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Case Report

Amebic Colitis Presenting as an Obstructed Umbilical Hernia: A Report of an Unusual Presentation

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Abstract

Background: Amebic Colitis (AC) is a parasitic protozoal infection caused by *Entamoeba histolytica*, which can result in intestinal and extraintestinal pathologies. Although the majority of *E. histolytica* AC cases are asymptomatic, they still carry a significant mortality rate. This report details a unique presentation of AC in an elderly patient.

Case summary: A 60-year-old male patient with a history of umbilical hernia is presented in this report. He complained of umbilical abdominal pain, nausea, and vomiting. The patient had recurrent fever, but other systemic reviews were unremarkable. Upon examination, his abdomen was distended, showcasing an umbilical bulge and tenderness throughout the abdomen. Laboratory findings revealed severe leukocytosis. A chest X-ray was unremarkable for pneumoperitoneum, but an abdominal X-ray showed a dilated colon. Consequently, the patient underwent exploratory laparotomy for an obstructed umbilical hernia. Intraoperative exploration found an inflamed colon with a transverse colonic mass reaching the splenic flexure. Management involved a subtotal colectomy with end-to-end anastomosis. A subsequent histopathological examination of the resected colon confirmed the diagnosis of AC. The patient was vitally stable post-operation and was discharged after 1 week.

Conclusion: In this study, we reported an unusual presentation of AC as an obstructed umbilical hernia. This highlights the diverse clinical manifestations of the disease.

INTRODUCTION

Amebic Colitis (AC), a common parasitic infection, is caused by the pathogenic protozoa Entamoeba histolytica , leading to intestinal amebiasis and exhibiting extraintestinal manifestations (Abasszade et al., 2021; Chou & Austin, 2023). The disease is contracted through the ingestion of cysts, generally from fecally contaminated water or food (Abasszade et al., 2021; Chou & Austin, 2023; Haidar & De Jesus, 2023). Predominantly prevalent in developing countries, this condition is often due to inadequate sanitation and heightened water supply contamination (Zulfiqar et al., 2023). This protozoan parasite affects between 15 and 20 percent of the population in India (Shimokawa et al., 2012).

Approximately 90% of E. histolytica infections are asymptomatic, and globally, E. histolytica ranks as the second-leading cause of death due to parasitic infections, claiming around 100,000 lives annually (Abasszade et al., 2021; Chou & Austin, 2023). The clinical presentations of AC are varied; they can range from silent intestinal colonization to invasive extrain-

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testinal amebiasis, which may involve non-bloody diarrhea without mucus, chronic colicky abdominal pain, flatulence, gastritis, weight loss, and fever (Abasszade et al., 2021; Chou & Austin, 2023; Haidar & De Jesus, 2023). Additionally, AC may result in severe complications such as colonic perforation, fulminant necrotizing colitis, toxic megacolon, and hematogenous dissemination to the liver, brain, and lungs (Abasszade et al., 2021; Taherian et al., 2019).

Thus, for both asymptomatic and symptomatic patients with AC, timely diagnosis is essential to halt the disease's spread and prevent adverse consequences. Unfortunately, these parasitic infections pose a diagnostic challenge in the laboratory setting, given the low sensitivity of the currently employed techniques (Das et al., 2021). Furthermore, the vague gastrointestinal symptoms inherent to these infections can mimic those of other colonic diseases, further complicating the diagnosis (Fleming et al., 2015). The gold standard for diagnosing AC is through colonoscopic biopsy followed by microscopic examination for the detection of E. histolytica trophozoites (Taherian et al., 2019).

In this report, we outline an unusual presentation of AC as an obstructed umbilical hernia. To the best of our knowledge, this marks the first case report of AC manifesting as an obstructed umbilical hernia.

CASE PRESENTATION

A 60-year-old Nigerian man, visiting Makkah for Hajj, arrived at the emergency department complaining of abdominal pain in the umbilical region that had persisted for the past three days. He also reported experiencing vomiting and nausea. The patient had been battling recurrent fever, though other symptoms were unremarkable in his systemic review.

In terms of medical history, the patient had a longstanding umbilical hernia but had not experienced any symptoms until recently. He did not have any chronic diseases like diabetes or hypertension, and he was not taking any medications. He had no surgical history. Additionally, he was a nonsmoker and did not consume alcohol, and he had not come into recent contact with sick individuals or traveled recently.

