Stump appendicitis. A case report

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Case Report

Radiology

OPEN ACCESS

Background: Stump appendicitis is a rare postoperative complication characterized by inflammation of residual appendiceal tissue remaining after an appendectomy. This entity is challenging to recognize because clinicians often exclude appendicitis in patients with a prior appendectomy. We report a case of a twenty-four-year-old man with a history of open appendectomy six months earlier who presented with persistent right lower quadrant pain, fever, nausea and vomiting. He initially received treatment for nephrolithiasis and an acute diarrheal syndrome without symptom relief. Upon referral to a regional hospital, ultrasonography of the right iliac fossa yielded no abnormalities. A subsequent contrast-enhanced computed tomography scan, performed to exclude diverticulitis, demonstrated a small peri-appendiceal fluid collection adjacent to the appendiceal stump with associated inflammatory fat stranding, compatible with stump appendicitis. The patient underwent conservative management with intravenous broad-spectrum antibiotics and analgesics, leading to complete resolution of his symptoms. This case highlights the importance of maintaining a high index of suspicion for stump appendicitis in postoperative patients presenting with right lower quadrant pain, as delayed diagnosis is associated with higher perforation rates. The case also underscores the critical role of cross-sectional imaging in differentiating this condition from other causes of abdominal pain, such as diverticulitis or cecal diverticulitis. Review of the literature indicates that stump appendicitis occurs in approximately one per fifty thousand appendectomies, though underreporting may mean it is more common. Awareness of this rare entity and ensuring complete appendiceal resection during the initial procedure are essential steps toward preventing morbidity and reducing postoperative complications risk overall.

Keywords: appendiceal stump inflammation; post-appendectomy complication; right lower quadrant pain.

Stump appendicitis is an uncommon postoperative complication characterized by inflammation of the residual appendiceal tissue following appendectomy. Although it mirrors the clinical presentation of acute appendicitis, its diagnosis is often delayed because the patient has a history of appendectomy, and clinicians may assume the appendix has been completely removed. Timely recognition is critical, as delayed diagnosis is associated with a higher rate of perforation and significant morbidity. We present the case of a young adult who developed stump appendicitis several months after an appendectomy and discuss the imaging findings and management considerations.

Case report

A 24-year-old male patient presented with right iliac fossa pain accompanied by fever, nausea and vomiting. He was initially managed for nephrolithiasis and an acute diarrheal syndrome but did not improve. He sought care at the Western Regional Hospital, where a right iliac fossa ultrasound was performed and reported as unremarkable. An abdominal computed tomography (CT) scan was subsequently obtained to exclude diverticulitis; it demonstrated a small fluid collection adjacent to the appendiceal stump with surrounding inflammatory changes (fat stranding). The patient had a history of acute appendicitis six months earlier, which had been treated at the same hospital. The patient's clinical course resolved with conservative management using antibiotics and analgesics.

Discussion

Stump appendicitis refers to inflammation of the appendiceal remnant that remains after appendectomy. This entity arises when the initial resection is incomplete, leaving a residual segment vulnerable to luminal obstruction and recurrent infection. Misidentification of the appendiceal base, retrocecal or subserosal appendices, and an excessive

From the Department of Radiology at San Juan de Dios Western Regional Hospital, Radiology, Quetzaltenango, Guatemala. Received on October 13, 2025. Accepted on October 27, 2025. Published on October 29, 2025.

