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A Case Report of Acute Cholecystitis and Acute Appendicitis in a Patient with COVID – 19 Infection: Double Jeopardy or a Triple Threat?

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Abstract

This report describes a rare clinical scenario of acute cholecystitis and acute appendicitis in a patient with COVID – 19 infection and highlights the diagnostic and management challenges of dual surgical pathologies. The patient initially presented with severe right upper quadrant pain, nausea, and vomiting. Laboratory and radiological findings were consistent with cholecystitis and an incidental appendiceal fecalith. Conservative outpatient management was initially performed as per the patient's preference. He returned with worsening symptoms and subsequently tested positive for COVID-19, necessitating further delay in surgical intervention. Despite antibiotic therapy, his condition progressed to include clinical and radiological evidence of acute appendicitis with localised peritonitis. The patient ultimately underwent successful laparoscopic appendectomy and cholecystectomy under strict COVID-19 protocols. Intraoperative findings confirmed a perforated retro-ileal appendix and an acute on chronic cholecystitis. We discuss the potential role of SARS-COV2 in the pathophysiology of abdominal surgical pathologies. This case report underscores the importance of high clinical suspicion, vigilant monitoring, and evolving management strategies in patients presenting with abdominal pain and active COVID-19 infection. This is particularly true with multiple acute abdominal pathologies. It reinforces the need to balance timely surgical intervention with infection control measures in COVID-19 positive patients.

Keywords: Acute cholecystitis; Acute appendicitis; COVID-19; Dual pathology

Introduction

The synchronous entities of acute cholecystitis and acute appendicitis remain a diagnostic rarity in the era of ubiquitous medical imaging. This scarcity of evidence has led to a dearth of medical guidelines in the optimal management of dual abdominal pathologies. Overlapping clinical conditions does not present an issue as most patients are referred after radiological imaging, in the form of an emergency physician computerised tomography scan. Laparoscopic surgery for both conditions is well established in the surgical hierarchy. The port placements may provide a conundrum for optimal management of both pathologies. We hope this report adds to the surgical armamentarium of acute care surgeons given the paucity of information on dual surgical pathologies and their optimal management.

Case Presentation

A 27-year-old male patient, presented to the acute care service during the COVID - 19 pandemic with a one-day history of spontaneous onset of severe right upper quadrant pain. He had associated nausea and vomiting but no food triggers, fever, or jaundice. A previous episode of cholecystitis was managed conservatively 2 years ago. The patient was in absentia for his elective laparoscopic cholecystectomy.

Clinically apyrexial and anicteric, he remained hemodynamically stable. His abdomen displayed right upper quadrant tenderness with a negative Murphy's sign.

Laboratory investigations showed a normal white cell count, C-reactive protein and lipase levels. He had an elevated total bilirubin of 74umol/L, and a direct bilirubin of 53umol/L. Aspartate Aminotransferase (1302U/L), Alanine Aminotransferase (716U/L), Alkaline Phosphatase (124U/L) and Gamma Glutamyl Transferase (584U/L) were all elevated.

A computerised tomography (CT) scan of the abdomen and pelvis revealed an edematous gallbladder with multiple calculi and no evidence of intra or extrahepatic biliary dilatation. An incidental finding of a fecalith was noted in the lumen of the appendix (Figure 1) with no obvious inflammation. He declined surgical resolution due to a work commitment. He was managed expectantly, with adequate rehydration, analgesia, and oral broad-spectrum antibiotics.

The patient returned to our acute care service 4 days later with worsening right upper quadrant pain, nausea, and vomiting. He remained anicteric and hemodynamically stable but with a positive Murphy's sign. Laboratory investigations revealed a leucocytosis of 13.2 x 10e9/L and a normal C-reactive protein and Lipase levels. His liver enzymes were trending down. He consented to surgical management and as part of his preoperative protocol, tested positive for COVID – 19. He then revealed that he initially tested positive for COVID – 19 ten days earlier using a home test kit.

