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RETROPERITONEAL RETROCOLIC APPENDICITIS PRESENTING AS DIFFUSE ABDOMINAL PAIN: A SURGICAL DILEMMA — CASE REPORT AND REVIEW OF THE LITERATURE

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Abstract

Background: Acute appendicitis is among the most common surgical emergencies. However, when the appendix assumes a retroperitoneal or retrocolic location, typical clinical presentations and signs may be absent or misleading, complicating timely diagnosis and management.

Case Presentation: A 48-year-old postmenopausal woman presented with three days of diffuse, insidious abdominal pain—worsened over the last eight hours—accompanied by two non-bilious, non-bloody episodes of vomiting. Vital signs were notable for tachycardia (108 bpm) and low-grade fever (99.1 °F). Examination revealed a soft abdomen with diffuse tenderness and guarding and sluggish bowel sounds. Per rectal examination was normal. CT imaging suggested appendicitis in a post-ileal position. Intraoperatively, a retroperitoneal, retrocolic inflamed appendix was identified and removed via a retroperitoneal approach.

Discussion: This case highlights the diagnostic and surgical challenges posed by atypical appendiceal anatomy. Literature reveals similar rare presentations including retroperitoneal abscesses, perforations into the retroperitoneum causing thigh or psoas involvement, and misdiagnoses as neoplastic processes involving adjacent structures—such as the ureter—emphasizing the need for high clinical suspicion and flexible operative planning.

Conclusion: Atypical presentations of appendicitis should prompt consideration of anomalous anatomical locations and complications. Advanced imaging and operative preparedness are critical to avoid delayed diagnosis and prevent complications.

INTRODUCTION

Acute appendicitis remains a ubiquitous cause of acute abdomen and a surgical emergency. Anatomically, the appendix generally resides in one of several common positions—anterior/posterior ileal, pelvic, retrocecal—but retroperitoneal or retrocolic placements are exceedingly uncommon and seldom expected by clinicians.

The variable anatomical locations can profoundly influence both clinical presentation and diagnostic accuracy. For instance, a retroperitoneal, retrocecal appendix may evade classic signs such as McBurney's point tenderness, giving rise instead to flank or psoas irritation symptoms. The psoas sign—pain elicited by stretching the iliopsoas—is a useful but underutilized indicator in such cases

Case studies in literature detail rare but critical complications such as retroperitoneal abscess formation, thigh emphysema, pneumomediastinum, and mimicry of ureteric neoplasms, underscoring the need for awareness of this anatomical variability. Given the potential for diagnostic delay and elevated morbidity,

this case underscores the importance of maintaining a broad differential diagnosis and preparedness for anatomical surprises.

Case Presentation

Patient Profile and Presentation

A 48-year-old postmenopausal woman presented to the surgical outpatient department with diffuse abdominal pain of three days' duration. The pain was insidious in onset, progressively intensifying over the past eight hours. She also reported two episodes of non-bilious, non-bloody vomiting containing undigested food. No history of fever, urinary or bowel changes, prior surgeries were noted. Patient was a case of uncontrolled type 2 diabetes for 10 years on irregular medication.

Vital Signs and Physical Examination

Pulse: 108 bpm
Blood Pressure: 120/70 mmHg
Respiratory Rate: 20/min
Temperature: 99.1 °F

General examination was unremarkable: no pallor, icterus, clubbing, cyanosis, lymphadenopathy, or pedal edema.

Abdominal palpation revealed diffuse tenderness without localization to the right lower quadrant; classical signs such as McBurney's point tenderness, rebound, or guarding were absent. Psoas and obturator signs were not specifically elicited in the initial evaluation. Diffuse guarding was present with sluggish bowel sounds. Typical signs of appendicitis like McBurney point tendernees, Psoas sign, Obturator sign and Rovsing's sign were negative. Per rectal examination was normal.

