



Atypically located incidental appendicitis during laparoscopic cholecystectomy

Atipično lociran apendicitis, odkrit po naključju med laparoskopsko holecistektomijo

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Abstract

Appendicitis is the most common surgical emergency. It classically presents with periumbilical pain that localizes to the right lower quadrant and nausea, vomiting, anorexia, and fever. Acute appendicitis may result from an obstructing faecolith or some other mechanical blockage. However, appendicitis presenting with rare and misleading right upper quadrant pain may result in an initial false-negative diagnosis by the physician and even result in negative findings on computed tomography (CT) or ultrasound, increasing the risk of perforation/abscess formation and prolonged hospital stay. This report presents a case of atypical appendicitis during laparoscopic cholecystectomy where the correct diagnosis was not initially considered. Unusual localization was documented several times, otherwise known as classical localization of the appendix. Findings of acute appendicitis varied according to the localization of the appendix. The most common position was the retrocaecal region (65-70%). Other localizations were paraileal, postileal, promontoric, pelvic, subcaecal, paracolonic and retrocaecal. These conditions were important to recognise, given that they may need additional specific management. This case report study showed atypical located incidental appendicitis during laparoscopic cholecystectomy.

Izveček

Apendicitis je najpogostejše stanje, ki zahteva nujno kirurško intervencijo. Tipični znaki so periumbilikalna bolečina, lokalizirana v desnem spodnjem kvadrantu, ter slabost, bruhanje, anoreksija in povišana telesna temperatura. Akutni apendicitis lahko nastane zaradi zapore s fekolitom ali drugo mehansko zaporo. Vendar pa se lahko apendicitis sicer redko kaže z bolečino v desnem zgornjem kvadrantu, zaradi česar lahko zdravnik v začetku postavi lažno negativno diagnozo, negativen pa je lahko celo izvid računalniške tomografije (CT) ali ultrazvoka, kar poveča tveganje za nastanek perforacije/abscesa in podaljšanje hospitalizacije. V tem poročilu je predstavljen primer atipičnega apendicitisa med laparoskopsko holecistektomijo, kjer na začetku ni bila ugotovljena pravilna diagnoza. Večkrat je bila dokumentirana nenavadna lokalizacija, ki je sicer značilna za klasično lokalizacijo slepiča. Izvidi akutnega apendicitisa so se razlikovali glede na lokalizacijo slepiča. Najpogostejša je bila retrocekalna lega (65-70 %). Druge lokalizacije so bile parailealna, postilealna, promontorična,

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pelvična, subcekalna, parakolična in retrocekalna. Ta stanja je bilo pomembno prepoznati, saj lahko zahtevajo dodatno specifično zdravljenje. V tej študiji s prikazom primera je bil med laparoskopsko holecistektomijo po naključju odkrit atipično lociran apendicitis.

1 Introduction

Acute appendicitis is one of the most common causes of acute abdominal pain and frequently emergent abdominal surgery worldwide (1,2,3). Another cause of acute abdominal pain is acute cholecystitis which typically develops in patients with symptomatic cholelithiasis. In most cases, pain in the right upper quadrant is of biliary origin. Diseases of the biliary system are often visualized by ultrasonography; however, a positive test does not rule out just non-biliary causes. Moreover, many several non-biliary diseases have to be considered. Acute appendicitis and acute cholecystitis are among the most common pathologies encountered in general surgery (5). However, simultaneous appendicitis and cholecystitis in a single patient have only been rarely reported previously (3-5). Having an awareness of the possibility of this dual diagnosis will allow clinicians to entertain this differential in patients who present with acute abdomen where the physical examination and imaging studies suggest acute cholecystitis. In these cases, a successful initial diagnosis is essential in preventing the need for a subsequent surgery for the second cause of their acute abdominal pathology and reducing the risk of mortality from a second undiagnosed infection. We also aim to describe the atypical anatomic presentation of incidental appendicitis during laparoscopic cholecystectomy. Atypical anatomic presentation of incidental appendicitis, especially partial malrotation of the right colon and caecum was described by Auh et al. in 1985 (6). It is a rare normal variant of the caecum and colon. It is usually of little or no clinical significance. However, it may present with signs and symptoms when the appendix is inflamed. It can be confused with some other inflammatory diseases, such as peritonitis.