Upon examination, the patient was alert, conscious, and oriented. The patient's weight was 60 kg, height was 160 cm, resulting in a body mass index of 23.4 kg/m 2 . His physiological vitals were as follows: temperature of 36.9○C, blood pressure of 111/88 mmHg, pulse rate of 80 beats/min, respiratory rate of 12 breaths/min, and an oxygen saturation level of 97% in room air. The abdominal examination revealed a distended abdomen marked by a non-reducible bulge in the umbilicus region and generalized tenderness. However, there were no signs of muscular rigidity or skin alterations. The rectal examination did not exhibit any pathological findings.

Initial laboratory findings demonstrated an elevated white blood cell count of 22×10 3 /μL (normal range: 4.5 – 11.0×10 3 /μL); all other laboratory parameters were within normal limits. The chest X-ray did not show any pneumoperitoneum, while the abdominal X-ray showed bowel dilatation (Figure 1).

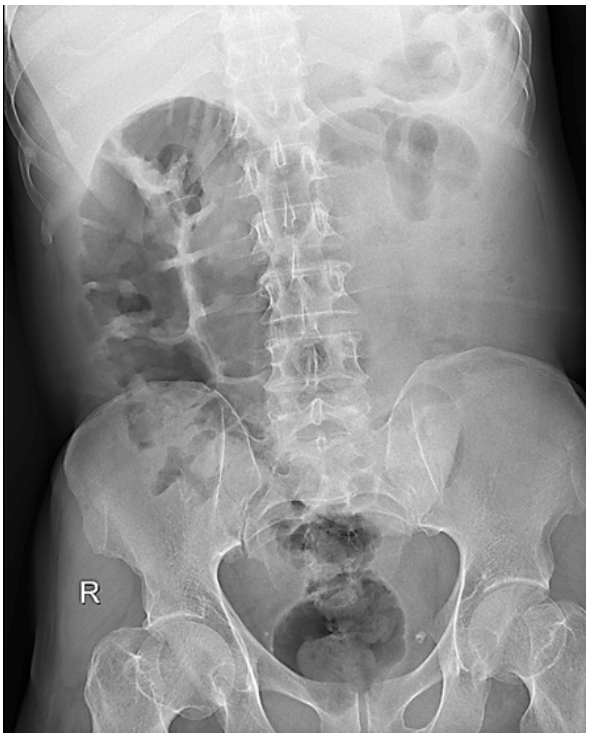

Figure 1: Abdominal X-ray (AP view): The arrow shows a dilated bowel loop.

The patient was admitted due to a case of obstructed umbilical hernia for exploratory laparotomy.

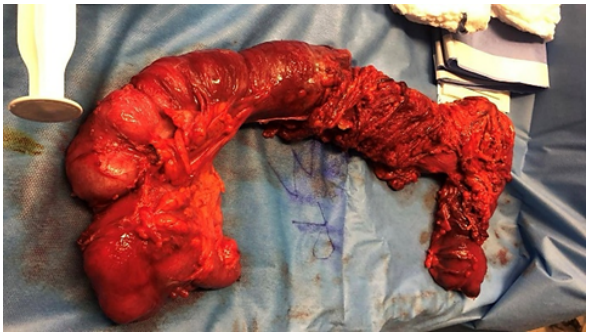

Figure 2: Resected colon, showing a mass at the transverse colon extended to the splenic flexure.

During intraoperative exploration, the hernia was found to contain the terminal ileum, transverse colon, and soiled omentum . A transverse colonic mass extended to the splenic flexure, and the entire colon, excluding the sigmoid, was inflamed. Additionally, a jejunal Meckel's diverticulum was identified and subsequently wedge resected.

The procedure was managed by subtotal colectomy with end-to-end ileocolic anastomosis. The surgical process was uneventful, with the entire operation lasting 180 minutes (Figure 2).

Histopathology results

The colonic wall exhibited diffuse mucosal ulceration covered by a fibrinous exudate. Numerous trophozoites of E. histolytica were observed within the ulcer bed and exudate, extending into the submucosa. These trophozoites featured dense, bubbly cytoplasms and small round nuclei with peripheral rims of condensed chromatin and central dot-like karyosomes . Some demonstrated ingested erythrocytes. Entamoeba organisms were spotted in the terminal ileum, cecum, and ascending colon. Serositis was noticeable. The appendix presented no significant findings, and the lymph nodes, though congested, appeared normal. There was no evidence of malignancy (Figures 3 and 4).