Surgery was deferred and we continued a nonoperative approach with intravenous antibiotics, analgesia, and rehydration. 72 hours later, he spiked a temperature of 38-degrees Celsius. He remained hemodynamically stable but had an abdominal ileus, right sided abdominal pain and localised peritonitis.

A repeat CT scan revealed mild atelectasis in the right lung base and persistent cholecystitis. The appendix had a large fecalith at its base and a distal dilatation of 1.8cm. Appendicular wall thickening, and luminal gas suggested acute appendicitis (Figure 2).

He was consented for both laparoscopic appendectomy and cholecystectomy under strict COVID – 19 operative protocols. We initiated surgery with a laparoscopic appendectomy which revealed a perforated retro-ileal appendix with pus tracking along the right paracolic gutter to Morrison's space (Figure 3). The gall bladder findings were in keeping with acute on chronic cholecystitis (Figure 4). The appendectomy and cholecystectomy were completed without incident. The patient made an uneventful recovery and was discharged home. His post operative follow up at six weeks was uneventful and he tested negative for COVID-19.

Pathology specimens revealed a 9.2 x 1.3cm perforated appendix containing 3, tan colored stones measuring up to 1.1 x 0.6 x 0.4 cm, with features of acute suppurative appendicitis with peri appendicitis (Figure 5) and an 8.8 x 3 x 1.2 cm gall bladder with pigmented stones and features of acute inflammation with fibrinoid necrosis (Figure 6).

Figure 1: CT scan showing acute cholecystitis with an incidental finding of an appendicular faecolith.

Figure 2: CT scan with a nascent acute appendicitis.

Figure 3: Intra-operative acute appendicitis.

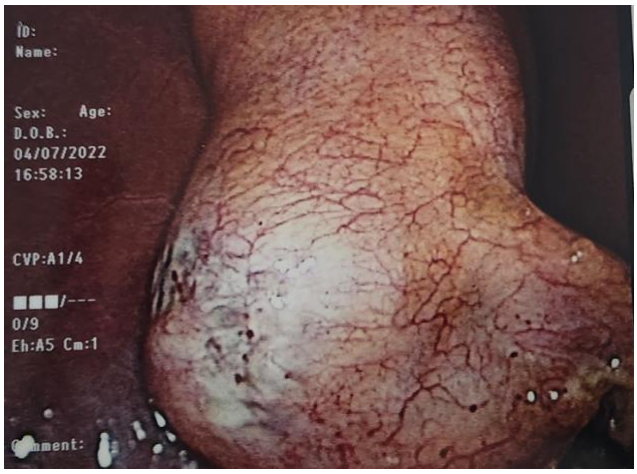

Figure 4: Intra-operative acute cholecystitis.

