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Case Report

Acute abdomen due to ileal perforation with an unexpected appendiceal mucocele: an intraoperative diagnostic challenge

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ABSTRACT

Acute abdomen secondary to intestinal perforation is a life-threatening surgical emergency that requires prompt diagnosis and intervention. Appendiceal mucocele is a rare entity that is frequently discovered incidentally and may carry significant clinical implications due to the risk of pseudomyxoma peritonei if rupture occurs. We report the case of an 82-year-old female who presented with a 2-day history of diffuse abdominal pain, nausea, decreased bowel movements, leukocytosis, metabolic acidosis, and signs of peritoneal irritation. Computed tomography demonstrated free intraperitoneal air and fluid collections suggestive of intestinal perforation. Emergency exploratory laparotomy revealed fecal peritonitis secondary to distal ileal perforation with transmural necrosis. Intraoperatively, an incidental dilated appendix consistent with appendiceal mucocele was also identified. Surgical management included small bowel resection with terminal ileostomy and appendectomy. Histopathological examination confirmed ischemic ileal perforation and appendiceal mucocele. This case highlights the diagnostic complexity of acute abdomen and emphasizes the importance of meticulous intraoperative exploration, as unexpected findings may alter surgical management and influence outcomes. Careful recognition and treatment of incidental appendiceal mucocele are essential to prevent complications such as pseudomyxoma peritonei.

Keywords: Acute abdomen, Ileal perforation, Appendiceal mucocele, Incidental finding, Exploratory laparotomy

INTRODUCTION

Acute abdomen remains a common and challenging surgical emergency. It occurs in an estimated 5-7 cases per 1,000 persons per year. This condition accounts for 5-12% of all emergency department visits. Nearly 20% of patients require surgery. Significant morbidity and mortality follow if clinicians fail to promptly recognize and manage an acute abdomen.[1,2] Advances in diagnostic imaging now enable clinicians to identify the precise cause of pain preoperatively. However, clinicians must often resort to surgery to achieve a definitive diagnosis and management in many cases.[3] Intestinal perforation often causes a life-threatening acute abdomen. It frequently leads to broad peritonitis and sepsis.[4] Ischemic and inflammatory processes can affect the distal ileum. This may cause transmural necrosis and perforation requiring urgent surgery.[5] Clinicians must recognize symptoms early and intervene surgically to reduce risks. Appendiceal mucocele is rare, representing about 0.2-0.7% of appendiceal specimens.[6] The condition is defined by abnormal mucin accumulation in the appendix. It may range from benign retention cysts to mucinous neoplasms.[7]

Most patients have no symptoms. The lesion is often discovered incidentally during imaging or surgery. However, identifying it remains critical because rupturing the mucocele can cause pseudomyxoma peritonei, a severe complication.[8] In acute abdomen, unexpected intraoperative findings can affect surgical decisions and outcomes.[9] Preoperative imaging may not detect these issues, underscoring the importance of a thorough abdominal examination during surgery. This case of ileal perforation with the incidental discovery of an appendiceal mucocele underscores the importance of intraoperative vigilance. Identifying and appropriately managing such incidental findings can alter surgical strategies, optimize patient outcomes, and reduce postoperative complications. Therefore, surgeons should systematically assess the entire abdominal cavity during emergency procedures to ensure that all coexisting pathologies are recognized and addressed.

CASE REPORT

An 82-year-old female came to the emergency department after 2 days of nausea, poor oral intake, and diffuse colicky abdominal pain. She had decreased bowel movements and dark stools, likely melena. Her medical history included intestinal resection and anastomosis 20 years ago due to bowel obstruction. The specific segment resected is unknown. On physical exam, she appeared ill. She had decreased bowel sounds, diffuse abdominal tenderness-especially in the right flank and rebound tenderness. These signs were consistent with peritoneal irritation.

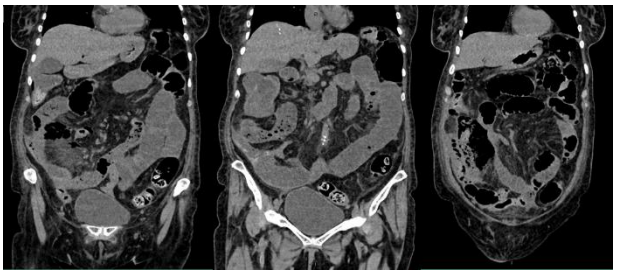

Figure 1: Non-contrast computed tomography image demonstrating intra-abdominal pathology consistent with acute abdomen. The scan reveals evidence of free intraperitoneal air and localized fluid collections, suggestive of intestinal perforation.