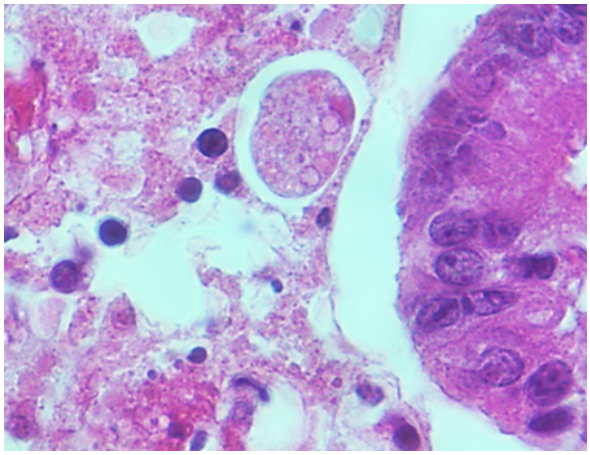

Figure 3: Hematoxylin and eosin-stained tissue from colonic mucosa; arrows show E. histolytica trophozoites, high power (40× magnification)

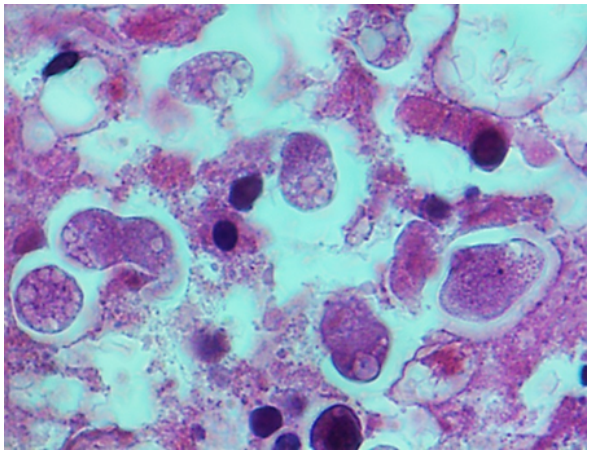

Figure 4: Hematoxylin and eosin-stained tissue from colonic mucosa; arrows show E. histolytica trophozoites, high power (40× magnification)

The patient's clinical condition improved after surgery. As such, he was discharged a week later with a prescription of metronidazole 750 mg to be taken three times daily for 14 days, and Ciprofloxacin 500 mg twice daily for 10 days. The patient was seen at the outpatient clinic one week after discharge, where he reported feeling fine and well. He had no reported complaints, and his surgical wound was dry and clean. All laboratory investigations were within the normal range and there were no post-operative complications. We advised him to continue post-operative treatment as previously discussed.

DISCUSSION

E. histolytica primarily targets two human organ systems: the gastrointestinal tract and the liver (Stanley, 2003). The range of associated intestinal illnesses includes a variety of clinical scenarios, from asymptomatic infections to severe colitis (Wanke et al., 1988). This case of AC presenting as an obstructed umbilical hernia is an extremely unusual and challenging clinical scenario. From a thorough literature review, the authors deduced that this could be the first reported case of its kind. AC usually manifests with gastrointestinal symptoms like non-bloody diarrhea, abdominal pain, and fever (Haque et al., 2003). However, the absence of these typical symptoms in this case, and the main complaint being epigastric abdominal pain, nausea, and vomiting, highlight the diverse and atypical presentations of this condition. While AC can have varied extraintestinal presentations (Zulfiqar et al., 2023), an obstructed umbilical hernia is exceptionally rare.

Determining why a patient may present with atypical findings is crucial. AC is known for its diverse clinical manifestations, ranging from asymptomatic carriage to severe and life-threatening complications (Haque et al., 2003). The variability in symptomatology is attributed to the host's immune response and the virulence of the E. histolytica strain (Haque et al., 2003). In cases where the immune response successfully contains the infection locally, as observed in this instance, typical gastrointestinal symptoms may be absent. This leads to an atypical presentation of localized abdominal pain and abdominal distention (Fleming et al., 2015). Yoon et al. (1991) suggested that the subclinical progression of AC may contribute to the lack of overt symptoms typically associated with intestinal amebiasis. Higami et al. (2015) documented a case featuring an amebic intra-abdominal mass, shedding light on the diagnosis of asymptomatic AC in individuals with intra-abdominal tumors. This underscores the potential for an amebic intra-abdominal tumor as a differential diagnosis. Similarly, the gradual development of an intestinal mass without evident systemic manifestations may initially have masked the underlying amebic infection, allowing the patient's presentation to mimic that of an incarcerated umbilical hernia. The obstructed um-

bilical hernia could have exacerbated the local effects of AC. The adhesions between the ileum and the sigmoid colon discovered during surgery suggest the possibility of mechanical obstruction or distortion of normal bowel motility. This could have potentially contributed to the patient's epigastric pain and nausea. The hernia site could have acted as a focal point for the localized effects of the amebic infection. Moreover, the patient being from Nigeria, a country with a high prevalence of amebic infections, adds a layer of complexity to the present condition. Regional variations in the clinical expression of AC are well documented, and the unique epidemiological characteristics of the local strain may play a role in the diversity of the presentations observed. All of these unique factors combined have resulted in this exceedingly rare presentation of AC (Petri & Singh, 1999).