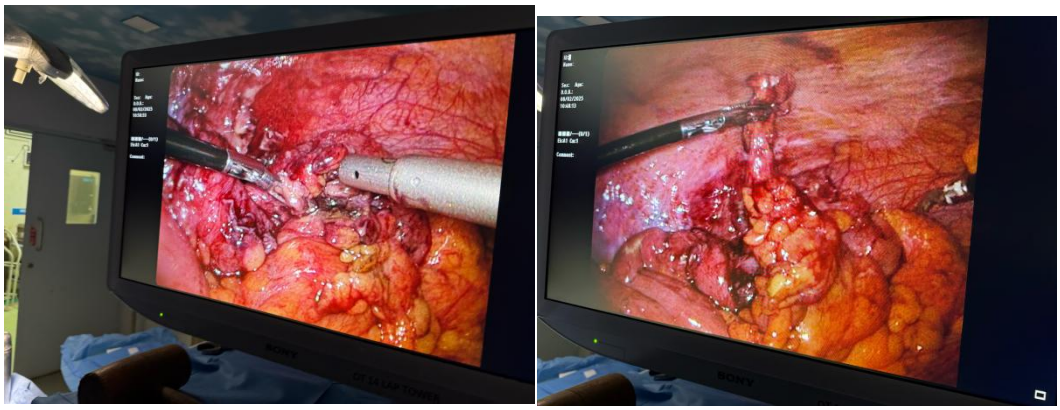
Investigations and Imaging

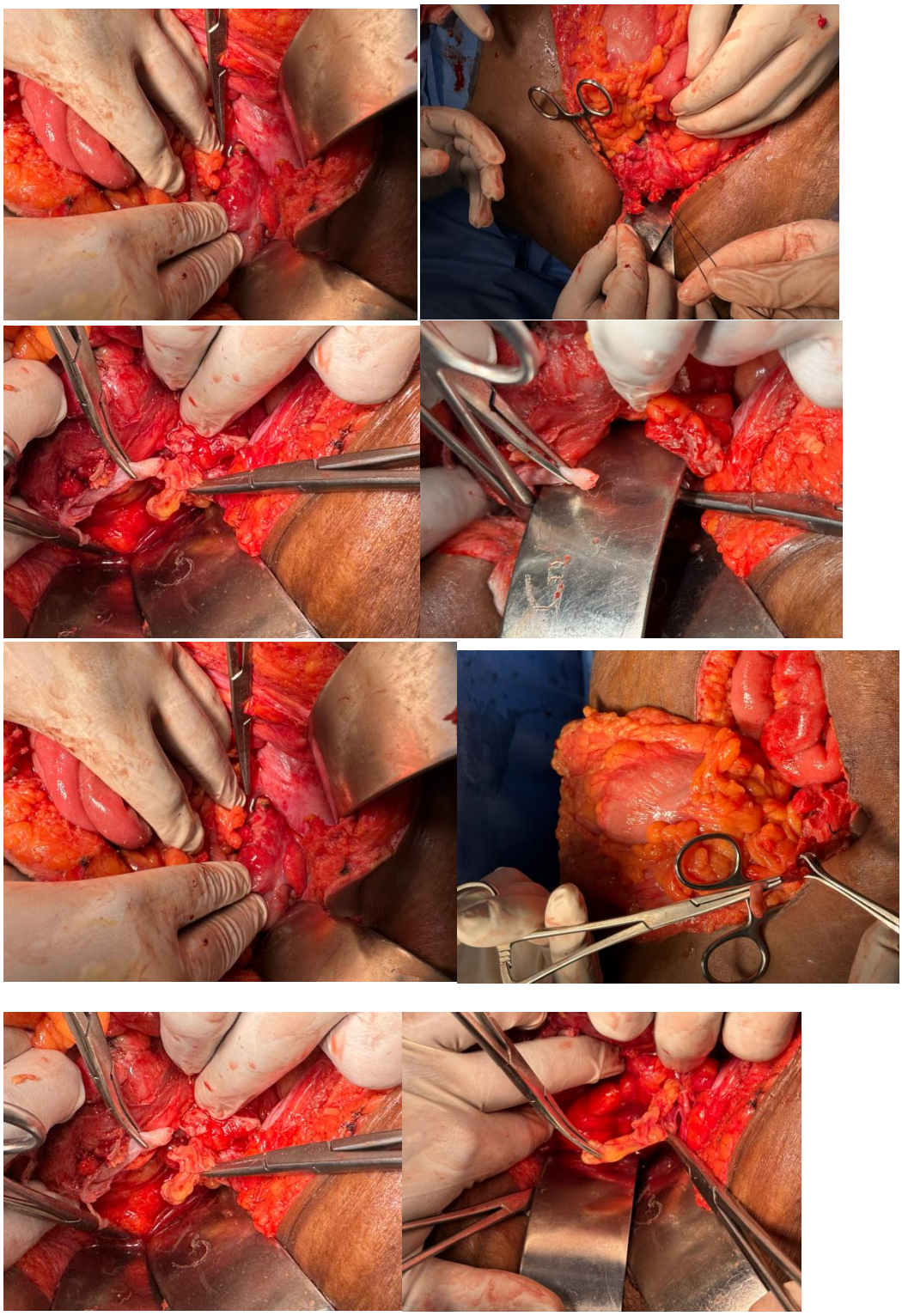
Baseline blood investigations (CBC, CRP, liver and renal profiles) were within normal limits. A contrast-enhanced CT scan of the abdomen demonstrated inflammatory changes consistent with appendicitis in a post-ileal location measuring 10mm at base, 8mm at the tip. Periappendiceal fat stranding was noted and adjacent reactive inflammatory changes around the ileo-ceacal junction . Few prominent lymph nodes seen in the RIF region and central mesenteric region.No evidence of appendicolith noted within. No intra luminal/peri appendiceal air foci seen. The scan failed to clearly delineate its retroperitoneal orientation.

