

# Concurrent Presentation Of Acute Cholecystitis And Acute Appendicitis In A Paediatric Patient

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## Abstract

Appendicitis and cholecystitis are some of the commonest diagnoses requiring urgent surgical intervention. However, they are rarely described simultaneously. The clinical case and management of a 15-year-old female patient is presented here. A laparoscopic approach was employed, which is ideal for multiple and concurrent abdominal pathologies.<sup>1,10</sup> This report aims to enlighten clinicians to consider it as a differential diagnosis, especially when there are atypical presentations of common pathologies.

## BACKGROUND

Synchronous inflammation of the appendix and gall bladder is unusual. A literature search revealed that simultaneous presentation of acute appendicitis and acute cholecystitis is rare, with six such cases reported in English literature.<sup>1,3,5,6,8,10</sup>

## CASE PRESENTATION

A 15-year-old female presented to the Emergency Department of a regional hospital and subsequently transferred to our hospital with a one-day history of sudden onset abdominal pain. The pain was constant and sharp in nature. It was localised predominantly on the right side of the abdomen and more severe in the lower quadrant. Patient also revealed that pain was worse on movement. She had had three episodes of non-bilious vomiting associated with nausea. She also complained of anorexia and had not been able to tolerate more than one cup of water despite administration of antiemetics.

She was not on any regular medications and was otherwise active and playful in school, with no significant medical history.

Initial observations were stable and within normal limits. She had a temperature of 37°C. On examination, she was not jaundiced. Abdominal examination revealed tenderness in right iliac fossa with a positive Rovsing's sign and mild rebound tenderness in the same area. Epigastric tenderness was also elicited. Clinically she did not show signs of

generalised peritonitis or sepsis.

Laboratory investigations are detailed in the table below. Urine analysis was positive for large ketones and urobilinogen, but urine microscopy and culture were unremarkable and beta HCG was negative. These findings were consistent with the clinical picture of intraabdominal infection and decreased oral intake.

**Table 1**

	Patient's results	Normal range
White cell count	26.0 x 10 <sup>9</sup> /L	4-11.5 x 10 <sup>9</sup> /L
Neutrophil count	23.3 x 10 <sup>9</sup> /L	2.0-8.0 x 10 <sup>9</sup> /L
C reactive protein	175	<5
Bilirubin	70	<20

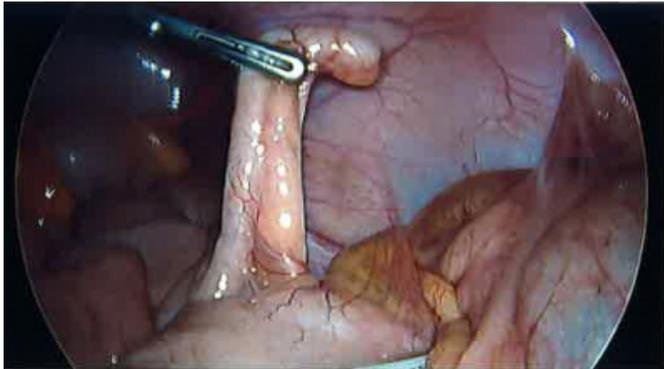
Based on the clinical signs, the patient was admitted to the ward on intravenous fluids and intravenous antibiotics with a working diagnosis of appendicitis. She was kept fasted overnight in preparation for a laparoscopic appendectomy the next day.

The abdomen was accessed via routine ports for a laparoscopic cholecystectomy, but needed additional ports after identification of the new pathology. The positions of the ports are detailed in the diagram below. Intraoperatively, the appendix was macroscopically normal and not

perforated<sup>A</sup>, but there was large volume bile-stained fluid in the pelvis. The gallbladder was noted to be gangrenous with multiple small gallstones<sup>B</sup>. Laparoscopic appendicectomy was performed followed by a cholecystectomy, which was difficult due to surrounding inflammation. A washout was then performed and a drain placed in the gallbladder fossa.

