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A Case Report: Caecal Diverticulitis with Perforation

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ABSTRACT

Caecal Diverticulitis with Perforation is a condition where diverticula, small pouches that develop in the wall of the caecum (the first part of the large intestine), become inflamed and may rupture, causing perforation. This can lead to serious complications like infection and peritonitis, requiring prompt medical attention and often surgical intervention.Treatment includesegmental resection of the diseased colon and diversion with a proximal end colostomy, or a Hartmann's procedure (HP). It has an incidence of 0.04%-2.1%. A 45 year old male was admitted with complaints of abdominal pain, vomiting and fever for three days. He has a known complaints of Type II Diabetes Mellitus (T_2DM), Systemic Hypertension (HTN), Dyslipidemia (DLP) is on treatment.

KEY WORDS: Caecal Diverticulitis, Hemicolectomy, Hinchey's Classification.

I. INTRODUCTION

Diverticula are small outpouchings within bowel walls that typically form within the large intestine, including the caecum. They form in an area of relative weakness in the bowel where the vasa recta penetrate the bowel wall.Increased intraluminal pressure or trauma from food particles erodes the wall and causes a localized microperforation, which is usually walled off by adjacent fat. These are pulsion-type pseudodiverticula.[1]Pseudodiverticulum is often seen with involvement of the distal and sigmoid colon as the diverticula does not involve the muscular layer. Right-sided cecal diverticula are believed to be congenital, developed in the sixth week of gestation, as it involves all the three layers of the colon making them a true diverticulum. The terms "diverticulosis" and "diverticular disease" are used to describe the presence of uninflamed diverticula.[2]

Diverticulosis of the colon is a common disease in Western societies. Although the true prevalence of diverticula is unknown, a study was reported with a prevalence of 27%, which increased with advancing age. Some studies suggested that the prevalence of diverticula may be as high as 60% in patients older than 80 years of age and has no sex predilection. Most patients with diverticulosis will have clinically quiescent disease; approximately 80% to 85% are believed to remain asymptomatic.[3][4]

Acute diverticulitis is a painful condition of the gastrointestinal tract that results from sudden inflammation of one or more diverticula in the bowel wall. Right-sided acute diverticulitis, such as caecal diverticulitis, is uncommon diagnosis that can be easily misdiagnosed as acute appendicitis as it shares similar clinical presentation.[5]An unusual complication of right-sided acute diverticulitis such as perforated caecal diverticulitis has different management from acute appendicitis. Thus, definitive diagnosis of this clinical condition with imaging is crucial to optimal management.[6]

In 1978, Hinchey published their classification for acute diverticulitis. The Hinchey classification has traditionally been used in international literature to distinguish four stages of perforated disease.In 1997, Sherintroduced the first modification for distinguishing between a pericolic abscesses (stage I), distant abscesses amendable for percutaneous drainage (stage IIa), and complex abscesses associated with a possible fistula (stage IIb). purulent peritonitis (the presence of pus in the abdominal cavity) in Stage III and Hinchey IV as feculent peritonitis (Intestinal perforation allowing faeces into abdominal cavity).[7]

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Hinchey classification	Modified Hinchey classification
I. Pericolic abscess or phlegmon	I. Pericolicabsces
II. Pelvic, intraabdominal, or retroperitoneal abscess	IIa. Distant abscess amendable to percutaneous drainage IIb. Complex abscess associated with fistula
III. Generalized purulent peritonitis	III. Generalized purulent peritonitis
IV. Generalized fecal peritonitis	IV. Fecal peritonitis

Source :Klarenbeek, B.R., de Korte, N, van der Peet, D.L. Review of current classifications for diverticular disease and a translation into clinical practice. Int J Colorectal Dis. 2012.27, 207–14.

