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Case Report

Concurrent Acute Appendicitis and Epiploic Appendagitis: A Rare Clinical Case

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Abstract: ***Background*:** Epiploic appendagitis is a rare cause of acute abdominal pain due to ischemia or inflammation of the epiploic appendages, small fat filled structures along the colon. Because of its clinical presentation often mimicking more common conditions such as appendicitis or diverticulitis, it can be a diagnostic challenge. The appendix is equally uncommon in a subhepatic location, and this atypical location adds further to the diagnostic difficulty. Early recognition and treatment are important to prevent complications and to ensure effective treatment. ***Case Presentation*:** A non-hypertensive, non-diabetic male presented with a 3-day history of continuous right upper quadrant pain, accompanied by nausea and vomiting. Physical examination revealed right upper quadrant tenderness with rebound tenderness, while laboratory tests showed elevated inflammatory markers. Ultrasound findings included a non-compressible, edematous blind loop in the subhepatic region measuring 9.2 mm in diameter. It is surrounded by stranded mesenteric fat, echogenic mesocolic fat, colonic wall edema, and a minimal free fluid collection. Based on these findings, subhepatic acute appendicitis with associated acute epiploic appendagitis was diagnosed. The patient underwent emergency laparoscopic appendectomy and removal of the inflamed epiploic appendages. Intraoperative findings confirmed a suppurative appendix in the subhepatic region and thickened epiploic appendages surrounded by inflamed tissue. Histopathological analysis corroborated features of subhepatic appendicitis and epiploic appendagitis. ***Conclusion*:** The diagnostic and surgical complexities of subhepatic appendicitis and epiploic appendagitis are illustrated in this case. Laparoscopic surgery remains a safe and effective treatment and imaging is important in identifying atypical presentations. Management of atypical acute abdominal pain presentations requires awareness of these conditions.

Keywords: Epiploic appendagitis, appendicitis, laparoscopic appendectomy, acute abdominal pain.

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INTRODUCTION

Acute appendicitis is a frequently occurring condition that involves inflammation of the vermiform appendix [1]. Acute mucosal appendicitis refers to the inflammation of the mucosa in the appendix, which looks normal when viewed macroscopically [2]. Appendiceal inflammation is typically caused by a blockage in the lumen, often due to fecal or enlarged lymphoid tissue [3]. It's one of the most common reasons for an acute abdomen that requires emergency surgery [4]. However, there are several other reasons for acute abdominal pain that might seem like acute appendicitis [4]. One of the root causes is a sudden torsion of an epiploic appendage of the colon [5].

Epiploic appendagitis is a rare, self-limiting, ischemic, or inflammatory condition of the appendices epiploicae of the colon [6]. It can appear either primary or secondary to adjacent pathology [6]. The incidence reported is approximately 8.8 cases per million people per year [7]. It accounts for approximately 1% of hospital visits for acute abdominal pain [8]. Furthermore, studies have shown that about 5% of patients initially diagnosed with diverticulitis or appendicitis later turn out to have epiploic appendagitis [9].

Even though the physiological role of epiploic appendages isn't clearly defined, it's been suggested that they might play a part in colonic absorption and could have some protective or defensive functions similar to those of the greater omentum [10]. Also, it has been

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stated that appendages play a role in providing cushioning for colonic vessels during peristalsis [10]. By the time someone reaches adulthood, the majority of epiploic appendages measure about 1–2 cm in thickness and 2–5 cm in length [11]. Acute torsion and the resulting ischemic infarction of these structures are uncommon events, often called epiploic appendicitis [12].

The widespread use of computerized tomography as the gold standard imaging test in cases of acute abdominal pain has resulted in increased recognition and diagnosis of epiploic appendagitis [9]. As preoperative CT scanning becomes more common and accurate, along with the ongoing shift towards laparoscopic surgery for appendicectomy, we can expect that the diagnosis of EA will likely rise. It's really important for general surgeons and gynecologists to consider EA when diagnosing right iliac fossa pain, and they should know that conservative management is a suitable option [13]. Additionally, having a low threshold for doing preoperative CT scans when EA is suspected could help avoid unnecessary surgeries.

Regarding treatment options for both of these conditions, epiploic appendagitis is generally a self-resolving condition that is effectively managed with analgesics alone, despite often presenting with severe abdominal pain [13]. Due to the similar clinical presentation of both conditions, distinguishing between them can be challenging. This case report highlights the rare concurrent presentation of subhepatic acute appendicitis and epiploic appendagitis in a non-hypertensive, non-diabetic male with acute right upper quadrant pain, requiring emergency laparoscopic intervention.

CASE PRESENTATION

A non-hypertensive, non-diabetic male presented to the Emergency Department with a 3-day history of deep, continuous pain in the right upper quadrant. He reported nausea and vomiting. Upon examination, the patient appeared uncomfortable; however, he was febrile and hemodynamically stable, and his cardiorespiratory assessment was unremarkable.

Physical examination demonstrated tenderness in the right upper quadrant, with rebound tenderness noted, while the remainder of the abdomen was non-tender and bowel sounds were normal. Blood tests indicated elevated inflammatory markers.

