

Retroperitoneal acute appendicitis: A common disease with an uncommon presentation

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ABSTRACT:

Acute appendicitis is one of the common causes of an acute abdomen. It accounts for around 7% of acute abdomen cases and has a prevalence of 8.7% in the general population. We reported the case of a 60-year-old female from a remote locality of Palpa, Nepal, who presented in the emergency department with chief complaints of pain in the right lower abdomen for three days, which was associated with one episode of non-bilious vomiting. She was diagnosed with acute appendicitis. In an emergency open appendectomy, we found a retroperitoneal appendix with early lump formation. There was minimal intraperitoneal serous collection. Peritoneal lavage was done with normal saline, and a retrograde appendectomy was done. The patient was discharged on the seventh postoperative day without any complications.

Keywords: Acute appendicitis; Appendiceal lump; Open appendectomy; Retroperitoneal appendix.

INTRODUCTION

Acute appendicitis is one of the common causes of an acute abdomen. It accounts for around 7% of acute abdomen and has a prevalence of 8.7% in the general population. Patients normally present with pain over the periumbilical region, which later shifts to the right iliac fossa. Still, the presentation of retroperitoneal appendicitis can be atypical, and there is a diagnostic dilemma often encountered in managing retroperitoneal appendicitis in resource-constrained settings.¹

CASE PRESENTATION

A 60-year-old female patient from a remote locality of Palpa, Nepal, presented in the emergency department with a chief complaint of pain in the periumbilical region that later shifted to the right lower abdomen for three days. The pain was acute in onset, dull-aching, and of a progressive type, initially present over the peri-umbilical region and then migrating to the right iliac fossa and right lumbar region, relieved after taking paracetamol and with no aggravating factors.

Pain was followed by two episodes of non-projectile vomiting, containing undigested food particles, non-bilious, and non-blood-stained. The patient had passed stool and flatus four hours before presenting to the emergency department. There was no history of fever, constipation, diarrhea, or burning micturition.

On general examination, the patient was ill-looking with tachycardia (110 beats per minute), blood pressure 100/70 mm Hg, and signs of dehydration like dry mouth, dry tongue, and skin wrinkling, which suggest the patient is in shock. On per abdominal examination, the abdomen was flat, the umbilicus was centrally placed, and all quadrants were moving equally with respiration with tenderness in the right iliac fossa and right flank, and bowel sounds were normally present. Per-

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rectal examination revealed mild tenderness on the anterior wall of the rectum. No abnormalities noted. Blood investigations revealed a total count of 13800 (the normal leukocyte count 5000-11,000/mm³), neutrophils 78% (normal 55-75%), lymphocytes 15%, hemoglobin 14.4 gm/dl, a platelet count of 2.38 lakhs/cu mm, and the rest of the blood parameters were within normal limits. The routine urine test was within normal limits. ECG showed a normal sinus rhythm. A modified Alvarado score was eight out of 10.

Abdominal ultrasound revealed a complex mass measuring 33.1x20.1mm noted at the right iliac fossa, with a defect measuring 4.1 mm within the mass, with evidence of minimal collection. A chest X-ray PA view was done, which was normal. With the above clinical findings and rise of leukocyte and neutrophil counts, the final diagnosis was acute appendicitis. The patient was resuscitated with Intravenous crystalloids as well as intravenous antibiotics because the patient's vitals were unstable and the patient was in shock. After that, the patient was immediately posted for emergency open appendectomy after taking formal written consent from the patient's party.

Under spinal anesthesia, a gridiron incision was made. The abdomen was opened in layers. On entering the peritoneal cavity, dense adhesion was revealed between the omentum, cecum, and abdominal wall. Adhesiolysis was done. Minimal serous collection was noted. The cecum was mobilized by incising the lateral peritoneal fold along the white line of Toldt. The appendix was fully retroperitoneal in position with an inflamed tip and body and a healthy base of three cm length (Fig. 1 and 2). A retrograde appendectomy was done. The abdomen was closed in layers, and a drain was kept.

