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Case Report

COVID-19-associated mesenteric adenitis mimicking acute appendicitis: a case report

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ABSTRACT

Mesenteric adenitis is a self-limiting inflammatory condition of the mesenteric lymph nodes that can closely mimic acute appendicitis. During the COVID-19 pandemic, increasing reports have highlighted atypical gastrointestinal manifestations of SARS-CoV-2, including mesenteric lymphadenopathy. This case report illustrates a case of mesenteric adenitis in the setting of recent COVID-19 infection, initially suspected to be acute appendicitis. A 20-year-old female presented with a 24-hour history of right iliac fossa pain, concerning for acute appendicitis. Clinical examination revealed localized tenderness without peritonitis. Laboratory findings were unremarkable, and imaging failed to visualize the appendix or identify an alternative pathology. Due to persistent symptoms, the patient underwent diagnostic laparoscopy and appendicectomy, which revealed a normal appendix but prominent mesenteric lymphadenopathy. Postoperatively, she recovered uneventfully, and mesenteric adenitis was considered the most likely diagnosis. Given her recent COVID-19 infection, a viral aetiology was suspected. This case highlights the diagnostic challenges of mesenteric adenitis in the setting of COVID-19 and underscores the importance of considering viral-induced lymphadenopathy in young adult patients presenting with right iliac fossa pain. Given the overlap in clinical presentation with appendicitis, imaging and conservative management may help avoid unnecessary surgery in select cases.

Keywords: Mesenteric adenitis, COVID-19, Appendicitis, Right iliac fossa pain, Viral lymphadenopathy

INTRODUCTION

Mesenteric adenitis is an inflammatory condition affecting the mesenteric lymph nodes, often presenting with right iliac fossa pain that mimics acute appendicitis.[1] While typically self-limiting, its clinical overlap with appendicitis frequently leads to diagnostic uncertainty and unnecessary surgical interventions.[2]

COVID-19 pandemic has brought increased recognition of gastrointestinal manifestations, including mesenteric lymphadenitis, which can closely mimic appendicitis.[3] Several reports have documented patients undergoing negative appendectomies due to SARS-CoV-2-related inflammation.[4] Inflammatory response associated with COVID-19 may directly involve mesenteric lymph nodes, contributing to this diagnostic challenge.[3]

The pandemic has also impacted appendicitis presentations and management. Studies suggest that patients presented later, with more severe disease, potentially due to healthcare delays.[5,6] Paediatric cases of multisystem inflammatory syndrome in children (MIS-C) have further complicated diagnoses, as MIS-C can present with fever and gastrointestinal symptoms resembling appendicitis.[7-9] Additionally, imaging studies have frequently identified mesenteric lymphadenopathy in COVID-19-positive patients, raising concerns about unnecessary surgeries.[10]

With an evolving understanding of COVID-19-associated abdominal symptoms, clinicians must recognize mesenteric adenitis as a potential differential diagnosis in young adult patients with right iliac fossa pain, particularly those with recent SARS-CoV-2 exposure. This case highlights the importance of careful clinical assessment and judicious imaging to prevent unnecessary surgical intervention.

CASE REPORT

A 20-year-old female presented to the emergency department with a 24-hour history of right iliac fossa pain. The pain had a sudden onset, was non-radiating, and was described as severe, with an intensity of 8 out of 10. It remained constant and was associated with anorexia, though there was no reported nausea, vomiting, diarrhoea, or urinary symptoms. The patient had been seen in the emergency department the previous night and was discharged home but returned due to persistent pain. She had a recent history of COVID-19 infection but was otherwise previously well, with no significant past medical or surgical history.

On clinical examination, the patient appeared well, with stable vital signs. She was afebrile and hemodynamically stable. Abdominal examination revealed localized tenderness in the right iliac fossa but without features of peritonitis such as guarding, rebound tenderness, or rigidity. No palpable masses or organomegaly were noted, and bowel sounds were present and normal. There was no clinical evidence of an acute abdomen or other systemic involvement.

Initial laboratory investigations demonstrated a white cell count of 7.3×10^9/L, haemoglobin level of 123 g/L, neutrophil count of 5.6×10^9/L, potassium level of 3.6 mmol/L, and an estimated glomerular filtration rate greater than 90 mL/min/1.73 m^2. C-reactive protein was mildly elevated at 4.3 mg/L. Urinalysis was unremarkable, with no signs of infection. A sexually transmitted infection screen was negative for gonorrhoea, chlamydia, *Mycoplasma genitalium*, and *Trichomonas vaginalis*, with no evidence of bacterial vaginosis on a high vaginal swab.

A transabdominal ultrasound performed did not visualize the appendix. No ovarian pathology was noted, and all solid organs were reported as normal. Given the persistent symptoms, a contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis was performed. The scan revealed no abnormalities in the liver, gallbladder, pancreas, spleen, adrenal glands, kidneys, or pelvic viscera.

The appendix was not visualized, and no pneumoperitoneum or free fluid was detected. The large bowel appeared normal within the constraints of CT assessment. No definitive cause for the patient's symptoms was identified.