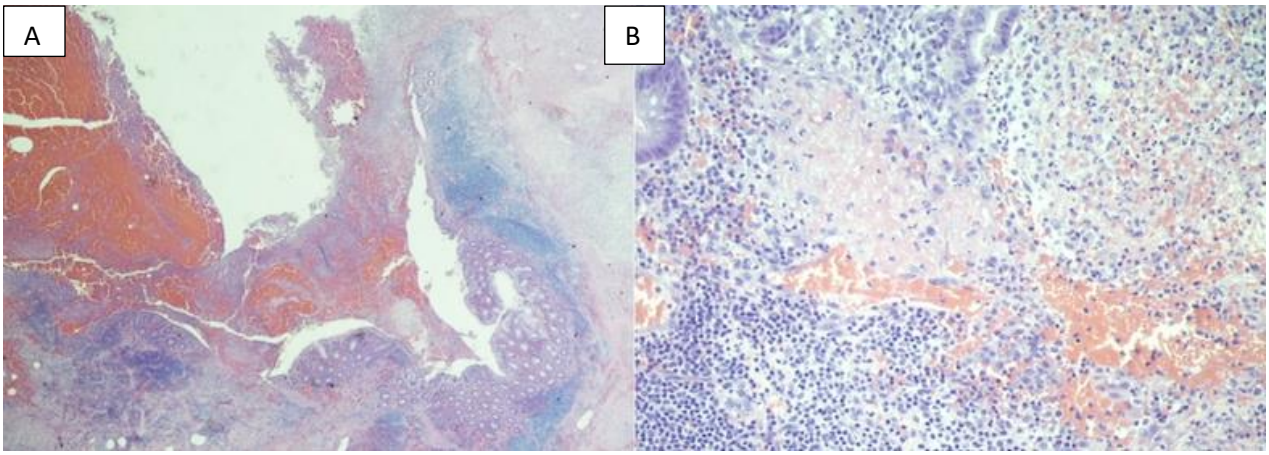

Figure 5 (A): Acute appendicitis, 2 times magnification with mucosal sloughing and wall inflammation;
(B): Acute appendicitis, 20 times magnification with muscularis propria inflammation.

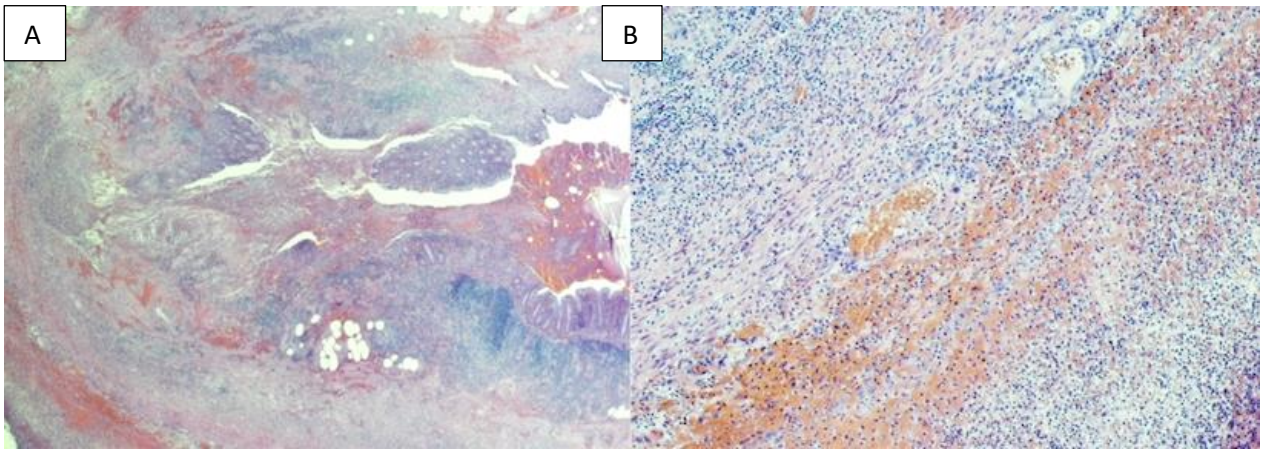

Figure 6 (A): Acute cholecystitis, 2 times magnification with erosion, bleeding and acute inflammation;
(B): Acute cholecystitis, 20 times magnification with acute inflammation and fibrinoid necrosis.

Discussion

Acute cholecystitis and acute appendicitis are two of the most common acute surgical presentations in the developed world [1,2]. Unlike acute cholecystitis, acute appendicitis is common in the youth, though not unusual in the elderly or intensive care population [1,2]. The higher incidence of acute appendicitis in the influenza season suggests an epidemiological role for viral infections in the pathophysiology of acute appendicitis in the young. An appendicular fecalith contributes to the etiology in the older population [1]. A few cases of COVID – 19 – associated acute appendicitis have been reported in the literature with the diagnosis of acute appendicitis preceding, following or occurring concurrently [2].