DOI 10.5281/zenodo.17479860

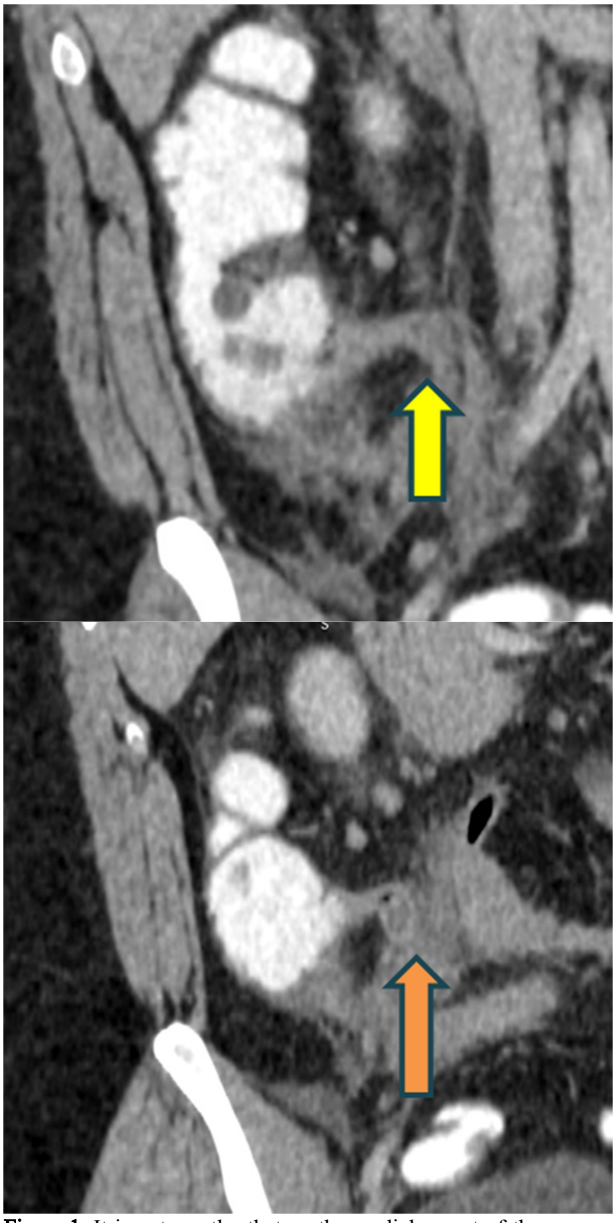

Figure 1. It is noteworthy that on the medial aspect of the cecum, in close proximity to the ileocecal valve, there is a sac-like structure measuring 3.4 cm in length and 0.9 cm in transverse diameter.
On the unenhanced phase, this structure shows attenuation values of up to +30 HU. During the arterial and venous phases, there is enhancement of its wall, predominantly at its base, reaching attenuation values of up to +54 HU. These findings are most consistent with the appendiceal stump (Yellow arrow).
Small gas foci are identified within its lumen. In addition, there is rarefaction (inflammatory stranding) of the adjacent fat.
In close proximity to this area, there is a small complicated fluid collection measuring 3.1 × 1.5 × 1.1 cm, with an estimated volume of 5.1 cc. (Orange yellow).
Adjacent to the previously described area, a few reactive lymph nodes are observed.

stump length (>0.5 cm) are recognised predisposing factors (1).

Clinically, patients with stump appendicitis present with right iliac fossa or right lower quadrant pain, fever, nausea and vomiting, mimicking classic acute appendicitis(2). Because patients have a history of appendectomy, clinicians may fail to consider this diagnosis, leading to delayed treatment and a perforation rate approaching 55 % (1). A literature review of 40 cases reported a mean age of 37 years with a male predominance (62 %); the average interval between initial surgery and recurrence was 8 years (range 2 months–40 years) (2). In a separate series of 14 patients, the mean interval was 5.1 years, with 71 % of cases following laparoscopic appendectomy (3). Mean stump length ranged from 3.2 to 3.5 cm (4), and appendicoliths were identified in 50 % of cases . Mean white blood cell count at presentation was approximately 13 700 cells/mm³, suggesting moderate to marked leukocytosis(2,3).

Epidemiologically, the estimated incidence is one case per 50 000 appendectomies(1), though underreporting likely results in a higher true incidence. The increased use of laparoscopic techniques may contribute to longer residual stumps and a rising number of cases (5). Differential diagnoses include cecal diverticulitis, Crohn disease, epiploic appendagitis and right-sided colitis(4,5); imaging plays a crucial role in distinguishing these entities.

Contrast-enhanced computed tomography (CT) is the imaging modality of choice and was employed in 52 % of reported cases. CT typically demonstrates a blind-ending tubular structure arising from the cecum with a diameter >6 mm and variable length. The inflamed stump shows mural thickening, hyperenhancement and often an intraluminal appendicolith. Peri-cecal fat stranding and abscess formation were present in all patients in one series, with peri-stump abscesses in 29 %. Additional findings include free fluid, cecal and terminal ileal wall thickening, or an ileocecal mass. Measurement of stump length assists surgical planning, as stumps ≥2 cm and retained appendicoliths are associated with recurrence (3–5).