Laboratory tests revealed leukocytosis ($26.5\times10^3/\mu l$) with neutrophilia, elevated C-reactive protein (23.8 mg/dl), and metabolic acidosis. Non-contrast computed tomography demonstrated free intraperitoneal air and localized fluid collections, which are findings consistent with intra-abdominal pathology as referenced and depicted in Figure 1. These results align with established imaging approaches for acute abdomen. As the patient's clinical condition deteriorated and the physical examination revealed signs of peritonitis, an urgent exploratory laparotomy was performed, following standard operative protocols for suspected intestinal perforation.

Figure 2: Gross specimen of appendiceal mucocele. Ovoid tissue specimen measuring 9.0×4.0 cm with a fluctuant consistency. On sectioning, a fibrous wall measuring approximately 0.2 cm in thickness is identified, with extrusion of mucinous material, consistent with appendiceal mucocele.

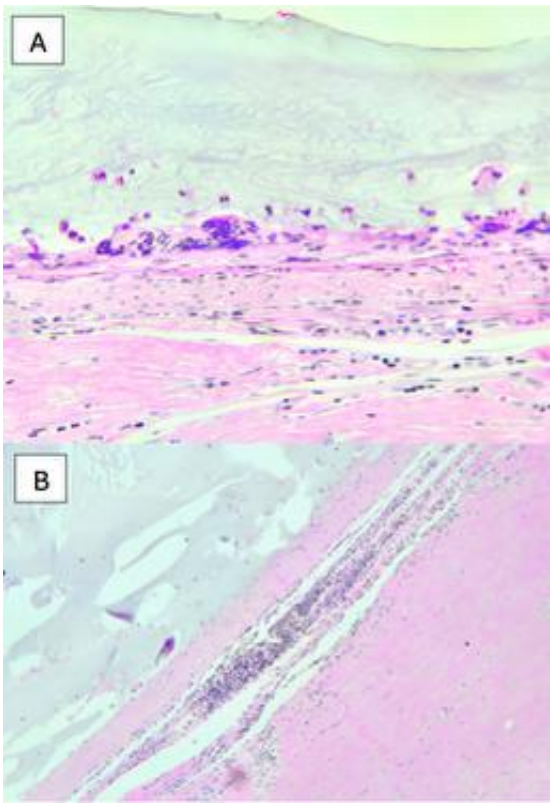

Figure 3: Histopathological findings of appendiceal mucocele: (A) photomicrograph at 40x magnification, hematoxylin and eosin (H and E) staining. Higher magnification shows a fibrous wall in the lower portion, and at the interface with the acellular mucinous content, remnants of mucinous-type columnar epithelium are observed and (B) photomicrograph at 40x magnification, hematoxylin and eosin (H and E) staining. Higher magnification shows a fibrous wall in the lower portion with lymphocytic infiltrate, and at the interface with the acellular mucinous content, the epithelium is completely denuded.

During surgery, we identified fecal peritonitis in the right upper quadrant. There was a transmural defect involving about 80% of the distal ileum's circumference. This defect was 200 cm from the ligament of Treitz and 20 cm from the ileocecal valve. These findings indicated intestinal perforation. We also observed dense adhesions between the small bowel and omentum.

We found a dilated tubular appendix, about 6×4 cm. It had smooth, thin walls and a whitish appearance. This was suggestive of an appendiceal mucocele. The team resected a small bowel segment and created a terminal ileostomy. We also performed an appendectomy and closed the appendiceal stump using the Pouchet technique (Figure 2).

Histopathological examination confirmed that the resected ileal segment exhibited transmural hemorrhagic ischemic necrosis with evidence of perforation and associated acute peritonitis. In addition, analysis of the appendix, which measured 9.0×4.0 cm, revealed a cystic lesion filled with mucin and a smooth external surface, features consistent with a mucocele. These pathology findings corroborated the intraoperative observations and established the final diagnosis of appendiceal mucocele (Figure 3).

Postoperatively, the patient initially had an uncomplicated course. However, during the hospital stay, she developed hospital-acquired pneumonia. Despite appropriate management, the patient's condition deteriorated, and she ultimately died.