Acute cholecystitis can either be calculous or acalculous [2]. Acute calculous cholecystitis is common and can be seen across all age spectra in adults. The acalculous variant is seen in the elderly, critically ill patients or those on long term total parenteral nutrition [2]. The ubiquitous prevalence of fast-food consumption and high fat content contribute to the prevalence of acute cholecystitis, especially in younger adults [3]. Acalculous acute cholecystitis, has been reported in patients with COVID – 19 infections, especially in the critically ill patient population [4].

Synchronous pathologies of acute cholecystitis and acute appendicitis remain a rare surgical phenomenon [5,6]. The first reported occurrence was by Reimann in 1955 [7]. Grimes reported a case of perforated acute cholecystitis and acute appendicitis in pregnancy while Kakamad discussed a case of perforated acute appendicitis with concomitant acute cholecystitis [8,9]. Lew reported an extremely rare case of perforated gangrenous appendicitis and gangrenous cholecystitis [10]. Sahebally and Sedik published simultaneous reports of acute acalculous cholecystitis and acute appendicitis [11,12]. Aljunaydil reported a case of acute cholecystitis with subhepatic appendicitis (13) and Flores an incidental low grade mucinous neoplasm of the appendix [14].

Our case report is the first of a patient with COVID- 19 infection, acute calculous cholecystitis and acute appendicitis in the published literature.

The pathophysiology of the dual pathologies remains nebulous.

Hyperbilirubinemia is seen in acute appendicitis secondary to bacterial translocation. The source is the inflamed appendix with translocation into the portal system which contributes to biliary stasis and subsequent acute acalculous cholecystitis [15]. The presence of stones as a nidus for infection within the gall bladder could be an unrelated cause in acute calculous cholecystitis [6]. In COVID – 19 infections, the SARS-CoV-2 may infect the intestinal wall due to high expression of the viral receptor ACE2.This causes mucosal barrier disruption, microbial translocation and thrombotic occlusion of the end arterial supply of the appendix and gall bladder resulting in appendicitis and cholecystitis [4,5].

Surgery remains the standard of care in the management of both acute surgical conditions. If a patient with acute cholecystitis is managed conservatively, an elective cholecystectomy is performed 6 weeks later. The CODA© trial in acute appendicitis has changed the management landscape. Non operative management with antibiotics is now an effective alternative in uncomplicated appendicitis [16]. It is also useful in high-risk surgery due to the patient's morbidity or clinical instability.

Our decision to perform an appendectomy first was based on CT findings suggestive of uncomplicated appendicitis. There are no specific guidelines due to the lack of published guidelines for concomitant pathologies. Our preference would depend on the radiological findings and the available surgical skill set of the acute care surgeon.

On low-power microscopic examination, the appendix specimen demonstrated mucosal sloughing with acute inflammatory change involving the mucosa and appendiceal wall (Figure 5A). Higher magnification highlights acute inflammation extending into and infiltrating the muscularis propria, supporting a diagnosis of acute suppurative appendicitis with peri appendicitis (Figure 5B).

Gallbladder histology displayed mucosal erosion with hemorrhage and acute inflammation associated with fibrinoid necrosis, consistent with severe acute cholecystitis (Figure 6A and 6B). We did not demonstrate any evidence of lymphocytic infiltration in both specimens. This is a patho-gnomic feature in the lung tissue in patients with COVID-19 and supports the association between SARS-CoV-2 infection and viral pneumonia [17,18].

Our patient fulfilled criteria for laparoscopic surgical management of the dual pathologies. The 30-day post-operative mortality rate of patients with COVID – 19 infections in acute care surgery is greater than elective surgery. The rate is significantly elevated in those with pulmonary complications [19]. The patients COVID – 19 infection added to the logistical challenge of surgery. It did not contribute negatively to the patient`s surgical outcome as per current published guidelines [4].

Conclusion

We present a rare case of acute appendicitis and acute cholecystitis in a COVID -19 positive patient. We believe this triple pathology to be the first case report in the published literature.