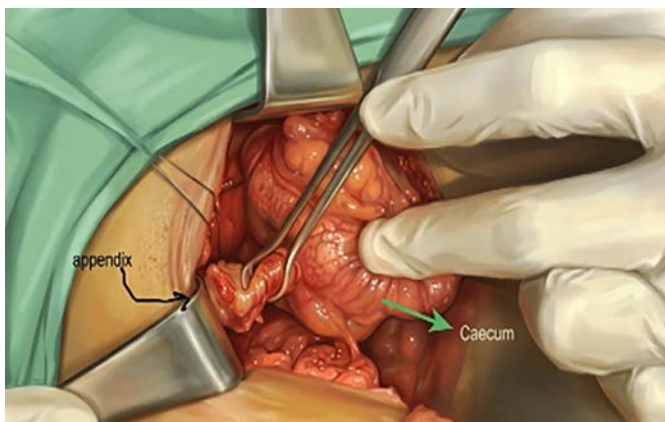


Fig 1: Intraoperative picture of the appendix lying retroperitoneally



Fig 2: Specimen showing removed appendix of size 3cm in length

The post-operative period was eventful.

Restoration of bowel activity was noted on the second postoperative day. Semi-solid diet was started on the second postoperative day, and subsequently, a solid diet was started from postoperative day three. The drain was removed after the patient tolerated solid diet on the fifth postoperative day, and then the patient was discharged on sixth postoperative day. Two weeks following the procedure, the patient returned for follow-up with histology findings indicating neutrophilic infiltration involving the muscularis propria and no signs of atypia. A week later, the patient's follow-up revealed satisfactory healing and recovery.

DISCUSSION

Acute appendicitis remains one of the most common surgical emergencies, with a lifetime risk of around 78% in the general population.¹ While most patients present with typical right iliac fossa pain, the anatomical variability of the appendix often leads to atypical manifestations that create a diagnostic challenge, particularly in resource-limited settings.² Retrocecal and retroperitoneal positions of the appendix are the most frequent variations, accounting for up to 65-74% of cases.^{3,4} Such positions may obscure clinical signs, delay diagnosis, and increase the risk of complications.

Our case highlights this diagnostic dilemma in a 60-year-old female presenting with abdominal pain initially peri-umbilical, later localizing to the right iliac fossa and lumbar region. Although the clinical presentation was suspicious for acute appendicitis, the atypical pain pattern and absence of peritoneal signs made diagnosis less straightforward. Radiological evaluation with ultrasound revealed a complex right iliac fossa mass with minimal collection, but the findings were inconclusive. Given

the elevated leukocyte count and modified Alvarado score of eight, a decision for emergency surgery was made.

Intraoperatively, the appendix was found in a retroperitoneal position with an inflamed tip and early lump formation, requiring retrograde appendectomy. The patient had an uneventful recovery. Embryologically, the appendix arises from the cecal bud in the sixth week of development. Its final location depends on the descent and rotation of the cecum. When peritoneal fixation occurs early, the appendix may remain retroperitoneal.⁵ Wakely's classic autopsy study of 10,000 specimens found the appendix retrocecal in 65% of cases, emphasizing how developmental factors influence its variable location.⁶ Such anatomic differences directly affect clinical presentation.

Retrocecal appendicitis often lacks localized right lower quadrant tenderness, as the inflamed appendix lies behind the cecum and irritates the posterior parietal peritoneum. This makes reliance on traditional signs, such as McBurney's point tenderness, less reliable.⁷ Several authors have described unique signs for retrocecal appendicitis. Wani introduced the "K-sign," elicited by percussion of the posterior abdominal wall, but this sign was absent in our case.⁸ Similarly, patients may present with flank or lumbar pain rather than classic right

iliac fossa pain.⁹ Such atypical symptoms often delay surgical intervention and predispose to complications, including retroperitoneal abscess, hemorrhage, and even rare portal venous gas embolization.¹⁰

In our patient, timely surgical decision-making was critical because of delay CT abdomen and pelvis report. This case reinforces the importance of clinical judgment, particularly in rural or resource-constrained environments, where advanced diagnostic tools such as CT or MRI may not be readily available. Surgeons must therefore maintain a high index of suspicion when evaluating atypical abdominal pain, as delayed recognition of retroperitoneal appendicitis can significantly increase morbidity.

CONCLUSIONS

Retroperitoneal appendicitis often presents atypically, delaying diagnosis and increasing complications. A high index of suspicion and timely surgical intervention with retrograde appendectomy are vital, particularly in resource-limited settings, to ensure favorable outcomes.

Competing interests:

The authors declare that they have no competing interests, financial or non-financial, related to this case report.

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