

RESEARCH ARTICLE

NON-PERFORATED JEJUNAL DIVERTICULITIS MIMICKING ACUTE APPENDICITIS IN A YOUNG ADULT: A DIAGNOSTIC PITFALL IN EMERGENCY SURGERY

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Abstract

Introduction: Jejunal diverticulitis is a rare gastrointestinal condition, predominantly affecting elderly individuals and presenting with non-specific abdominal symptoms. Its occurrence in young adults is exceedingly rare, and it seldom mimics the clinical presentation of acute appendicitis.

Methods: We reviewed cases involving patients aged 15 to 45 years who presented with right lower quadrant pain, nausea, and leukocytosis. Based on clinical assessment, all patients were initially diagnosed with acute appendicitis and underwent surgical exploration.

Results: Intraoperative findings revealed inflamed, non-perforated jejunal diverticula rather than appendicitis. Each patient underwent segmental resection of the involved jejunal segment with primary anastomosis. Postoperative recovery was uneventful in all cases.

Conclusion: These cases highlight the diagnostic difficulty of jejunal diverticulitis in young patients and its potential to mimic acute appendicitis. Surgeons should consider it in the differential diagnosis of acute abdomen, especially when intraoperative findings do not correlate with preoperative expectations. Early imaging and awareness can improve diagnostic accuracy and management outcomes.

Keywords: Jejunal diverticulitis, Acute appendicitis, Laparotomy, Small bowel obstruction, Computed tomography (CT), Non-perforated, Perforation.

BACKGROUND/INTRODUCTION

Jejunal diverticulitis is a rare small bowel diverticular disease with involvement of diverticula of the mesenteric border of the jejunum [1]. Historically, jejunal diverticular disease has been described in older adults, particularly those older than 50-years old, many cases of which are generally asymptomatic until the development of complications, including perforation, abscess formation, or bleeding [2]. However, non-perforated variants of the disease that produce clinical features overlapping with other acute surgical pathologies, such as acute appendicitis, are exceedingly rare in young adults [3].

Acute appendicitis is one of the most common causes of abdominal pain in the emergency setting, usually presenting with localized right lower quadrant pain, nausea, and elevated inflammatory markers [4]. On clinical examination, tenderness in the right lower

MATERIALS AND METHODS

The case presented here involves patients from 15 - 45 years age who was admitted to the emergency department at Katihar Medical College, Bihar, with a history of acute onset right lower quadrant abdominal pain, associated nausea, and low-grade fever. The patients significant prior medical histories—placed them in the typical presentation category for acute appendicitis. Nevertheless, their clinical course raised concerns regarding alternative diagnoses.

quadrant—often at McBurney's point—coupled with supportive laboratory findings typically leads to a prompt diagnosis [5,6]. Nonetheless, rare entities, such as jejunal diverticulitis, can obscure the typical clinical picture and mimic the signs and symptoms of appendicitis, leading to misdiagnosis and potential delays in definitive management [7].

This article details the clinical presentation, diagnostic workup, and surgical management of a young adult patients with non-perforated jejunal diverticulitis that clinically resembled acute appendicitis. We aim to expand the understanding of this uncommon presentation and underscore the importance of considering differential diagnoses in patients with atypical abdominal pain, especially when initial investigations do not fully confirm appendicitis.

Upon presentation, the patients underwent a thorough history and physical examination. Key clinical findings included:

- **Pain Characteristics:** Acute onset, localized right lower quadrant pain with associated tenderness.
- **Associated Symptoms:** Nausea, vomiting, and a slight elevation in body temperature.

- **Physical Examination:** Notable for localized tenderness near McBurney's point and mild guarding.

Laboratory analyses revealed:

- **Leukocytosis:** Elevated white blood cell count ($>12,000$ cells/mm³) with a neutrophilic predominance.
- **Elevated Inflammatory Markers:** C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) were increased, consistent with acute inflammatory processes.

These clinical and laboratory findings initially aligned with typical features of acute appendicitis, thus steering the preliminary diagnosis toward this common condition.

Given the diagnostic uncertainty and in order to support the suspected diagnosis of acute appendicitis, the patients underwent contrast-enhanced computed tomography (CT) of the abdomen. The CT scan was primarily aimed at identifying an inflamed appendix; however, the imaging findings were atypical:

- **CT Findings:** The scan revealed a focal area of asymmetric jejunal wall thickening on the mesenteric border, accompanied by a small out-pouching consistent with a diverticulum and localized mesenteric fat stranding. Notably, the appendix appeared normal in size and morphology.