Findings on the Ultrasound of the abdomen and pelvis revealed evidence of an edematous, static, non-compressible blind loop in the right upper quadrant, with its tip located in the subhepatic region, measuring approximately 9.2 mm in diameter. This was surrounded by stranded mesenteric fat and minimal fluid collection. Increased echogenicity of the mesocolic fat was also observed, along with associated edema of the colonic wall. Additionally, the examination revealed provoked tenderness, and minimal surrounding free fluid.

Based on these findings, diagnoses of subhepatic acute appendicitis and acute epiploic appendicitis were made. The patient was then registered in the Surgery Department for emergency laparoscopic appendectomy and appendage removal.

During operation, an inflamed, suppurative appendix was found in the abdominal right upper quadrant, with its tip in the subhepatic region. In addition, surrounding thickened epiploic appendages were found measuring approximately 2 cm in both thickness and length, a position atypical for the appendix. Encased in inflamed tissue, these appendages supported the presence of an inflammatory process in the region.

A laparoscopic appendectomy was performed to remove the inflamed appendix and the affected epiploic appendages. The minimally invasive approach allowed precise removal of the pathological tissues without postoperative complications.

Lastly, the removed specimens were histopathologically examined and confirmed to feature suppurative appendicitis and peri appendicitis in the appendix. The analysis of fibrofatty tissue also showed fibrin deposition, thrombosed vessels and focal mild active chronic inflammation consistent with the diagnosis of epiploic appendagitis.

DISCUSSION

Epiploic appendagitis involves serosa-covered, fat-filled, pedunculated peritoneal structures that protrude into the peritoneal cavity from the outer wall of the bowel [14]. These appendages, measuring between 0.5 and 5 cm in size, are arranged in two distinct longitudinal rows along the serosal surface of the colon [15]. Epiploic appendages house branches of a central draining vein and circular artery [15]. While these structures can be found throughout the colon, they are typically larger and more abundant along the walls of the transverse colon and sigmoid colon [16]. Their exact function remains unclear. Inflammation of the epiploic appendages, known as epiploic appendagitis, has been linked to factors such as physical exertion, hernia, and obesity [17]. EA is most commonly observed in males between their third and fifth decades of life [17].

The pathophysiology of epiploic appendagitis is primarily attributed to the torsion of epiploic appendages, which results in vascular obstruction and subsequent necrosis. However, it may also develop due to inflammatory processes or embolic events [14]. Patients with EA typically present with sudden onset localized pain in the lower quadrant abdominal pain, which often mimics the symptoms of diverticulitis or appendicitis [17].

Epiploic appendagitis is typically diagnosed with current ultrasound findings of a small, oval, noncompressible hyperechoic mass adjacent to the colon surrounded by hypoechoic inflammation [18]. On Doppler imaging, it may appear to show no significant vascular flow within the lesion, which is different from other conditions. In our case, ultrasound findings revealed a static, edematous, non-compressible blind loop in the right upper quadrant, with its tip located in the subhepatic region, measuring approximately 9.2 mm in diameter.

Additionally, Laboratory results for EA are often within normal ranges; however, elevated white blood cell counts and C-reactive protein levels have been observed [10]. In our case, blood marks also showed elevated inflammatory markers. The diagnosis of acute EA primarily also relies on cross-sectional computed tomography, although ultrasound and magnetic resonance imaging (MRI) are occasionally utilized [10].

Rarely, epiploic appendagitis can be accompanied by acute appendicitis. Diagnosing epiploic appendagitis can be challenging due to its nonspecific symptoms, which may be mistaken for either acute diverticulitis or acute appendicitis [7]. Thus, up to 7% of patients initially diagnosed with acute diverticulitis and up to 0.3–1% of those diagnosed with acute appendicitis were reported to have EA [7]. This misdiagnosis can result in poor outcomes, like unnecessary use of antibiotics, hospitalization, and needless surgical procedures. EA is usually self-limited but in rare cases can cause peritonitis, abscess formation, adhesions, bowel obstruction, or intussusception [10].

Treatment for EA starts with anti-inflammatory medications, such as non-steroidal anti-inflammatory drugs (NSAIDs), and then pain relief if needed such as opioids. Caecal epiploic appendagitis can be a diagnostic problem and may be misdiagnosed as acute appendicitis [14]. Laparoscopic removal of the epiploic appendage is indicated when it occurs with acute appendicitis, particularly when conservative management does not relieve symptoms or complications such as abscess, obstruction, or intussusception. Our patient also underwent a laparoscopic appendectomy.

CONCLUSION

This case illustrates the diagnostic and surgical quandaries of subhepatic acute appendicitis and epiploic appendagitis when they coexist. Imaging modalities such as ultrasound are essential to detect atypical presentations and to direct the appropriate and timely surgical management. These conditions can be treated successfully with minimal complications, but laparoscopic intervention is a reliable and minimally invasive method. Epiploic appendagitis is a differential diagnosis that should be considered in the differential diagnosis of acute abdominal pain, especially in atypical anatomic presentation, as illustrated in this case.

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