Surgical Management

Given the strong presumption of appendicitis, the patient was consented for surgical intervention. During exploration, initially by laparoscopy, mass formation was noted in RIF region involving the Ileocecal junction; sloughed off tissue was present and extensive inflammed tissue noted. Free fluid was present. Appendix could not be delineated. Decision was made to convert to open. Midline laparotomy incision made. Bowel walk done. Base of appendix identified at lateral aspect on Caecum seen extending posterolaterally. White line of Toldt identified and dissected- retroperitoneum entered. Appendix identified retroperitoneally. Mesoappendix ligated and dissected. Appendix delineated. Base of appendix crushed and ligated using 1-0 silk and the appendicectomy done.

The appendix was not located in its usual intraperitoneal position. Instead, a retroperitoneal, retrocolic inflamed appendix was discovered, necessitating conversion to a retroperitoneal approach. The appendix was successfully mobilized and resected through a posterior access route, followed by adequate irrigation and drain placement.





Postoperative Course

The patient's postoperative recovery was uneventful. She was started on intravenous antibiotics and maintained on analgesia. Oral intake resumed by postoperative day 2, and the drain was removed on day 5. She was discharged on day 6 in stable condition with instructions for follow-up in two weeks, at which point she remained asymptomatic.

Histopathological analysis of the specimen revealed appendiceal wall with lymphoid follicles with infiltration by eosinophils and few polymorphs in the lamina propria infiltrating into the muscular wall- all features suggestive of acute appendicitis.

DISCUSSION

Anatomical Variability and Clinical Implications

Anatomical variants of the appendix can significantly alter symptomatology and physical findings. A retroperitoneal or retrocolic position can obscure classical signs like McBurney's point tenderness; instead, flank tenderness, psoas irritation, or vague abdominal discomfort may predominate.

Diagnostic Challenges and Imaging Modalities

Even with advanced imaging, appendicitis in atypical locations may evade detection. CT imaging remains a mainstay diagnostic tool. Notably, involvement of the retroperitoneal space, quantified as a high RPS count on CT, correlates strongly with complicated appendicitis such as perforation or abscess formation BioMed Central.

Case reports describe catastrophic complications when diagnosis is delayed. These include retroperitoneal abscesses extending into the psoas or thigh, pneumomediastinum, and even subcutaneous emphysema due to perforations traversing tissue planes PMC+1e-CenturyJournalMCRadiopaedia.

Unusual Mimics and Differential Diagnoses

Retroperitoneal appendicitis has been mistaken for other pathologies. One such report documented a patient whose appendiceal inflammation encroached on the ureter, mimicking ureteral carcinoma on MRU and PET imaging, only to be confirmed intraoperatively and histologically as appendicitis Fortune Journals. Such diagnostic mimicry can result in inappropriate oncologic surgery unless properly evaluated and differentiated.

Surgical Considerations

Surgeons must anticipate anatomical anomalies and plan for flexible operative approaches. When expected intraperitoneal access does not reveal the appendix, exploration of the retroperitoneal space should follow. Familiarity with retroperitoneal anatomy and cautious mobilization are critical to avoid vascular or ureteric injury and achieve a safe and effective outcome.

CONCLUSION

This case illustrates the diagnostic and therapeutic complexities posed by retroperitoneal retrocolic appendicitis. Absent classic clinical signs, diffuse abdominal pain with ambiguous imaging should prompt consideration of atypical appendiceal anatomy. CT features—such as a high retroperitoneal space involvement—can suggest complicated pathology, warranting surgical readiness for non-standard approaches. Recognition of this entity and effective operative adaptability are imperative to prevent delayed diagnosis, reduce morbidity, and ensure successful patient outcomes.

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