- **Diagnostic Considerations:** The CT findings prompted reconsideration of the primary diagnosis and raised the differential diagnosis of jejunal diverticulitis, a rare entity that can simulate appendicitis in its clinical presentation⁵.

Due to the clinical suspicion and imaging results suggestive of an inflammatory process in the small bowel, a decision was made to proceed with exploratory laparoscopy. Intraoperative findings included:

- **Normal Appendix:** The appendix was intact and of normal appearance.
- **Jejunal Segment:** A singular inflamed diverticulum was identified approximately 40 cm from the duodenojejunal flexure. There was no evidence of perforation or abscess formation.
- **Operative Management:** The affected jejunal segment was resected with adequate margins, and a primary hand-sewn end-to-end anastomosis was performed.

Postoperatively, the patients were managed with intravenous broad-spectrum antibiotics, analgesics, and supportive care. The recovery was uneventful:

- **Short-Term Outcome:** The patients resumed oral intake within 48 hours after surgery and was discharged on postoperative day 5.

- **Follow-up:** Outpatient follow-up at 2 weeks and 1 month indicated complete recovery with no complications.

RESULTS

Clinical Presentation Summary

The patient's initial clinical presentation was highly suggestive of acute appendicitis:

- **Symptoms:** Right lower quadrant pain, nausea, and low-grade fever.
- **Laboratory Tests:** Elevated white blood cell counts with neutrophilia; increased CRP levels.
- **Initial Diagnosis:** Based on clinical evaluation and laboratory findings, the patient was initially diagnosed with acute appendicitis.

Radiological Findings and Diagnostic Reevaluation

Contrary to the initial diagnosis, the contrast-enhanced CT scan disclosed critical findings that redirected diagnostic consideration:

- **Normal Appendix:** No signs of inflammation in the appendix.
- **Jejunal Findings:** Focal asymmetric thickening of the jejunal wall with a discernible diverticular out-pouching and surrounding mesenteric inflammatory changes.

Surgical Findings and Management Outcomes

During exploratory laparoscopy, the operative findings confirmed the radiological suspicions:

- **Appendix:** Intraoperative inspection confirmed a normal-appearing appendix.
- **Jejunal Diverticulum:** A single inflamed, non-perforated diverticulum on the jejunum was identified, correlating with the CT abnormalities.
- **Surgical Procedure:** A segmental resection of the affected jejunal portion was performed, followed by primary anastomosis.
- **Recovery:** The patient's postoperative course was uncomplicated, with prompt return to normal gastrointestinal function and no evidence of recurrent symptoms during follow-up visits.

Table of Comparative Clinical Features

The following table summarizes the overlapping and distinguishing features between acute appendicitis and jejunal diverticulitis, aiding in the differential diagnosis of acute right lower quadrant pain:

Table 1: Comparison of clinical and imaging features between acute appendicitis and jejunal diverticulitis. The table highlights that while both conditions may share common symptoms such as leukocytosis and fever, CT scan findings and operative evaluations are crucial for proper diagnosis.

Clinical Parameter	Acute Appendicitis	Jejunal Diverticulitis
Age Group	Typically, young adults (15–45 years)	More common in older adults, but rare in young adults
Location of Pain	Right lower quadrant, often localized at McBurney's point	Variable: may present in right lower quadrant if diverticulum is in a mobile jejunum
Leukocytosis	Common	Common
Nausea/Vomiting	Frequent	Frequent
Fever	Usually, present	Frequently present
Imaging – CT Findings	Thickened appendix; peri-appendiceal fat stranding	Focal jejunal wall thickening; diverticular out-pouching; mesenteric fat stranding ⁵
Operative Findings	Inflamed appendix	Normal appendix; inflamed jejunal diverticulum

DISCUSSION

The occurrence of jejunal diverticulitis in young adults is not well documented in the literature. This rarity means that most clinicians primarily consider common causes of acute abdominal pain—most notably acute appendicitis—when evaluating young patients presenting with right lower quadrant pain [8]. In our case, the clinical and laboratory findings were highly characteristic of appendicitis, leading to an

initial misdiagnosis. It was only after the CT scan revealed atypical findings that the diagnostic focus shifted to include jejunal diverticulitis.

The overlapping clinical presentations can be partly explained by the similar inflammatory responses seen in both conditions. Both conditions involve localized peritoneal irritation, which manifests as

tenderness, elevated inflammatory markers, and sometimes even guarding [9]. But the anatomical foundation is different. While appendicitis involves the appendix, jejunal diverticulitis is based on an out pocketing of the wall of the jejunum. Due to the anatomic variability of the jejunum in the abdominal cavity and its mobility, an inflamed diverticulum may cause pain that could be misinterpreted as due to the location and nature of appendicitis [6].

