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Case Report

Surgery Section

Diverticulitis Leading to Caecal Perforation with Retroperitoneal Abscess: A Case Report

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ABSTRACT

Diverticulitis, a condition predisposing to inflammation or infection, presents with clinical similarities to acute appendicitis and is associated with an increased risk of perforation. This case report details a 25-year-old male presenting to the emergency department with a perforated appendix and suspected caecal perforation, diagnosed via Ultrasound (US) and Computed Tomography (CT) scans. Emergency surgery revealed gangrenous changes in the caecum, a base-ofappendix perforation, and a leaking retroperitoneal abscess. Surgical intervention involved resection of the appendix, caecum, and a segment of the ascending colon, with ileo-transverse anastomosis and a temporary ileostomy. Post-surgery, the patient showed symptomatic improvement. This case highlights the crucial need for prompt diagnosis and surgical intervention in managing complex scenarios involving retroperitoneal abscesses and associated complications.

Keywords: Anastomosis, Appendicitis, Ileostomy, Inflammation, Trauma

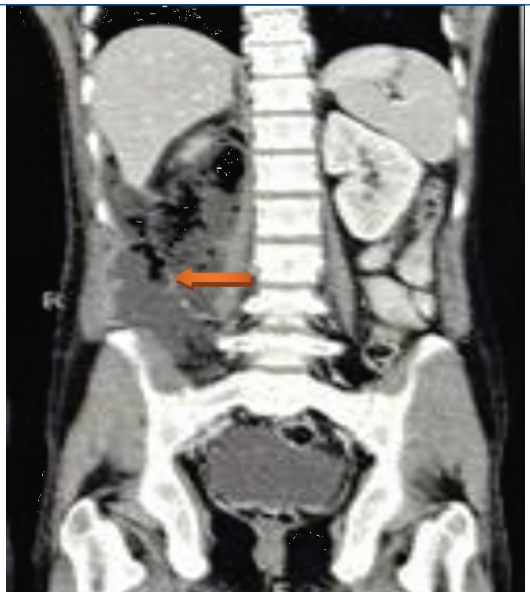
CASE REPORT

A 25-year-old male presented to the emergency department with a one-week history of abdominal pain, initially sudden onset, gradually intensifying, and colicky in nature. He reported a one-week history of vomiting, nausea, chills, and dysuria. He had no comorbidities. Vital signs were stable on examination. Tenderness was noted in the right iliac fossa (with guarding and rebound tenderness), as well as the right lumbar and right hypochondriac regions.

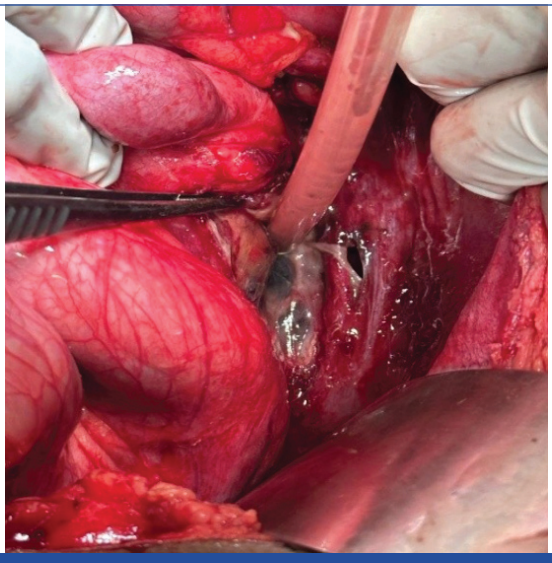
Radiological assessment included Ultrasound (USG), which indicated a perforated appendix. CT scans confirmed the USG findings, suggesting a perforated appendix near its base, with associated fluid, multiple air foci, and appendicoliths in the right iliac fossa [Table/Fig-1]. A approximately 8 mm defect was identified on the posterior aspect of the caecum, just below the ileocaecal junction, with extravasation of contrast. A hypodense fluid collection with multiple air foci was present in the right properitoneal space, adjacent to the liver, and along the right rectus muscle extending to the right pelvic region, reaching the level of the bladder [Table/Fig-2].

[Table/Fig-1]: Perforated appendix near its base with fluid accumulation, multiple air foci in the right iliac fossa.

Emergency surgery revealed intraoperative gangrenous changes at the ileocaecal junction, a perforation at the base of the appendix, and multiple caecal perforations [Table/Fig-3]. A leaking right-sided retroperitoneal abscess was also observed. The retroperitoneal

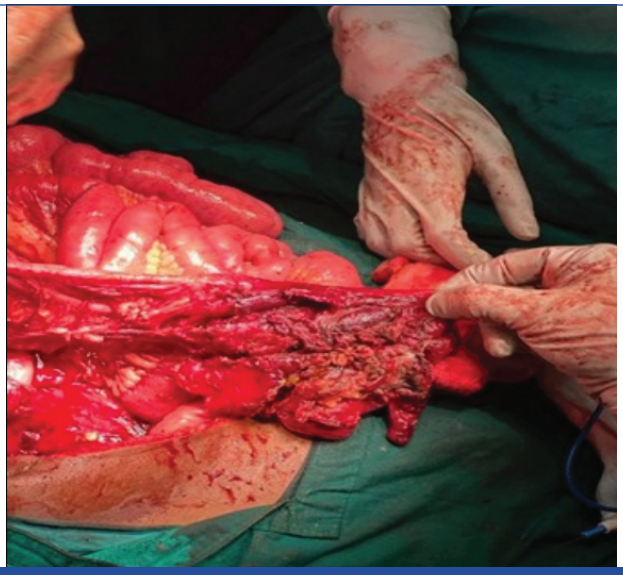


[Table/Fig-2]: Hypodense fluid collection with multiple air foci in the retroperitoneal space on the right-side, adjacent to the liver. The collection extends along the right rectus muscle to the right pelvic region.