DISCUSSION

This patient had peritonitis due to ileal perforation, which is life-threatening and required urgent surgery. Ischemic injury often causes small bowel perforation, especially in the distal ileum, where poor blood flow may lead to necrosis.[4,5] Notably, we found an unexpected appendiceal mucocele during surgery. Although often asymptomatic and identified by chance, clinicians must note its presence. Rupture may cause pseudomyxoma peritonei with severe consequences.[8]

The most important aspect is the simultaneous presence of these two pathologies. Preoperative imaging did not identify the appendiceal lesion. This demonstrates the limits of diagnostic tools for acute abdomen.[10] In peritonitis and perforation, imaging often shows a dominant problem. This case stresses the need for thorough intraoperative exploration. In emergency surgery, surgeons focus on identifying and controlling contamination. However, they must also recognize additional findings that can affect surgical decisions. The appendix should be handled carefully to avoid rupture and the spread of mucinous material.

Appendiceal mucocele may appear incidentally during abdominal surgery, but its association with ileal perforation is rare and not well documented. This case does not show a direct cause between the two. Instead, it emphasizes the coexistence of two separate problems and highlights the need for systematic, comprehensive surgery. This report highlights several important clinical considerations. Acute abdomen should be managed with the awareness that multiple pathologies may coexist and influence intraoperative and postoperative decisions. Intraoperative findings can diverge from preoperative expectations, even with high-quality imaging, underscoring the need for surgical adaptability. Incidental findings such as appendiceal mucocele must be promptly identified and managed to prevent subsequent complications. A meticulous and comprehensive surgical assessment remains essential. However, this case features notable limitations that warrant further consideration. Specifically, the absence of a definitive causal relationship between the ileal perforation and the appendiceal mucocele creates diagnostic uncertainty. This uncertainty is compounded by the fact that preoperative imaging failed to detect the mucocele, which raises questions about the sensitivity of current diagnostic modalities in emergent, multifaceted presentations. Additionally, the coexistence of these two pathologies in a single surgical episode, while possibly coincidental, highlights the potential for confounding factors or undiscovered pathophysiological links that cannot be fully evaluated in a single case study. These limitations highlight the inherent diagnostic complexity of acute abdominal cases and underscore the need for more robust preoperative assessment protocols and for considering broader differential diagnoses during intraoperative evaluation.

CONCLUSION

This case emphasizes the diagnostic complexity of the acute abdomen and demonstrates the value of meticulous intraoperative exploration in emergency operative settings. Rather than implying a direct causal relationship, this report emphasizes that distinct pathologies can co-occur in the acute setting and underscores the need for a systematic surgical approach, and promptly adapting operative plans to address incidental findings. Careful recognition and management of incidental findings can greatly affect clinical outcomes.

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REFERENCES

1. Börner N, Kappenberger AS, Weber S, Scholz F, Kazmierczak P, Werner J. The acute abdomen: structured diagnosis and treatment. Dtsch Arztebl Int. 2025;122(5):137-44.

2. Sangiorgio G, Biondi A, Basile F, Vacante M. Acute abdominal pain in older adults: a clinical and diagnostic challenge. Minerva Chir. 2020;75(3):169-72.
3. De Burlet KJ, Ing AJ, Larsen PD, Dennett ER. Systematic review of diagnostic pathways for patients presenting with acute abdominal pain. Int J Qual Health Care. 2018;30(9):678-83.
4. Sebbane M, Dumont R, Jreige R, Eledjam JJ. Epidemiology of acute abdominal pain in adults in the emergency department setting. CT of the acute abdomen. Berlin, Heidelberg: Springer. 2011;3-13.
5. Trentzsch H, Werner J, Jauch KW. Acute abdominal pain in the emergency department: a clinical algorithm for adult patients. Zentralbl Chir. 2011;136(2):118-28.
6. Köhler F, Matthes N, Rosenfeldt M, Kunzmann V, Germer CT, Wiegering A. Neoplasms of the appendix. Dtsch Arztebl Int. 2023;120(32):519-26.
7. Ward P, Florio T, Barwari S, Miller G, Collignon TE. Appendiceal mucinous neoplasm: a case of an incidental finding. Cureus. 2024;16(5):e60672.
8. Van de Moortele M, De Hertogh G, Sagaert X, Van Cutsem E. Appendiceal cancer: a review of the literature. Acta Gastroenterol Belg. 2020;83(3):441-8.
9. Shaib WL, Assi R, Shamseddine A, Alese OB, Staley C, Memis B, et al. Appendiceal mucinous neoplasms: diagnosis and management. Oncologist. 2017;22(9):1107-16.
10. Misdraji J. Appendiceal mucinous neoplasms: controversial issues. Arch Pathol Lab Med. 2010;134(6):864-70.

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