2 Case presentation

A 43-year-old woman presented to the clinic complaining of acute right-sided abdominal pain and vomiting for a couple of days. On examination, she was afebrile with stable vital signs but had tenderness and local guarding of the right side of her abdomen in the right upper quadrant. Her initial blood results were as follows: white blood cells of $12.2.9 (10)^9/L$, neutrophils

of $8.5 (10)^9/L$, and C-reactive protein of 24 mg/L. Upon admission, the patient's vital signs were tachycardic, 123 BPM, and hypertensive, 142/106 mmHg. Her haemoglobin was 12.1 g/dL, and her haematocrit was 36.4%. The patient's arterial blood gas presented with a pH of 7.41, pCO₂ of 32 mmHg, pO₂ of 98 mmHg, and HCO₃ of 18.8 mEq/L. She was admitted for hydration, symptomatic relief, monitoring, and imaging. She mentioned that the pain was more prominent in the epigastric and the right upper quadrant. The test for COVID-19 was negative. Her previous medical history was uneventful.

Computer tomography (CT) of the abdomen and pelvis was performed. Gallbladder CT (Figure 1) also

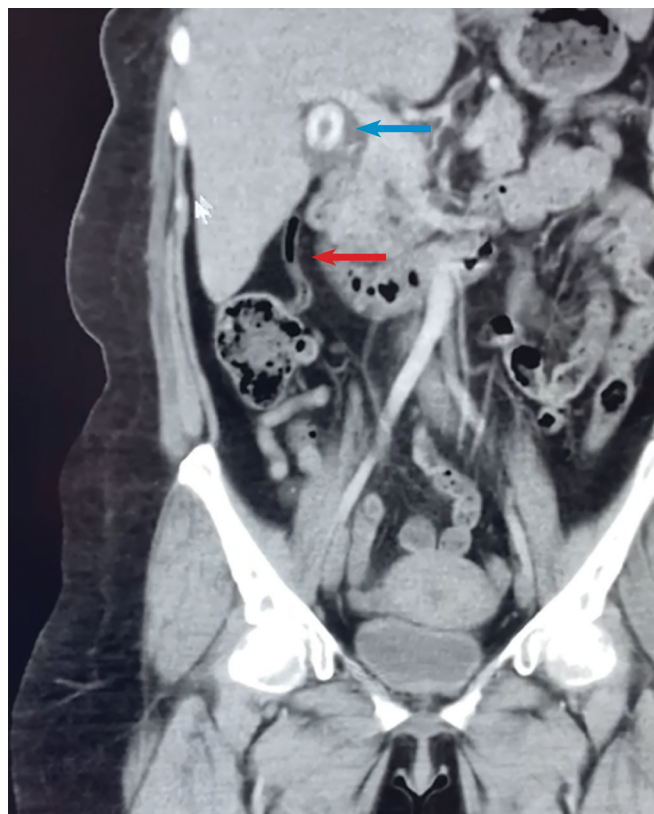


Figure 1: Coronal CT image with pointing to a normal appendix in the right upper quadrant (red arrow), CT scan confirmed acute lithiasic cholecystitis in the same patient. There is an arrow pointing to a thickened gallbladder and a gallstone within it (blue arrow).

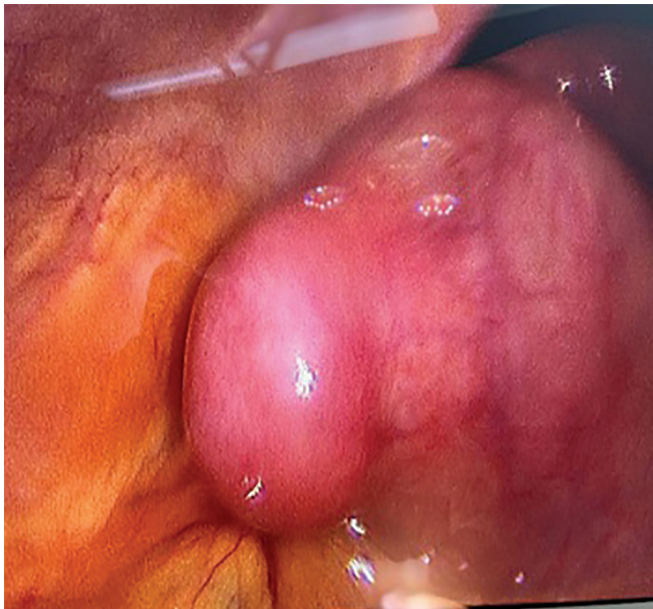


Figure 2: Acute lithiasic cholecystitis - a peroperative finding.