The rarity of AC presenting as an obstructed umbilical hernia highlights the challenges clinicians face in diagnosing it. This underscores the need to maintain a wide range of potential diagnoses, especially in regions where amebiasis is endemic and may present in uncommon ways. This condition often presents symptoms that mirror those of colon carcinoma (Abasszade et al., 2021). The diagnosis of AC typically involves a mix of clinical assessments, imaging studies, and laboratory tests (Zulfiqar et al., 2023). An essential initial step is the stool examination for E. histolytica cysts or trophozoites, although its sensitivity can sometimes be limited due to the intermittent shedding of cysts (Das et al., 2021). Serological tests are also beneficial as they detect antibodies against E. histolytica , and can help when stool examinations are not conclusive (Saidin et al., 2019). Abdominal ultrasound or computed tomography scans are valuable imaging techniques to visualize colonic lesions, abscesses, or complications like perforation or peritonitis (Kinoo et al., 2018). Nonetheless, the gold standard for a definitive diagnosis is colonoscopy or endoscopy with biopsy, offering direct visualization of colonic ulcers and detection of trophozoites in biopsy samples (Kaenkumchorn & Wahbeh, 2020). Microscopic examination of colonic tissue or aspirates shows characteristic findings, including trophozoites with ingested erythrocytes, which secure a precise diagnosis and guide suitable management strategies (Haque et al., 2003).

Conversely, diagnostic challenges may arise as initial laboratory findings may not definitively indicate an amebic origin (Tomino et al., 2021). This highlights the importance of histopathological examination, particularly in cases where clinical findings diverge from conventional presentations. Upon diagnosis, prompt and accurate management is crucial. Treatment for these cases typically involves surgical intervention to remove the affected area, succeeded by a course of antibiotics (Ishida et al., 2003; Taherian et al., 2019). A study by Tomino et al. suggested that in severe amebic colitis instances, utilizing broad-spectrum antibiotics adjunctively is recommended to combat possible peritoneal bacterial contamination (Tomino et al., 2021). Additionally, patients who underwent surgery without previous metronidazole therapy recorded a 100% mortality rate, while those who received metronidazole reported a 79% post-surgery recovery rate (Tomino et al., 2021). Therefore, the administration of metronidazole during the perioperative period notably improves survival rates among severe AC patients. It was also observed that patients with severe AC cases who required aggressive resection had a 57% mortality rate, but the addition of metronidazole significantly improved survival outcomes in these scenarios. This represents successful post-operative recovery and swift discharge, signifying an effective management strategy (Tomino et al., 2021). These findings emphasize the significance of swift surgery and targeted pharmacotherapy in managing AC, preventing potential complications, and ensuring favorable patient outcomes .

CONCLUSION AND RECOMMENDATIONS

The atypical manifestation of AC as an obstructed umbilical hernia in this case underscores the diverse clinical nature of the condition. Although typically marked by gastrointestinal symptoms, it lacked these indicators in this instance, highlighting the diagnostic challenge involved, particularly in regions with a high prevalence of amebiasis. This emphasizes the importance of considering parasitic causes, even in seemingly unrelated clinical presentations, to avoid misdiagnoses and ensure prompt and appropriate management. The significance of a multidisciplinary approach is demonstrated through the successful use of surgical intervention and antibiotics in addressing such complex cases. Documenting and reporting these unique cases play a pivotal role in improving understanding of the varied clinical spectrum of AC, thereby directing optimal patient care.

ETHICAL STATEMENT

Ethical approval was not required for this study in accordance with our institution requirements.

Verbal consent was obtained from the patient to participate in this study. Every precaution has been taken to protect the privacy of research subjects and confidentiality of their personal information.

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AUTHOR CONTRIBUTION

The authors participated equally in each step of the research process.

DECLARATIONS

Conflict of interest: The authors have no relevant financial or non-financial interests to disclose. The authors declare no conflict of interest.

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