



CASE REPORT

Case of giant appendicolith: A common ailment with a rare finding

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Key Clinical Message

Giant appendicoliths are rare appendicoliths with the largest diameter of more than 2 cm. It can increase the risk of complications such as perforation or abscess formation. This is a case of an uncommon definitive pathology diagnosed for a right iliac fossa calcification with a rare transoperative finding.

KEYWORDS

abdominal calcification, appendicitis, appendicolith, fecalith

1 | INTRODUCTION

Appendicitis is one of the most common causes of emergency surgery accounting for all surgical operations. The diagnosis is based largely on clinical judgment, however, laboratory values and radiologic imaging are often used to increase diagnostic accuracy.¹ Appendicular lumen obstruction either by lymphoid hyperplasia appendicoliths, tumors, or foreign bodies explains the pathophysiology of acute appendicitis in most cases. This results in a rise in intraluminal pressure, the collapse of lymphatic vessels, collapsed veins, and decreased arterial flow, and consequently, leads to necrosis and perforation.^{2,3}

Appendicolith is a mass formed by the concretion of calcified deposits in the appendix made of packed stool and occasionally mineral deposits. Appendicoliths are present in 3% of the general population and 10% of appendicitis cases. Appendicoliths are more common in male patients under 35 years of age, with retrocaecal

appendix.⁴⁻⁶ Most cases of appendicoliths are asymptomatic. However, it represents a well-known cause of acute appendicitis, the reason for intermittent chronic abdominal pain, and is associated with an increased risk of perforation or abscess formation.⁷⁻⁹ It may also present as a colicky pain, in which urolithiasis may be considered a differential diagnosis.¹⁰

Appendicolith is termed a giant when it is more than 2 cm in size and is extremely rare.^{11,12}

A case of a giant appendicolith is presented within the context of an acute abdomen. This case report is in line with CARE guidelines.¹³

2 | CASE REPORT

A 21-year-old Hindu male with no known comorbidities presented to the Shree Birendra Hospital (SBH) Emergency Department with a complaint of pain abdomen

for 1 day. The pain initially started in the umbilical region and migrated to the Right Iliac Fossa (RIF). It was acute in onset, pricking, and continuous which was relieved under painkillers, associated with two episodes of nonprojectile, nonbile stained, and nonblood-stained vomiting, with vomitus being food particles. The patient has no history of fever or change in bowel and bladder habits. He was otherwise well with no significant past medical or surgical history or family history.

On physical examination, his general condition was fair, and his vitals were within normal range. The abdomen was soft, with tenderness and rebound tenderness present over RIF, nondistended with guarding present. The Psoas test, Obturator test, and Rovsing sign were negative. The modified ALVARADO score was 7/9. Heart sounds and lung fields were unaltered, and the patient was grossly neurologically intact.

2.1 | Diagnostic assessments

Complete blood count: on admission, the WBC was 15×10^3 ($N=88\%$), which was raised to 17×10^3 ($N=90\%$) after 7 h, and then after 2 days, it was 10.8×10^3 ($N=84.1\%$), hemoglobin within normal limit.

Ultra Sonography (Focused scan of RIF and Right Hypochondriac Region) showed Dilated tubular, thick-walled structure with echogenic thick content and calculus of approx. 16 mm in size with diffuse surrounding inflammatory changes.

CECT (A + P) showed the appendix is well distended, measuring 26 mm in diameter and 6.5 cm in longitudinal dimension. There is a mild postcontrast enhancement of the appendicular wall. A fecalith measuring up to 18 mm

in longitudinal dimension is seen within. A bubble of gas is seen within toward the tip. Peri-appendicular inflammation is seen in the form of fat stranding and minimal fluid. Few edematous bowel loops are seen in superior aspects. Overall, an ill-defined lump measuring $2.6 \times 4.0 \times 4.7$ cm is forming in RIF.

Renal Function Tests: All within normal limits.

Liver Function Tests: All within normal limits with slightly raised ALP.

2.2 | Treatment

The patient was initially managed in ER, he was kept Nil Per Oral (NPO) and fluid was managed by Normal Saline. Pain is managed by Hyoscine butyl bromide, along with Pantoprazole. Ceftriaxone and Metronidazole IV were the antibiotics given. And the patient was shifted to the ward and managed conservatively with Ceftriaxone, Paracetamol, Metronidazole, and Pantoprazole. The fluids being given were Dextrose NS and Ringer Lactate over 24h and kept under observation until the confirmation of appendicitis.

After the reports of Focused USG and CECT, the diagnosis was made, that is, acute appendicitis and for which emergency open appendectomy was done under spinal anesthesia. The base of the appendix was ligated then the stump was buried into the cecum, After the surgery, the specimen was sent for Histopathological examination (Figure 1A,B).