Clinical presentations of caecal diverticulitis perforation can often mimic acute appendicitis, with signs and symptoms of right iliac fossa pain and tenderness, low-grade fever, nausea, vomiting, and leukocytosis.[8]

Diagnostic accuracy is essential, as the mainstay of therapy for right-colonic diverticulitis is medical rather than operative management. Historically, contrast enema was the procedure of choice for diagnosing right colonic diverticula. Though accurate, this technique is limited to asymptomatic patients secondary to risk of perforation during an acute disease flare.[9]Currently, CT scan, ultrasound (US), and magnetic resonance (MR) imaging have all been described as effective modalities to preoperatively differentiate right-sided diverticulitis from other intra-abdominal pathology.[10]

The treatment of right-sided diverticula depends on severity of presentation and modality of diagnosis. Asymptomatic diverticula incidentally found on imaging do not require intervention. Diverticula presenting as a GI bleed are initially managed conservatively with hemodynamic support as 75% of episodes are self-limited. If bleeding persists, endoscopic intervention should be attempted. In cases where endoscopic management fails, right hemicolectomy may be necessary.[11]For patients with recurrent GI bleed from right colon diverticula requires both multiple transfusions or hospitalizations and elective right hemicolectomy.[12]

II. CASE REPORT

A 45 year old male patient was admitted in General Surgery department with complaints of abdominal pain, vomiting, fever for past three days and had history of loose stools. He had known complaints of Type II Diabetes Mellitus, Systemic Hypertension and Dyslipidaemia for 5-10 years, and is on treatment.

He was conscious, oriented and febrile. On examination, chest was clear, he was able to move all limbs, GI was distended and had tenderness. At the time of admission, his vitals were normal. On monitoring the laboratory reports, an elevated parameters such as WBC (13280 cells/cumm), Polymorphs (86.5%), ESR(63 mm/hr),FBS (306 mg/dL), Urea (D1-83mg/dL), D2-(76mg/dL),D3-(53 mg/dL), D5-38 (mg/dL), Creatinine (D1-1.4mg/ dL, D2-1.2mg/ dL,D3-0.8 mg/dL, D5-0.6 mg/dL), Total bilirubin (2.50mg/dL), CRP (563.2 mg/L). and declined parameter of Lymphocytes (9.2%) were observed.

His USG Abdomen and Pelvis revealeda significantinflammatory change in the RIF with caecal and ileal wall thickening; mass like hyperechoic mesentery.A blind ending structurewith apposed lumen and wall thickening noted arising just superior to the IC junction - suspected diverticulitis.Appendix could not be separately visualised. A large irregular collection with air foci along the right paracolic gutter and RIF as described. Distal ileum and a few large bowel loops show sluggish peristalsis - possibly ileus. Possibilities of appendicitis/diverticulitis with rupture and abscess formation. Suggested CECT abdomen for further evaluation. Grade I fatty liver and Left renal calculus was observed.

Initially on the first three days of treatment the patient was managed with the following drugs INJ.MEROPENEM 1g Q8H& INJ.METRONIDAZOLE 500mg Q8H (to treat infection), INJ.PANTOPRAZOLE 40mg BD (to treat gastric irritation).INJ.PARACETAMOL 1g

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Q6H, INJ.TRAMADOL 500mg BD (to reduce pain). He was also given INJ.METOCLOPRAMIDE 5mg/ml OD&INJ LEVOSULPRIDE 12.5mg TDS (to treat nausea and vomiting) and T.BETHANACOL 25mg 1-0-1 (to treat urinary retention). Emergency exploratory laparotomy, paracolic abscess drainage + Right hemicolectomy + Ileo transverse colic side to side anastomosis + peritoneal lavage was done on D4 with the help of general anaesthesia INJ.PROPOFOL 100mg. The pre-anaesthetic medications given during operation are INJ.MIDAZOLAM 1mg, INJ.ONDANSETRON 4mg, INJ.DEXAMETHASONE 8mg, INJ.GLYCCOPYROLATE 0.2mg, INJ.FENTANYL 100mcg, INJ.ATRACURIUM 30mg, INJ.SUCCINYL CHOLINE 100mg, INJ.MORPHINE 3mg. The patient got symptomatically improved and discharged with medications like T. AMOXICILLIN + CLAVULANIC ACID 325mg 1-0-1, T PANTOPRAZOLE 40mg 1-0-0, T.RAMADOL + PARACETAMOL325mg 1-0-1, , T. LEVOSULPIRIDE 25mg 1-0-1 and was given with MULTIVITAMINS.