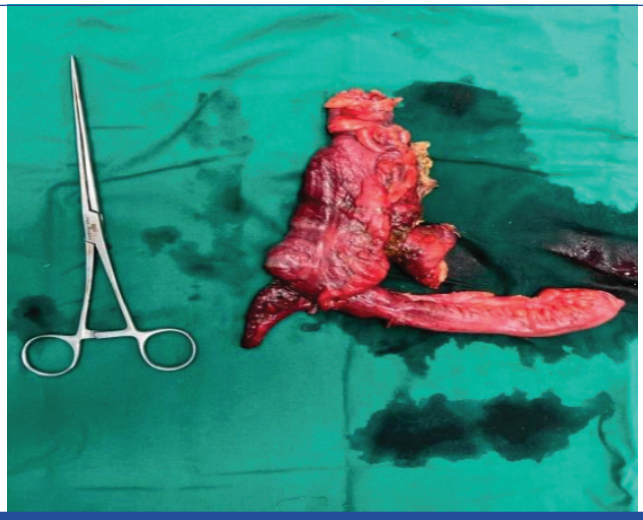
[Table/Fig-3]: Intraoperative pictures showing diverticulitis with cecal perforation.

abscess was drained, the area cleansed, and the gangrenous appendix, caecum, and a segment of the ascending colon resected [Table/Fig-4-6]. An anastomosis was created using the healthy terminal ileum. Two abdominal drains were inserted (one in the right retroperitoneal space and one in the pelvic space), and a temporary ileostomy was performed.



[Table/Fig-4]: Gangrenous bowel.

[Table/Fig-5]: Intraoperative picture of the retroperitoneal abscess.



[Table/Fig-6]: Gangrenous appendix, cecum, and a segment of the ascending colon.

Post-operatively, the patient received intravenous piperacillin/tazobactam and metronidazole and demonstrated symptomatic improvement. He was discharged after 45 days, asymptomatic, and underwent follow-up appointments every two weeks for three months, with an uneventful recovery.

DISCUSSION

Retroperitoneal abscesses secondary to colonic perforation are uncommon. The presence of air or pus in soft tissues is indicative of retroperitoneal colonic perforation. Abscess, gas, and necrosis can spread through the retroperitoneum and mediastinum via anatomical connections. The spread pathway varies depending on the perforation location [1,2].

This case highlights the rare but complex interplay between appendicular and caecal perforation leading to a retroperitoneal abscess. Retroperitoneal abscesses have diverse aetiologies, largely dependent on the infection source, and are diagnosed using USG and CT scans. These findings are consistent with those reported by Tsetse C et al., [3], who described a 43-year-old male presenting with acute, severe right lower quadrant abdominal pain, anorexia, fever, and nausea. In their case, CT scans revealed perforated diverticulitis localised to the caecum, with a normal appendix. Conservative management based on imaging findings resulted in a favourable outcome.

Caecal diverticula are unusual and can cause acute abdominal issues via diverticulitis and subsequent perforation [4]. Caecal perforation is common in adults, often resulting from inflammatory bowel disease, iatrogenic trauma, appendicitis, cancer, diverticulitis, pseudo-obstruction, and lymphoma [5]. It can manifest as a retroperitoneal abscess, a serious, potentially life-threatening infection. Retroperitoneal abscesses can rapidly spread to the perinephric space, lumbar muscles, lateral abdominal walls, and lower body regions [6].

Most cases are incidentally discovered via CT scans or during surgery. Diverticulitis can present acutely inflamed or as perforation, bleeding, or obstruction [7]. Diverticula are pouch-like protrusions in the large intestinal wall, often at points of vascular penetration, creating weak points. Increased intraluminal pressure or food particle damage can lead to small perforations, usually contained by adjacent fat. These pseudodiverticula are common in the distal and sigmoid colon, as they do not extend through the muscular layer [8,9]. Diverticulitis is classified as Left Colonic Diverticulitis (LCD) or Right Colonic Diverticulitis (RCD) [10].

Diverticulitis is the primary complication of diverticular disease, often leading to colon perforation (60% of cases) or functional bowel obstruction. Colon perforation usually results in phlegmonous infiltration, localised abscess, or colovesical fistula. In rare cases, inflammation extends beyond the abdomen, causing abdominal wall abscesses [11]. Typical symptoms include right iliac fossa pain, fever, and leukocytosis. Suspecting caecal diverticulitis is warranted in patients with prolonged symptoms and reduced nausea and vomiting [12].

Radiological imaging is essential for diagnosing diverticular disease and diverticulitis. Imaging features, combined with patient history and physical examination, aid in diagnosis. A study highlighted the crucial role of imaging in definitively diagnosing diverticulitis without exploratory laparotomy [13].

The surgical approach in this case underscores the complexity of managing concurrent diverticulitis, caecal perforation, and retroperitoneal abscess. The anastomosis and ileostomy aimed to prevent post-operative complications, highlighting the nuanced surgical strategy required.

CONCLUSION(S)

This case study provides insights into the rare but intricate relationship between appendicular and caecal perforation leading to a retroperitoneal abscess. Retroperitoneal abscess aetiologies are diverse and depend on the infection source. Surgical drainage is recommended. The case highlights the varied clinical presentations of retroperitoneal abscesses and the importance of timely diagnosis and appropriate intervention.

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