

Case Report

Subhepatic perforated subhepatic appendicitis versus acute cholecystitis: a diagnostic dilemma

Kean L. Koay^{1*}, Mang Ning Ong¹, Zhen Yu Tok¹, Norjazliney Binti Ahmad Jafri²,
Ramesh R. Thangaratnam¹

¹Department of Surgery, Hospital Serdang, Selangor, Malaysia

²Department of Surgery, Hospital Shah Alam, Selangor, Malaysia

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*Correspondence:

Dr. Kean L. Koay,

E-mail: Alankkl93@hotmail.com

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ABSTRACT

Appendicitis, being one of the most common surgical problems, is often diagnosed clinically. The typical clinical sign elicited from a patient suffering from acute or perforated appendicitis includes: Rebound tenderness, Rovsing sign, Obturator sign, Psoas sign, and tenderness over the right iliac fossa. Cholecystitis, another common surgical problem, typically presents with tenderness over the right hypochondrium, and the typical sign associated with this condition is positive Murphy's sign. In this report, we describe how a subhepatic perforated appendicitis can mimic acute cholecystitis, both clinically and radiologically in an adult patient.

Keywords: Appendicitis, Murphy's sign, Surgery, Abdomen, Gallstone disease

INTRODUCTION

Acute appendicitis is a common illness in the clinical practice of surgery. The classic presentation of acute appendicitis is right iliac fossa pain, but it can sometimes be migratory, from the umbilicus to the right iliac fossa.^{1,2} Other associated signs includes food aversion, nausea and vomiting, fever, and less common symptoms include diarrhea/dysuria.² Murphy's triad describes the classical symptomatology of a patient suffering from an acute appendicitis, which is the development of abdominal pain, followed by vomiting and fever. Murphy's sign on the other hand, is another clinical sign, and is most commonly elicited in patients having acute cholecystitis. It describes arrested inspiration due to pain during abdominal examination when the clinician finger is placed under the right costal margin, and the patient attempts to take a deep breath.¹ Here, we present an atypical case, where Murphy's sign led to a diagnostic dilemma in a patient suffering from subhepatic perforated appendicitis.

CASE REPORT

A 58-year-old gentleman presented to us with right hypochondrium pain of 1 day duration, worsening after food intake, radiating to the flank. This is associated with vomiting of 2 days duration, mainly of food content, non-projectile. Otherwise, he denies have any fever, diarrhea, dysuria, urinary frequency, hematuria, nor does he have any family history of malignancy.

Clinical examination revealed tenderness over the right hypochondrium, with a positive Murphy's sign, but no signs of peritonism. Vitals signs showed hypotension with a blood pressure of 88/52 and heart rate of 142 beats per minute; he is otherwise saturating well under room air, and afebrile. Despite fluid challenge, his blood pressure failed to pick up, hence was started on low dose inotropic support. Initial blood work showed metabolic acidosis, with leukocytosis with neutrophilia. ECG showed sinus tachycardia with no ischemic changes. Chest X ray was done and the lung fields are clear with

prominent lung markings, whereas abdominal X ray is unremarkable, with no evidence of dilated bowels.

With an initial impression of acute cholecystitis, an ultrasound abdomen was performed. Ultrasound report showed only a contracted gall bladder with generalized thickening of the gall bladder wall, that may represent acute on chronic cholecystitis, with no evidence of biliary obstruction. Based on the sonography finding, his antibiotics were continued with a decision of non-operative management. However, throughout the next few days, despite with antibiotics (Ceftriaxone and Metronidazole), his septic parameters remained raised, thus, a CECT abdomen was performed for further investigation. The CT scan revealed a high riding subhepatic cecum and ascending colon, with a retrocecal perforated appendicitis, forming abscesses over the perihepatic region, subhepatic region and extending into the right paracolic gutter.

With the CT scan findings, patient was posted up for a midline laparotomy and appendectomy. Intraoperatively, we found a retrocecal subhepatic appendix, that is inflamed and perforated at body at 2 different sites. The appendix is removed, thorough washout was done, and a drain was placed over the subhepatic region. Post operatively, patient recovered well and was eventually discharged from surgical ward.

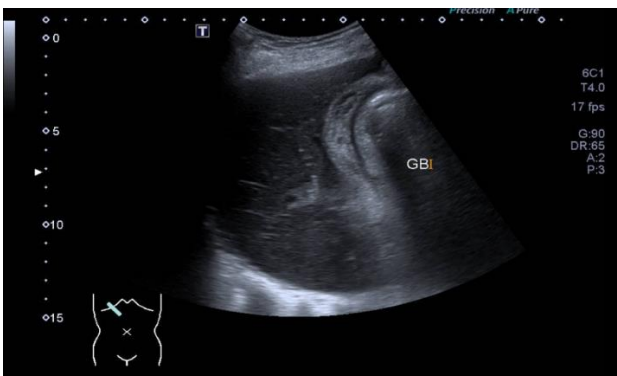


Figure 1: USG demonstrating thickened, contracted gallbladder.



Figure 2: Sagittal plane of CT abdomen, demonstrating retrocecal high riding appendix (yellow arrow), with adjacent abscess (blue arrow).