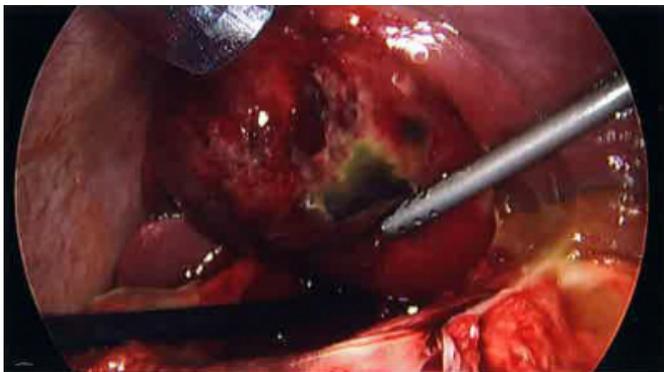
**Figure A**

Intraoperative images showing A. Macroscopically normal appendix and B. gangrenous gallbladder



**Figure B**

Intraoperative images showing A. Macroscopically normal appendix and B. gangrenous gallbladder



Postoperatively, the patient recovered well on the ward. She had occasional drops in saturations but was otherwise symptomatically well. She was investigated for hypoxia but did not require any medications and recovered with effective chest physiotherapy. The drain was removed without complications and the patient was discharged home on oral Augmentin twice daily for 5 days. She was scheduled to follow up with the general practitioner in two weeks and with the surgeon in six weeks. Follow up was unremarkable.

Histologically the appendix showed focally ulcerated mucosa with no mural inflammation. Acute inflammatory exudate was also seen in the lumen. The gallbladder specimen showed extensive mucosal ulceration with

transmural acute inflammation and foci of necrosis with mucosal oedema and haemorrhage present. Multiple small yellow stones were also present in the gall bladder, the largest 5mm across.

**DISCUSSION**

Appendicitis and cholecystitis are common pathologies<sup>11</sup> that are admitted under surgical care, with appendicectomies being the most common emergency surgical procedure performed<sup>1,11</sup> Appendectomies accounted for approximately 30000 emergency surgeries in Australia in 2014, with the rates of appendicitis cited at 149 per 100000 person years from 2000-2012.<sup>7</sup> Appendicitis is seen fairly commonly in the paediatric age group. Although cholelithiasis is not common in children, in adolescence, its prevalence is 2-6%. In this age group it is usually attributed to obesity, pregnancy or medications.<sup>4</sup> The occurrence of these two conditions simultaneously in the paediatric group is extremely rare, with no recorded cases on a literature review on PubMed and Medline database. The review showed six reported cases in adults.<sup>1,3,5,6,8</sup> In treating such a unique problem, the best and least morbid procedure is laparoscopic surgery.<sup>1,11</sup> A total of 5 five-millimeter ports were placed to allow extraction of both the appendix and the gallbladder.

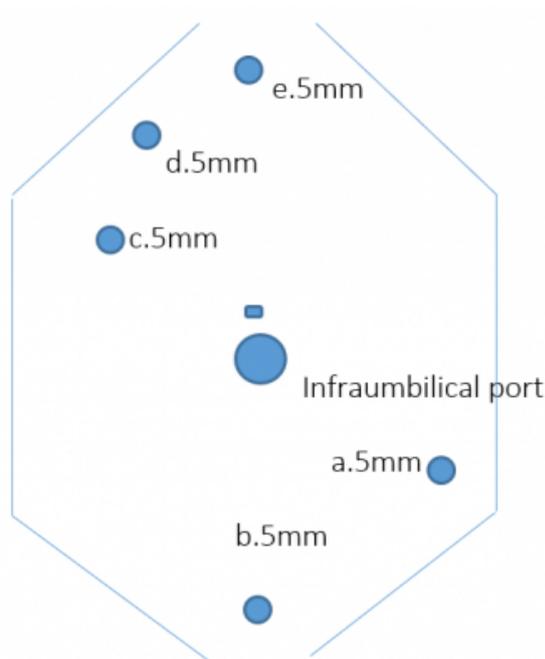
There is no consensus on the pathogenesis of this dual disease, possibly due to its rarity. One study aimed to explain the etiology of cholecystitis due to gram negative infections producing endotoxins leading to altered hepatic function and cholestasis.<sup>9</sup> Hyperbilirubinemia, as was seen in our patient, is also a common finding and correlates with a diagnosis of appendiceal perforation.

**CONCLUSION**

This report aims to make clinicians aware of the presence of multiple diagnosis while evaluating the acute abdomen, as the vast population of such cases have a single diagnosis. It also highlights the effectiveness and safety of using laparoscopic surgery in treating concurrent conditions.

**Figure**

Port placement. Infraumbilical ports was placed using open Hassons technique. 5mm ports (a) and (b) were placed initially with ports (c)(d)(e) placed once the second pathology was identified



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