Author's Contributions

Dr. Laosebikan: Primary surgeon, proof of concept, proof reading, and wrote the case report and discussion.

Dr. Pillay: Proof reading, wrote the introduction, and article layout.

Dr. Khatib: Read pathology slides and pathology pictures, proof reading.

Dr. Norval: Read the Radiological imaging, radiology pictures, proof reading.

REFERENCES

1. Lotfollahzadeh S, Lopez RA, Deppen JG. Appendicitis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. 2025.
2. Gallaher JR, Charles A. Acute Cholecystitis: A Review. JAMA. 2022; 327: 965-975.
3. Georgakopoulou VE, Gkoufa A, Damaskos C, et al. COVID-19-associated acute appendicitis in adults. A report of five cases and a review of the literature. Exp Ther Med. 2022; 24: 482.
4. Thomaidou E, Karlafti E, Didagelos M, et al. Acalculous Cholecystitis in COVID-19 Patients: A Narrative Review. Viruses. 2024; 16: 455.

5. Han C, Duan C, Zhang S, et al. Digestive Symptoms in COVID-19 Patients with Mild Disease Severity: Clinical Presentation, Stool Viral RNA Testing, and Outcomes. Am J Gastroenterol. 2020; 115: 916-923.
6. Gandhi J, Tan J. Concurrent presentation of appendicitis and acute cholecystitis: diagnosis of rare occurrence. BMJ Case Rep. 2015.
7. Reimann DL, Reeves HG. Concomitance of acute appendicitis and acute cholecystitis. Am Surg. 1955; 21: 220-222.
8. Grimes DA. Spontaneous perforation of the gall bladder with cholecystitis and acute appendicitis in pregnancy. A case report. J Reprod Med. 1996; 41: 450-452.
9. Salih AM, Kakamad FH, Abbas MH. Acute cholecystitis with perforated appendicitis: The first reported case. J Case Rep Images Surg. 2016; 2: 57-59.
10. Lew D, Tian J, Louis MA, et al. Acute gangrenous appendicitis and acute gangrenous cholecystitis in a pregnant patient, a difficult diagnosis: A case report. Int Surg J. 2021; 8: 1575-1578.
11. Sedik AM, Makhdoomi M, El Dakak A, et al. Simultaneous acute acalculous cholecystitis and acute appendicitis: A case report and literature review. Saudi Surg J. 2018; 6: 22-24.
12. Sahebally SM, Burke JP, Nolan N, et al. Synchronous presentation of acute acalculous cholecystitis and appendicitis: A case report. J Med Case Rep. 2011; 5: 551.
13. Aljunaydil AA, Mattar RE, Almufawaz K, et al. Synchronous Acute Appendicitis and Cholecystitis. CRSLS. 2025; 11: e2024.00004.
14. Flores LF, Cox AM, Trokhimtchouk TF, et al. Synchronous Acute Appendicitis and Acute Cholecystitis. Cureus. 2023; 15: e37248.
15. Estrada JJ, Petrosyan M, Barnhart J, et al. Hyperbilirubinemia in appendicitis: A new predictor of perforation. J Gastrointest Surg. 2007; 11: 714-718.
16. CODA Collaborative. Flum DR, Davidson GH, Monsell SE, et al. A Randomized Trial Comparing Antibiotics with Appendectomy for Appendicitis. N Engl J Med. 2020; 383: 1907-1919.
17. Ahmad S, Ahmed RN, Jani P, et al. SARS-CoV-2 isolation from an appendix. J Surg Case Rep. 2020.
18. Wichmann D, Sperhake JP, Lütgehetmann M, et al. Autopsy findings and venous thromboembolism in patients with COVID-19: A prospective cohort study. Ann Intern Med. 2020; 173: 268-277.
19. COVID Surg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: An international cohort study. Lancet. 2020; 396: 27-38.