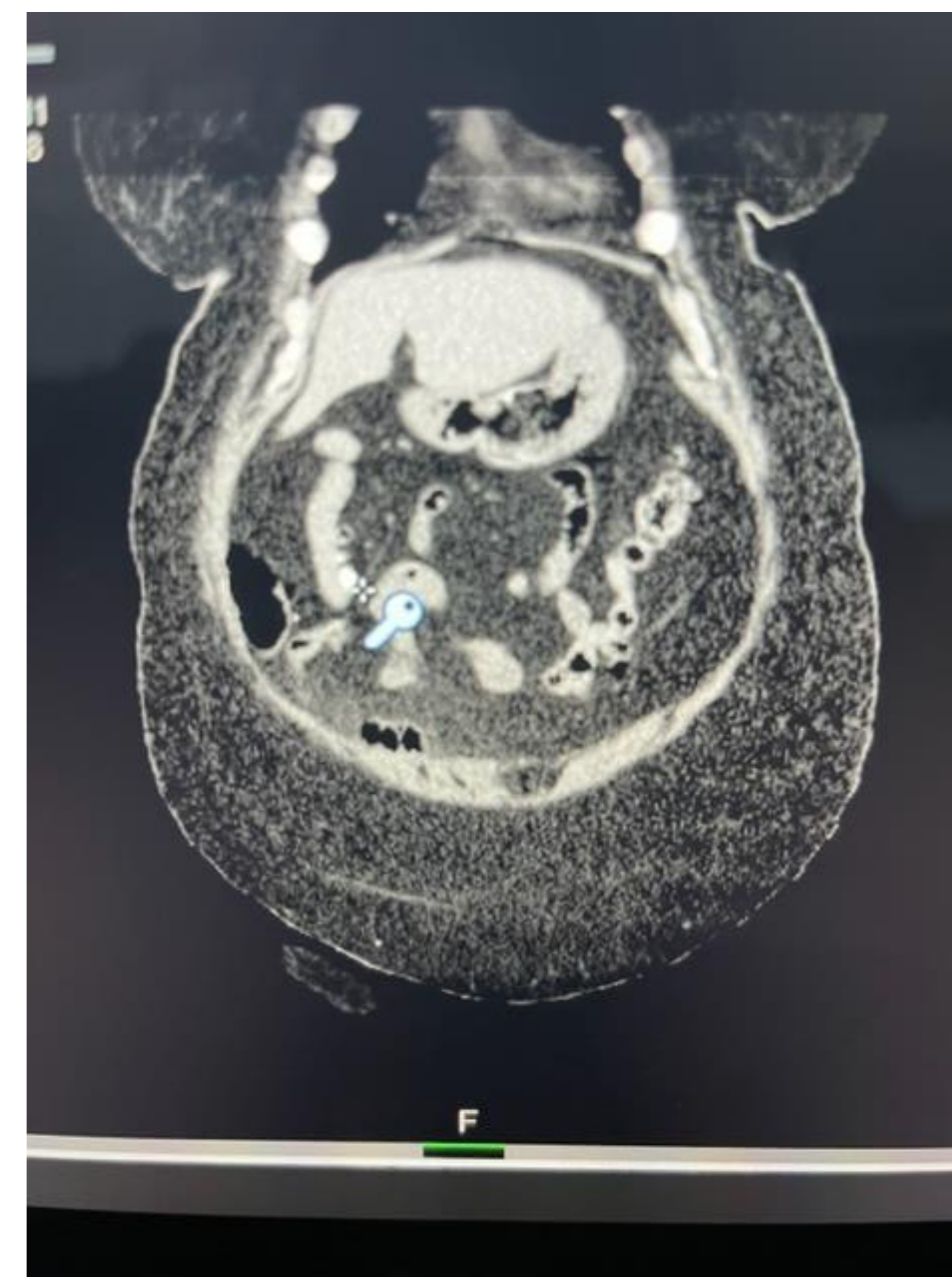


Figure 2: CT scan, coronal view. Index marker identifies the Meckel's Diverticulum with calcification

References:

Available on request

Discussion:

Pathophysiology:

Meckel's diverticulum causing diverticulitis has several underlying mechanisms. Obstruction of the diverticula, resulting in stasis and bacterial infection similar to enterolith or fecalith causing acute appendicitis, peptic ulceration of the ileal mucosa, and diverticular torsion resulting in ischemia and inflammatory changes are all pathophysiologic manifestations (5).

Clinical presentation:

Patients with diverticulitis and Meckel's diverticulitis primarily present to the Emergency Department with chief complaint of abdominal pain. Their underlying diverticula usually become obstruction by a stool fragment or food particles and cause subsequent inflammation. Review of symptoms also commonly includes associated nausea, non-bloody/non-bilious emesis, diarrhea that can be bloody, or non-bloody. Objective signs that can clue into potential complications are SIRS criteria (6).

Laboratory studies:

Leukocytosis may be present in diverticulitis. Blood cultures should be obtained in patients who have complicated disease or SIRS manifestations. Electrolyte abnormalities due to vomiting or diarrhea may be seen on a metabolic panel.

Imaging:

CT scanning with IV contrast is the gold standard imaging modality in the diagnosis of diverticulitis & Meckel's diverticulitis (6).

Management:

Antibiotics should be used in the acute management of diverticulitis. Goal is to target gram negative organisms such as Enterobacteriaceae, Enterococci, and anaerobes such as Bacteroides and Clostridia (7). The STAND Trial notes combinations of Metronidazole and Ciprofloxacin, Metronidazole and Trimethoprim/Sulfamethoxazole, Amoxicillin/Clavulanate, or monopharm management with Moxifloxacin are potent antibiotics to fight these organisms (8).

Surgical treatment:

Treatment of symptomatic Meckel's diverticulitis has always been surgical resection. Studies have reported that laparoscopic management of complicated Meckel's diverticulitis is safe, cost effective, and results in fewer complications compared to laparotomy (9). When GI bleeding from a Meckel's diverticulum occurs a small bowel resection followed by ileoileostomy rather than solely diverticulectomy is preferred (10). This was seen in the management of our patient.

Conclusions:

Diverticulitis involving a Meckel's diverticulum is a unique GI manifestation. The underlying Meckel's diverticulum that manifested as diverticulitis in our patient was one that neither physicians have seen before. The patient's management combined the medical management of diverticulitis with the surgical management of Meckel's diverticulum. Ultimately at the end of the hospital course, the patient was safely discharged and followed up outpatient with Gastroenterology for colonoscopy.