III. DISCUSSION

Diverticulosis is a clinical condition in which multiple sac-like protrusions (diverticula) develop along the gastrointestinal tract. Though diverticula may form at weak points in the walls of either the small or large intestines, the majority occur in the large intestine (most commonly the sigmoid colon). The majority of individuals with diverticulosis are asymptomatic. Diverticular disease occurs when there is symptomatic diverticulosis (e.g., diverticular bleeding); diverticulitis (e.g., acute or chronic inflammation that may or may not is complicated by abscess formation, fistula formation, bowel obstruction, or perforation); or associated segmental colitis (e.g., inflammation in segments of the mucosal segments of the colon in between diverticula).[13]

A case report byCaleb Tsetse, ShaziaRahatChaudhry, FeraasJabi, Jennifer Nicole Taylor, et al presented a case report on Hinchey stage 1 acute cecal diverticulitis. Where an 43-year-old male patient presented to the emergency room due to a 3-day history of severe right lower quadrant abdominal pain. His symptoms also included lack of appetite, fever, and nausea, but no vomiting. Rebound tenderness was elicited in his right lower quadrant on physical examination. His WBC count was 19800 cells/cummwith neutrophilia. Other hematology and biochemical parameters were unremarkable. Emergency computed tomography (CT) scans were performed and showed that the appendix was normal. However, multiple right-sided colonic diverticula were present with adjacent inflammatory fat stranding and locules of free gas. No diverticula were identified in the distal segments of descending or sigmoid colon. Findings were consistent with isolated Hinchey stage 1 acute cecal diverticulitis. He was successfully treated with intravenous (IV) antibiotics and rehydration with resolution of his symptoms and scheduled for follow-up colonoscopy 6 weeks.[4]

A case report presented byKesiciUgur, et al wherean 54-year male patient is presented, who underwent diverticulectomy due to a caecal diverticulum perforation developed in the early postoperative phase following the appendectomy. The patient was admitted to the hospital following an appendectomy operation that was performed in an epicentre, with the complaints of increasing abdominal pain and swelling. The surgery report from the initial healthcare centre indicated a performed appendectomy having a diverticulum in the cecum. It was indicated that the tip of the cecum was edematous. At the time of admission, the patient had the complaints of distension, extensive sensitivity, and rebound. The intra-abdominal drainage revealed bilious fluid. The examination findings were as follows: body temperature, 38.6ºC; leukocyte count, 14680; and CRP (C-reactive protein), 263.2 mg/L. It was decided that the patient would undergo laparoscopy. The laparoscopic exploration revealed that all the intestinal loops were severely dilated and edematous, and there was extensive bilious fluid in the abdominal cavity. As the operation area was too narrow, it was decided to perform laparotomy. The laparotomy revealed a perforated diverticulum at the cecum, that was approximately 3-4 cm. The colonic wall at the base of the diverticulum was not edematous or inflamed. The diverticulectomy was performed with a linear stapler. The postoperative follow-up did not indicate any complications other than seroma and fat necrosis. The patient was discharged on the 10th postoperative day. The histopathological evaluation reported a diverticulitis (size: 5x5.5 cm).[14]

IV. CONCLUSION

Caecal diverticulitis with perforation presents a significant clinical challenge, often requiring prompt surgical intervention to mitigate

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complications such as peritonitis and sepsis. Management strategies typically involve a combination of antibiotic therapy, bowel rest, and surgical resection of the affected segment. Timely diagnosis and intervention are crucial to prevent further complications and reduce morbidity and mortality rates associated with this condition. Additionally, close monitoring for potential complications such as abscess formation and fistulae is essential during both the acute phase and follow-up care. Overall, a multidisciplinary approach and vigilant management are paramount in achieving favourable outcomes for patients with caecal diverticulitis and perforation

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