revealed peri-cholecystic oedema and diffuse gallbladder wall thickening, suggesting an inflammatory reaction near the gallbladder, which was distended and contained small stones. USG and MRCP revealed a thick-walled oedematous gallbladder with a 20*18 mm stone but normal duct: mainly normal common bile duct diameters. The gallbladder wall was thickened, and adjacent infiltration was present. Acute cholecystitis was suspected. No clinical or CT USG findings suggestive of appendicitis were reported. After the clinical and radiographic examination, the patient was scheduled for urgent laparoscopic cholecystectomy.

Ultrasound of his abdomen and pelvis revealed an inflamed, thick-walled gallbladder but no evidence of appendicitis. His appendix could not be visualised, and there was no free fluid in the pelvis. Laparoscopy was performed, which revealed an oedematous gallbladder with omental wrapping (Figure 2) and an acutely inflamed appendix with thickened mesentery near the gallbladder; there was no evidence and CT findings of malrotation of the colon in this case (Figure 3). Combined laparoscopic cholecystectomy and appendectomy were performed. Histological examination of the resected gallbladder and appendix showed acute cholecystitis with diffuse inflammation of the gallbladder wall, oedema and necrosis with extensive venous thrombosis with gallstones and acute appendicitis (Figures 4 and 5). Histological examination of the resected appendicitis was explained as lymphoid hyperplasia

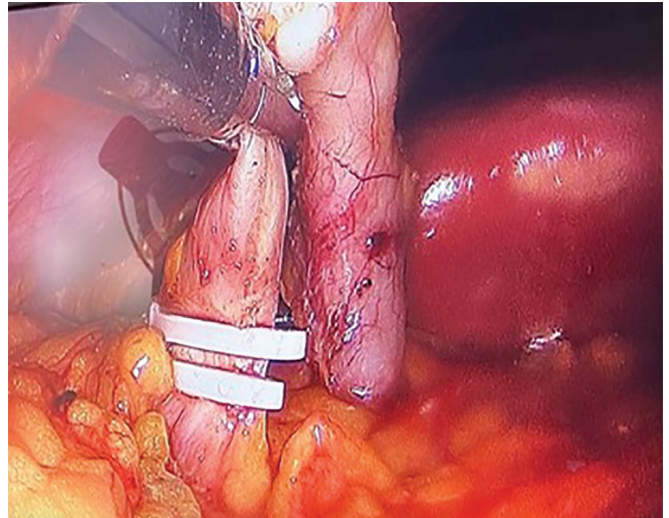


Figure 3: Peroperative findings of atypical localization of appendicitis.

and minimal inflammation. Microbiological culture of the gallbladder bile revealed no bacterial growth. Our patient's postoperative course was uneventful and he was discharged home.

3 Discussion

Acute right upper quadrant (RUQ) pain represents a considerable share in emergency department admissions (7,8). Causes of right upper quadrant (RUQ) pain may be found in the major organs of the anatomic area (liver, gallbladder, pancreas, small intestine), in other abdominal organs (renal, genitourinary), or pertain to nonabdominal causes (pulmonary, cardiac, musculoskeletal). Acute cholecystitis is a life-threatening condition in right upper quadrant pain, and for the clinician, timely diagnosis is crucial for treatment. However, the history, physical examination, and laboratory tests may not be sufficient to diagnose or exclude acute cholecystitis. In addition, it may be insufficient in making decisions to manage the current clinical picture. Imaging methods play an important role in diagnosing acute cholecystitis and making decisions about its management. In the presence of acute cholecystitis, it is important to keep the clinician in mind and to consider other diagnoses. Therefore, a thorough and logical approach to the diagnosis of abdominal pain is necessary. Differentiating a primary RUQ source from one outside often requires a detailed history, physical