Intraoperative findings were Retrocecal Appendix of approximately 7 cm in length, healthy base with an inflamed tip, and appendicolith of approximately 2 cm in length (Figure 1C). He was kept under observation in the postoperative ward and kept NPO for 6h following the

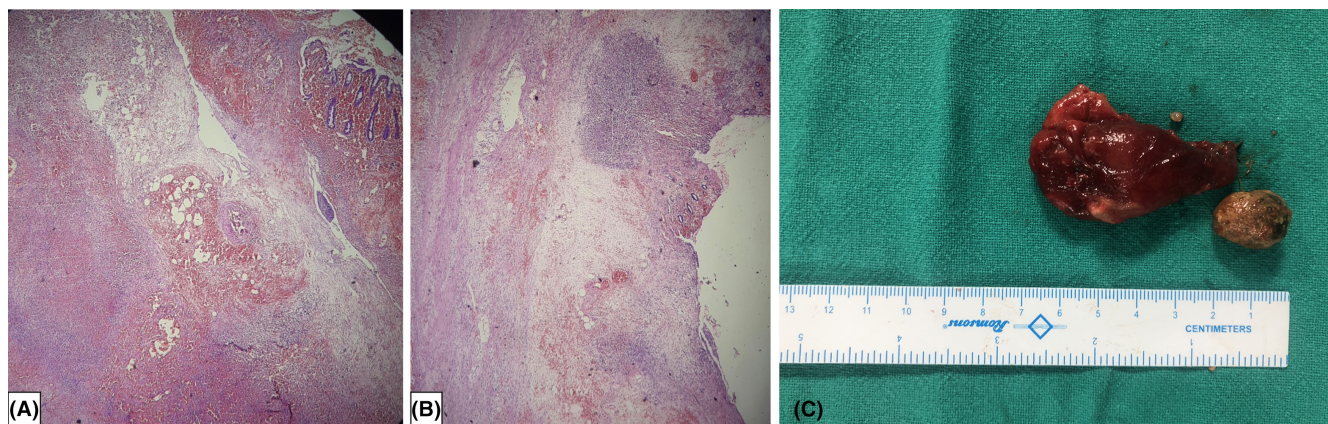


FIGURE 1 (A) Mucosal ulceration and denudation with infiltration by neutrophils, eosinophils, plasma cells, and lymphocytes throughout all layers and frequently into serosa along with necrotic areas. (B) Mucosal ulceration and denudation with infiltration by neutrophils, eosinophils, plasma cells, and lymphocytes throughout all layers and frequently into serosa along with necrotic areas. (C) A Retrocecal Appendix of approximately 7 cm in length and an appendicolith of approximately 2 cm in diameter.

surgery and then shifted to the ward after 12 h. He started on a liquid diet after 6 h and tolerated it well.

2.3 | Follow-up

He was discharged with antibiotics (Cefixime and Metronidazole), paracetamol, and pantoprazole after 72 h only after the pain resolved and he made a full recovery. The patient was advised for alternate day dressing with suture out on the 10th postoperative day. No adverse events were countered during his follow-ups.

3 | DISCUSSION

Appendicoliths are solid deposits within the appendiceal lumen that are composed of fecal matter and mineral deposits.¹⁴ They are usually less than 1 cm in size. If their size is greater than 2 cm, then they are termed giant appendicoliths.¹⁴ The giant appendicolith reported in the literature was 3.5 cm in diameter in a patient with Crohn's disease and stump appendicitis.

In several studies, appendicoliths have been reported as the cause of 20%–40% of acute appendicitis. It usually occurs in male patients under 35 years of age who have a retrocecal appendix.¹⁵ The obstruction of the proximal appendiceal lumen results in closed-loop obstruction, which leads to an increase in luminal pressure. This increase in luminal pressure can lead to a series of events, from congestion and ischemia of the appendiceal wall to gangrene and perforation if unresolved.¹ The prevalence of perforation and abscess formation in appendicitis associated with appendicoliths is 39.4%–50%.¹

It may also have an atypical presentation with symptoms like colicky pain, which may be confused with urolithiasis. The diagnosis of appendicitis is based on clinical findings, but laboratory investigations and radiological imaging studies are often used to increase diagnostic accuracy. In various studies, appendicoliths were suggested to have 100% specificity for the diagnosis of acute appendicitis, although some researchers have demonstrated the possibility of an appendicolith without acute appendicitis. The finding of an appendicular stone in CT has a 65% sensitivity, an 86% specificity, and a 74% positive predictive value for acute appendicitis diagnosis.¹⁵

There is a debate between open appendectomy (OA) or laparoscopic appendectomy (LA) versus nonsurgical management with antibiotics for the treatment of appendicitis. But various studies have found that patients treated with nonoperative management for appendicitis associated with an appendicolith have a higher rate of complications.¹ To those findings, we were able to safely

manage our patient with an open appendectomy with no short-term morbidity.

4 | CONCLUSION

The case of giant appendicoliths is rare and their clinical presentation can sometimes be not so apparent. However, when complicated, they can associate acute appendicitis with the risk of perforation, for which emergency appendectomy is preferred.

AUTHOR CONTRIBUTIONS

Niranjana Thapa: Conceptualization; data curation; resources; writing – original draft. **Oshan Shrestha:** Formal analysis; supervision; writing – review and editing. **Sunil Basukala:** Conceptualization; investigation; supervision. **Kala Shrestha:** Data curation; writing – original draft. **Nabaraj Bhugai:** Investigation; supervision. **Niraj Joshi:** Data curation; supervision. **Shiva Kumar Regmi:** Formal analysis; supervision. **Sagun Karki:** Formal analysis; supervision. **Suman Gurung:** Investigation; supervision.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest.

DATA AVAILABILITY STATEMENT

All the findings are present within the manuscript.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

PATIENT PERSPECTIVE

The patient was anxious about his health condition but was assured that he would get better after the operation. The patient was positive and had come for the follow-up.

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