Due to ongoing clinical suspicion of acute appendicitis despite inconclusive imaging, the patient proceeded to diagnostic laparoscopy with appendicectomy. Intraoperative findings revealed a macroscopically normal appendix (Figure 1) with prominent mesenteric lymphadenopathy (Figure 2). The small bowel, gallbladder, liver, and ovaries appeared normal. Additionally, a small volume of haemoserous fluid was observed in the pelvis (Figure 3). The appendix was removed, and specimens were sent for histopathological analysis.

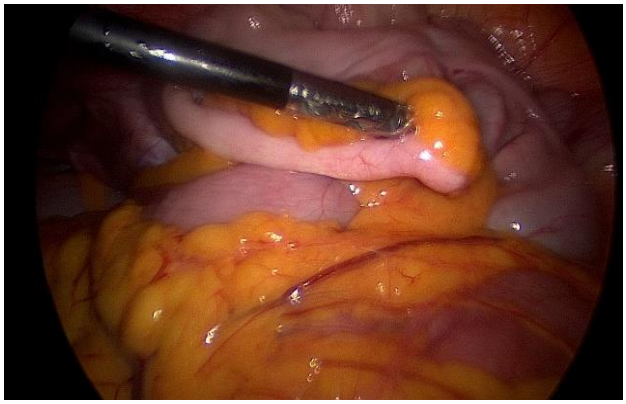

Figure 1: Macroscopically normal appendix, removed for histopathological analysis.

Figures 2: Prominent mesenteric lymphadenopathy observed intraoperatively.

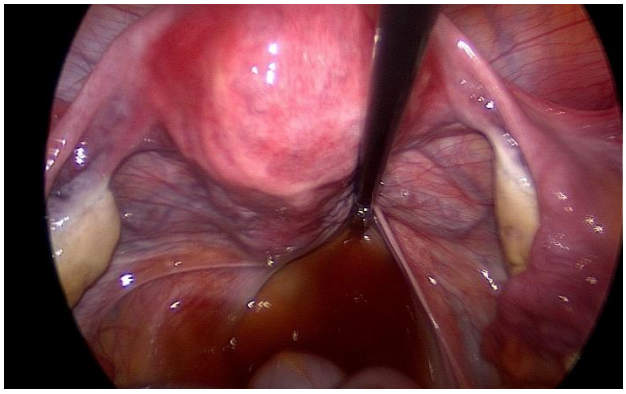

Figure 3: Laparoscopic view of the pelvis showing haemoserous fluid accumulation.

Postoperatively, the patient recovered well and was discharged home on the same day with adequate pain management and follow-up arrangements. Given the absence of macroscopic appendicitis, mesenteric adenitis was considered the most likely diagnosis. The recent COVID-19 infection was suspected to have contributed to an inflammatory response involving the mesenteric lymph nodes, leading to the patient's symptoms. She was advised on symptomatic management and follow-up in case of persistent or worsening symptoms.

DISCUSSION

This case highlights the diagnostic challenges of mesenteric adenitis in the setting of COVID-19. The patient presented with classical symptoms of appendicitis, yet intraoperative findings revealed prominent mesenteric lymph nodes without appendiceal inflammation, suggesting a viral or post-infectious aetiology.[1]

The association between COVID-19 and mesenteric adenitis remains under investigation, with reports documenting mesenteric lymphadenopathy in both paediatric and adult patients.[3] Studies by Ekbatani et al and Iftikhar et al describe COVID-19-related mesenteric adenitis mimicking appendicitis, leading to unnecessary appendectomies.[3,4] This reinforces the need for improved diagnostic strategies to differentiate inflammatory lymphadenopathy from true surgical pathology.[10]

The pandemic has also influenced the management of appendicitis, with delayed presentations resulting in a higher incidence of complicated cases.[5,6] Paediatric studies indicate that patients presented later with more pronounced inflammatory markers, further complicating diagnoses.[6] The overlap between appendicitis and multisystem inflammatory syndrome in children (MIS-C) has also posed a diagnostic dilemma, as MIS-C frequently presents with fever and gastrointestinal symptoms.[7-9] Jackson et al and Khakshour et al report cases of MIS-C initially misdiagnosed as appendicitis, highlighting the need for heightened clinical suspicion.[8,9]

The prothrombotic state associated with COVID-19 has also been linked to mesenteric ischemia, further complicating the evaluation of abdominal pain.[11] Although this patient did not exhibit vascular complications, clinicians must consider the possibility of COVID-19-induced thrombotic events in similar cases.[11]

The shift toward non-operative management (NOM) of appendicitis during the pandemic aimed to reduce operating room exposure and resource utilization.[12,13] Hickland et al reported a significant increase in NOM strategies, reducing surgical volumes but raising concerns about the misdiagnosis of COVID-19-related conditions.[12,13] While early laparoscopy remains a valuable diagnostic tool, a conservative and imaging-guided approach should be considered for young patients with right iliac fossa pain, particularly in those with recent SARS-CoV-2 exposure.[2,14]

CONCLUSION

This case underscores the importance of recognizing COVID-19-associated gastrointestinal symptoms and avoiding unnecessary surgeries. Future research should focus on defining clear diagnostic pathways to distinguish mesenteric adenitis from true appendicitis, ensuring appropriate management without subjecting patients to avoidable surgical intervention.

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