Ultrasound (US), including point-of-care ultrasound (PoCUS), is a valuable adjunct, particularly in children, pregnant women or resource-limited settings. US findings mirror those of acute appendicitis: a non-compressible, blind-ending tubular structure with a diameter >6 mm, often containing a fecalith, with periappendiceal fluid and echogenic fat. A high-frequency linear transducer is recommended, beginning at the point of maximal tenderness and following the terminal ileum to the cecum. Although few data exist on sensitivity, case reports suggest radiologist-performed US can accurately diagnose stump appendicitis; however, CT remains more specific (6,7).

Therapeutically, completion appendectomy is the standard of care. In the 40-case review, 83 % underwent open resection and 17 % laparoscopic removal. Selected patients with significant

DOI 10.5281/zenodo.17479860

comorbidities have been managed conservatively with antibiotics, but the risk of recurrence demands close follow-up. Prevention hinges on meticulous intraoperative identification of the appendiceal base and resection of the appendix to leave a stump shorter than 0.5 cm(7,8).

Conclusion

Stump appendicitis is a rare but clinically important complication of appendectomy. Although its presentation mimics acute appendicitis, failure to recognise it in patients with prior appendectomy leads to delayed diagnosis and increased morbidity. Risk factors include an excessively long residual appendiceal stump, misidentification of the appendiceal base, retrocecal or subserosal appendices and retained appendicoliths. Contrast-enhanced CT remains the diagnostic modality of choice, while ultrasound serves as a useful adjunct in selected settings. Definitive management is completion appendectomy; meticulous surgical technique during the initial appendectomy, leaving a stump <0.5 cm, is the best preventive measure.

Conflicts of interests

The authors have no conflicts of interests.

Acknowledgements

We thank Dr. Jose Carlos and Dr. Mary Coti for their support in the diagnosis of this case

References

1. Skandhan AKP. Radiopaedia. [citado 7 de octubre de 2025]. Stump appendicitis | Radiology Reference Article | Radiopaedia.org. Disponible en: https://radiopaedia.org/articles/stump-appendicitis
2. Roberts KE, Starker LF, Duffy AJ, Bell RL, Bokhari J. Stump Appendicitis: A Surgeon's Dilemma. JSLS [Internet]. 2011 [citado 7 de octubre de 2025];15(3):373-8. Disponible en: https://pmc.ncbi.nlm.nih.gov/articles/PMC3183543/
3. Enzerra MD, Ranieri DM, Pickhardt PJ. Stump Appendicitis: Clinical and CT Findings. AJR Am J Roentgenol. diciembre de 2020;215(6):1363-9.
4. Johnston J, Myers DT, Williams TR. Stump appendicitis: surgical background, CT appearance, and imaging mimics. Emerg Radiol. febrero de 2015;22(1):13-8.
5. Bastakoti A, Khatiwada A, Luitel P, Panthi B, KC S, KC S. Classic yet challenging case of stump appendicitis: a case report. Ann Med Surg [Internet]. 24 de octubre de 2024 [citado 7 de octubre de 2025];86(12):7427-30. Disponible en: https://pmc.ncbi.nlm.nih.gov/articles/PMC11623884/
6. Kumar A, Sharma A, Khullar R, Soni V, Baijal M, Chowbey PK. Stump appendicitis: A rare clinical entity. J Minimal Access Surg [Internet]. 2013 [citado 7 de octubre de 2025];9(4):173-6. Disponible en: https://pmc.ncbi.nlm.nih.gov/articles/PMC3830137/
7. Monsomboon A, Nelson BP, Andrus P, Tsung JW. Point-of-care ultrasound diagnosis of stump appendicitis in the emergency department. Ultrasound J [Internet]. 11 de junio de 2019 [citado 7 de octubre de 2025];11:12. Disponible en: https://pmc.ncbi.nlm.nih.gov/articles/PMC6638604/
8. Bastakoti A, Khatiwada A, Luitel P, Panthi B, KC S, KC S. Classic yet challenging case of stump appendicitis: a case report. Ann Med Surg [Internet]. 24 de octubre de 2024 [citado 7 de octubre de 2025];86(12):7427-30. Disponible en: https://pmc.ncbi.nlm.nih.gov/articles/PMC11623884/

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 DOI 10.5281/zenodo.17479860