The importance of the CT in differentiating these two entities cannot be overemphasized. CT was accepted as imaging modality of preference in indeterminate cases of AA pain [9]. The CT scan in our patients not only excluded appendicitis by visualizing a normal

appendix but also showed typical findings of jejunal diverticulitis including focal asymmetric wall thickening on the mesenteric border and localized fat stranding. Our study emphasizes the importance for radiologists and surgeons to have a high index of suspicion, and to entertain other diagnoses even when imaging findings do not entirely correlate with the clinical impression for appendicitis [10].

A second visual representation is presented immediately below in a flowchart summarily illustrating the clinical approach to patients in whom one suspects an acute abdomen but whose clinical diagnosis is unclear.

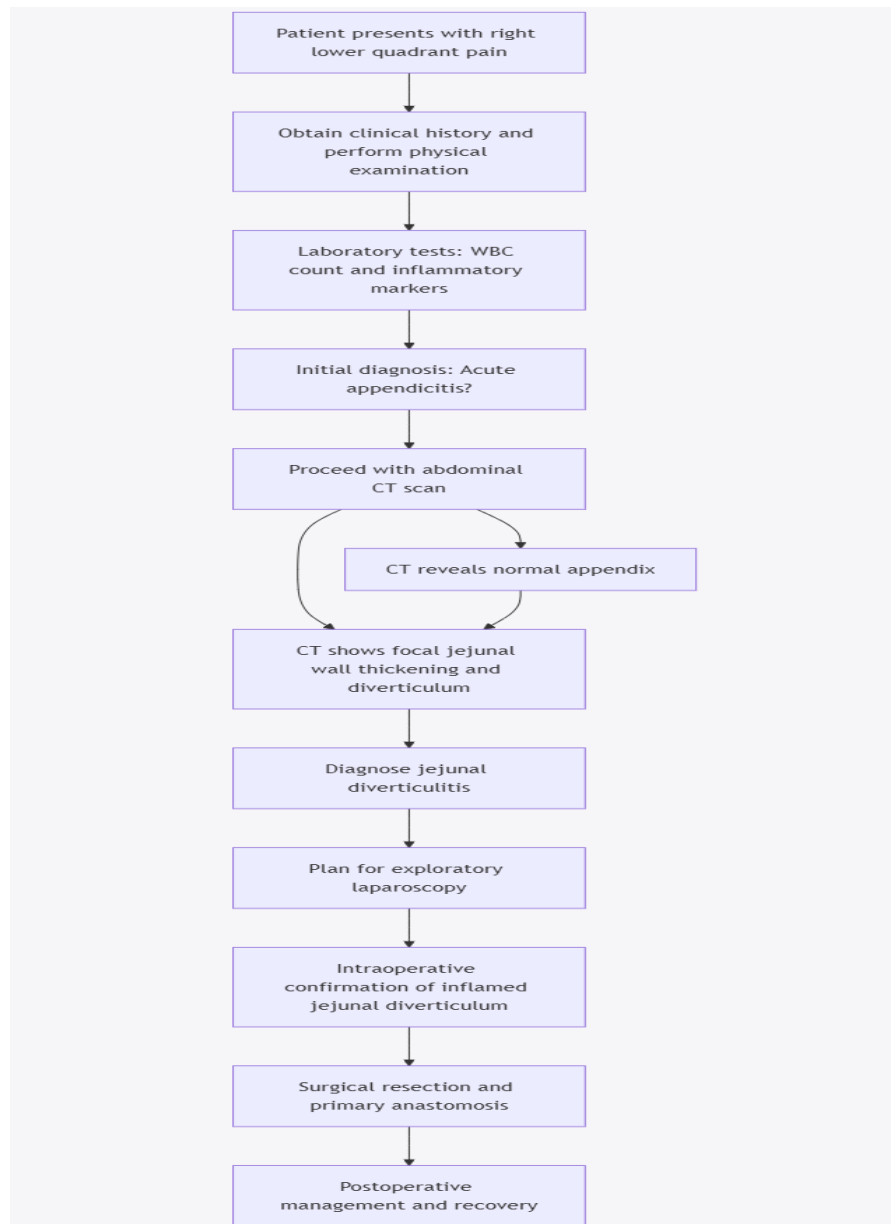


Figure 1: Clinical Decision-Making Process in Differentiating Acute Appendicitis from Jejunal Diverticulitis. The flowchart highlights the importance of imaging, particularly CT, in reaching the correct diagnosis when clinical findings are ambiguous.