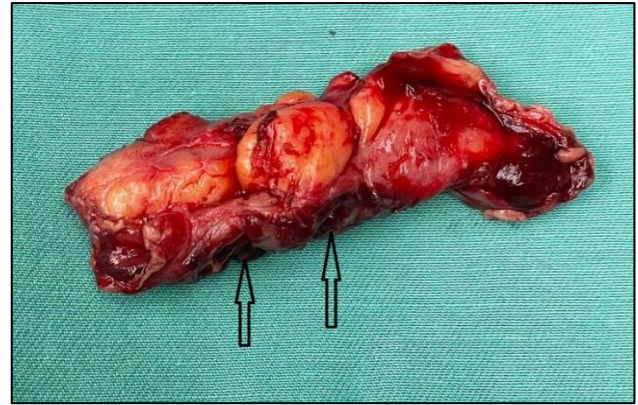


Figure 3: Removed appendix specimen, with perforation at the body at 2 different sites (black arrow).

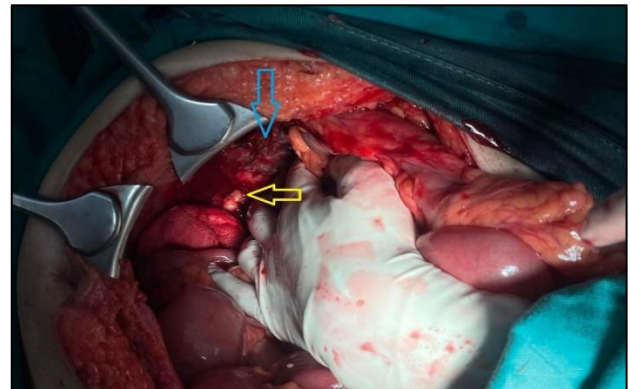


Figure 4: Intra-op findings, with appendix (yellow arrow) found right below the liver (blue arrow).

DISCUSSION

Acute appendicitis is one of the most common surgical emergency worldwide, and it is estimated to comprise of approximately 1/3 of all abdominal operations in Malaysia.^{3,4} Amongst the anatomical variants of the appendix, retrocecal is the most common (65.28%), followed by pelvic (31%), subcecal (2.26%), preileal (1%) and post ileal (0.4%).⁵ While subhepatic appendix have been described, it is a rare variant, and according to Palanivelu, the incidence of subhepatic appendix is approximated to be around 0.08%.⁶

Subhepatic appendicitis have been reported as early as 1863, but it is not until 1955 that this condition is published in literatures.⁷ Since then, there has only been few isolated cases being reported. Due to its location, the classical clinical signs found in appendicitis such as Rovsing sign, right iliac fossa tenderness, Psoas sign, may not be elicited in patients suffering from subhepatic appendicitis. This can lead to delay in diagnosis, which can lead to appendicular abscess, or perforated appendicitis, which happened in our case.^{8,9} In this case, the chief complaint our patient complained of is right

hypochondrium pain. Combined with the clinical finding of Murphy's positive on abdominal examination, the clinicians involved were misled to a provisional diagnosis of acute cholecystitis. Owing to that, ultrasonography was ordered, as it is often the first radiological choice of investigation for acute cholecystitis.

In ultrasonography, presence of appendiceal inflammation may sometimes lead to periappendiceal collection over the subhepatic region mimicking those findings of acute cholecystitis, and this is more prominent in patients suffering from perforated subhepatic appendicitis, as seen in our patient, this can also lead to a false diagnosis of perinephric abscess or liver abscess in certain patients.^{5,10} Moreover, presence of fecolith within the appendix can sometimes be mistaken as gallstones, further misleading clinicians to a diagnosis of acute calculous cholecystitis.⁵ Because of that, CT scan is the preferred modality in picking up the diagnosis of subhepatic appendicitis, with up to 98% detection rate.¹⁰ In our patient, ultrasonography was not able to pick up the retrocecal appendix or collection, but a CT scan done days later was able to show a subhepatic retrocecal perforated appendicitis, forming a localized abscess. It is possible during the point of ultrasonography that the appendix might have not been perforated yet, which occurred throughout the period of several days of non-operative management.

While the standard approach of open appendicectomy for acute or perforated appendicitis is via the Lanz incision, this approach is not suitable in subhepatic appendicitis. In our patient, a laparoscopic is unsuitable as we anticipated significant pus contamination owing to perforation, hence a midline laparotomy was performed to increase ease of access to the subhepatic region and to facilitate thorough washout. However, in cases where perforation is less likely, or if the diagnosis has yet to be radiologically confirmed and if the patient is clinically stable, a laparoscopic approach could also be utilized.⁹

CONCLUSION

In summary, subhepatic appendix is a rare anatomical variant, and this knowledge should be at the back of every surgeon's mind. CT scan is the preferred choice of radiological investigation, and provides higher specificity and sensitivity in detecting subhepatic appendicitis when compared to ultrasonography. When comparing the surgical approach for this demographic of patients, the traditional Lanz incision is not suitable due to the high riding position of the cecum and appendix. Instead, a midline laparotomy (either full or an upper midline

incision) is the preferred route of entry as it provides easier access to the targeted area of surgical interest.

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