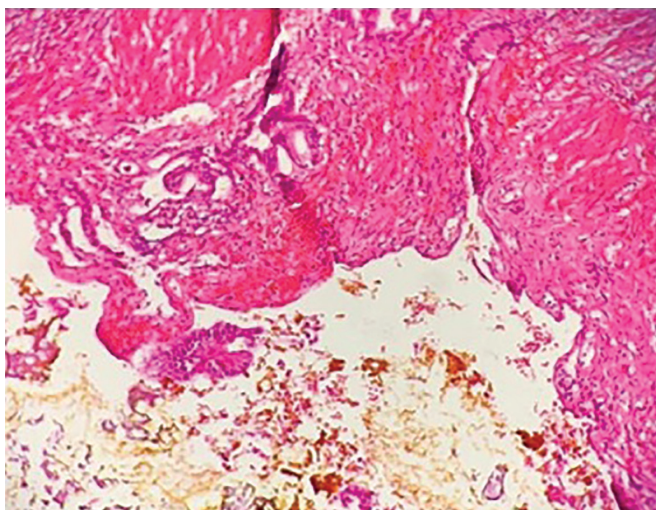


Figure 4: Pathological examination of gallbladder.

examination, and appropriate testing. Abdominal pain, especially right-sided abdominal pain, is probably the result of a single pathology (9). Emergency physicians should consider more than one abdominal pathology as the cause of abdominal pain. It should be kept in mind that the available radiological facilities should be adequately utilized. In the literature, there are some case reports of the concurrent presentation of acute appendicitis and cholecystitis (10). Approximately one-third of patients with acute appendicitis have pain localized outside the right lower quadrant because of the various positions of the appendix vermiformis, i.e., retrocaecal, pelvic, subcaecal, preileal and postileal, while subhepatic, meso-cealic, mid-inguinal and left-sided are seen more rarely (11,12). According to one hypothesis of the pathogenesis of concurrent appendicitis and cholecystitis, it is the result of direct bacterial invasion or translocation from the muscularis propria of the inflamed cholecystitis affected closely. However, in this patient with abdominal pain, more than one pathological process was observed during surgery, despite that the absence of diffuse peritonitis finding and co-occurrence of acute cholecystitis and appendicitis is rare. However, it should be considered in abdominal pain studies. Inflamed appendicitis can also be present in some other inflammation in the abdomen, not only due to cholecystitis, and can be overlooked. Diagnostic exploration is vital in the presence of atypical

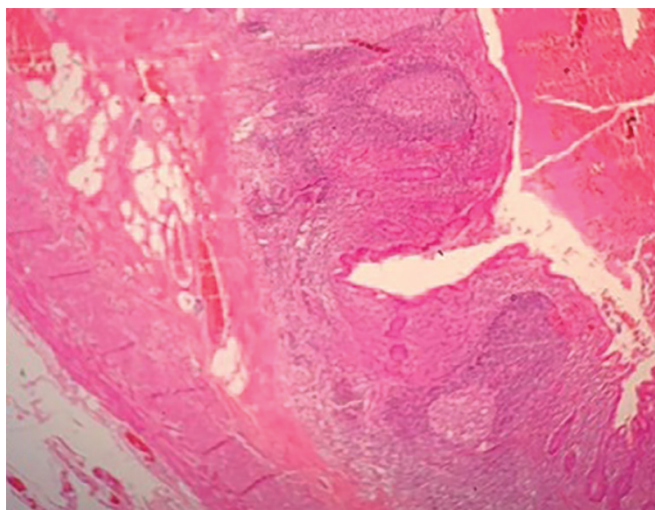


Figure 5: Pathological examination of appendicitis.

appendicitis during the lap cholecystectomy. We think that it will be effective in preventing possible postoperative complications. The appendix is inflamed due to its abnormal localization and proximity to the inflamed gallbladder. Although successful treatment of appendicitis and cholecystitis without surgical intervention has been reported (13), this cannot ensure either condition will not recur later. The mortality rate in nonperforated appendicitis is reported to be less than 1%, but it can be increased up to 5% in delayed diagnosed appendicitis, particularly in young and older patients and in perforated appendicitis.

4 Conclusion

In conclusion, although rare, the co-occurrence of acute cholecystitis and acute appendicitis should be kept in mind in the presence of right upper quadrant pain during surgery. Diagnostic laparoscopic exploration should be performed.

Conflict of interest

None declared.

Inform consent of the patient

The patient gave informed consent for the publication of her case.

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