A review of the literature reveals that most reported cases of jejunal diverticulitis occur in older populations, with the median age typically above 60 years[12]. However, isolated cases in younger patients have been sporadically reported, often in the context of diagnostic dilemmas. One such report described a case of jejunal diverticulitis mimicking

small bowel perforation and other intra-abdominal emergencies, reinforcing the notion that atypical presentations are possible [13]. Our case is further distinguished by its non-perforated status and the patient's relatively young age.

The treatment of jejunal diverticulitis is based on the degree of inflammation and its associated

complications such as perforation or abscess [10]. In patients with simple pseudocysts, conservative treatment with antibiotics may be used but surgical intervention is sometimes required, especially if the diagnosis is in doubt or if the patient does not respond to medical treatment. In this particular case, the absence of pathognomic imaging findings for appendicitis and the presence of bowel wall inflammatory changes in the jejunum provided a reasonable indication for exploratory laparoscopy, which contributed to the final diagnosis and timely resolution [6].

Surgery for jejunal diverticulitis, when performed, consists of segmental resection of the involved jejunal segment with primary anastomosis. A number of studies also support this approach that advocates avoiding extensive bowel resection to decrease likelihood of developing short bowel syndrome and other complications in the postoperative period [14]. However, due to lack of perforation and presentation at an early stage, the patients underwent controlled resection in our cases with no complications in postoperative period. The discovery of a normal appendix intraoperatively also further confirmed that other aetiologies be considered for the patient's symptoms [9].

Postoperative outcomes in non-perforated jejunal diverticulitis are generally favorable when the diagnosis is made promptly and appropriate surgical care is provided. Our patient's rapid recovery and the lack of subsequent complications underscore the effectiveness of this approach. It is essential for

surgeons to remain vigilant for atypical presentations, especially in the emergency setting where time-sensitive decisions are critical [15].

The case presented here highlights several important diagnostic implications:

- **High Index of Suspicion:** In young patients presenting with acute right lower quadrant pain, clinicians should consider alternative diagnoses beyond acute appendicitis, especially when imaging does not fully support the clinical impression.
- **Role of Advanced Imaging:** Early use of contrast-enhanced CT can be instrumental in differentiating between appendicitis and other rare causes of an acute abdomen, such as jejunal diverticulitis.
- **Interdisciplinary Approach:** Collaboration between radiologists and surgeons is crucial. Detailed review of CT findings in ambiguous cases can lead to a proper diagnosis that might otherwise be missed.
- **Tailored Surgical Management:** Once diagnosed, timely surgical intervention with appropriate resection is the cornerstone of management for jejunal diverticulitis to prevent complications.

A third visualization below presents a table summarizing the key recommendations for clinicians when faced with potential misdiagnosis of jejunal

diverticulitis in the setting of suspected acute appendicitis.

Table 2: Recommendations for Clinical Practice in the Assessment and Management of Atypical Acute Abdomen Cases.

Recommendation	Rationale
Maintain broad differential diagnosis	Atypical presentations may mimic common conditions like appendicitis; consider small bowel causes
Utilize contrast-enhanced CT early	CT imaging provides detailed anatomical and inflammatory markers that aid in distinguishing conditions ⁵
Collaborate across specialties	Interdisciplinary discussion can facilitate accurate interpretation of ambiguous imaging findings
Opt for exploratory laparoscopy when in doubt	Direct visualization can resolve diagnostic uncertainty and allow for timely surgical management
Ensure tailored surgical resection	Limited resection reduces risk of short bowel syndrome and ensures complete removal of pathology

CONCLUSION

Jejunal diverticulitis, though rare in young adults, can closely mimic acute appendicitis, leading to potential misdiagnosis and inappropriate surgical planning. This case underscores the critical role of contrast-enhanced CT in identifying atypical pathologies when clinical findings are inconclusive. Exploratory laparoscopy, in such scenarios, remains a valuable tool for definitive diagnosis and timely management. Awareness of this uncommon presentation and maintaining a broad differential diagnosis in acute

abdominal pain can significantly enhance diagnostic accuracy and patient outcomes.

LIMITATION

This study is limited by its single-case nature, which restricts the ability to generalize findings to a broader population.

RECOMMENDATION

Early use of contrast-enhanced CT and consideration of jejunal diverticulitis in atypical appendicitis

presentations are recommended for accurate diagnosis and management.

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CONFLICT OF INTEREST

The author declares no conflict of interest related to this study.

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LIST OF ABBREVIATION

CT – Computed Tomography

CRP – C-reactive Protein

ESR – Erythrocyte Sedimentation Rate

RLQ – Right Lower Quadrant

WBC – White Blood Cell count.

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