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A Rare Appendiceal Neoplasm Presenting as Chronic Appendicitis in an Elderly Female: A Case Report

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ABSTRACT

Appendiceal neoplasms are rare lesions with nonspecific clinical manifestations that frequently resemble acute or chronic appendicitis, resulting in delayed or incidental diagnosis. Low-grade appendiceal mucinous neoplasm (LAMN) is an uncommon epithelial tumor characterized by mucin production and cystic dilatation of the appendix, with potential progression to pseudomyxoma peritonei if rupture occurs. A 65-year-old woman presented with intermittent right lower quadrant abdominal pain persisting for approximately one year, accompanied by occasional nausea and reduced appetite. Physical examination revealed localized tenderness without peritoneal signs, while laboratory findings were unremarkable except for mild neutrophilia. Abdominal ultrasonography demonstrated appendiceal dilatation with appendicolith, leading to a preoperative diagnosis of chronic appendicitis. An elective appendectomy was performed. Intraoperatively, the appendix appeared markedly enlarged and cystically dilated, forming a tumoral mass suspicious for appendiceal neoplasm. Histopathological examination demonstrated mucinous columnar epithelium with low-grade dysplasia, intraluminal mucin accumulation, and absence of destructive stromal invasion, confirming LAMN. The postoperative course was uneventful with significant symptomatic improvement. LAMN should be considered in elderly patients presenting with chronic right lower quadrant pain resembling chronic appendicitis. Careful surgical handling and routine histopathological examination are essential to establish an accurate diagnosis and prevent complications such as pseudomyxoma peritonei.

INTRODUCTION

Appendiceal neoplasms comprise a rare and heterogeneous group of lesions with a broad spectrum of malignant potential. They account for less than 1% of all gastrointestinal malignancies and are identified in approximately 0.9–1.4% of appendectomy specimens. Nevertheless, recent retrospective studies have reported a gradual increase in incidence, with rates reaching up to 1.9–2.14%. This increase is thought to be related to advances in diagnostic imaging and the routine use of histopathological examination following appendectomy. Despite these developments, most appendiceal neoplasms are still identified incidentally during surgery or after pathological evaluation of the resected specimen (Gómez-Báez et al., 2023; Solis-Pazmino et al., 2023).

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The clinical presentation of appendiceal neoplasms is often nonspecific and may resemble inflammatory appendiceal disease, particularly acute or chronic appendicitis, making preoperative diagnosis challenging. Patients commonly present with right lower quadrant abdominal pain, abdominal distension, or, less frequently, a palpable abdominal mass. In many cases, suspicion of appendiceal neoplasm is not raised until surgery or postoperative histopathological examination. As a result, these lesions may remain unrecognized, especially in elderly patients presenting with chronic or atypical abdominal symptoms (Núñez-Rocha et al., 2023; Solis-Pazmino et al., 2023).

Radiological imaging plays an important role in the evaluation of appendiceal pathology. Ultrasonography may demonstrate appendiceal dilatation, cystic or tubular lesionsappendicoliths, and characteristic findings such as the "onion-skin" or "doughnut" sign. However, ultrasonography has limited sensitivity in accurately characterizing appendiceal neoplasms and assessing disease extent compared with computed tomography (CT), which provides better evaluation of local invasion and associated intra-abdominal complications. Among epithelial appendiceal neoplasms, Appendiceal Mucinous Neoplasms (AMNs) are characterized by progressive intraluminal mucin accumulation secondary to luminal obstruction, resulting in cystic dilatation known as appendiceal mucocele. Delayed diagnosis or intraoperative rupture may lead to pseudomyxoma peritonei (PMP), a severe condition caused by intraperitoneal dissemination of mucin-producing epithelial cells and associated with poor clinical outcomes (Gómez-Báez et al., 2023; Solis-Pazmino et al., 2023).

Appendiceal neoplasms are more frequently encountered in older adults, particularly during the sixth and seventh decades of life, with a slight female predominance. Therefore, persistent or atypical right lower quadrant pain in elderly patients should prompt consideration of an underlying appendiceal neoplasm. We report a rare case of an appendiceal neoplasm in a 65-year-old woman who initially presented with chronic right lower quadrant abdominal pain and was preoperatively diagnosed with chronic appendicitis. Intraoperative exploration revealed a markedly enlarged appendix forming a cystic tumoral mass. This case emphasizes the diagnostic difficulty of distinguishing chronic inflammatory appendiceal disease from underlying neoplastic pathology and highlights the importance of careful intraoperative assessment and routine histopathological examination of appendectomy specimens (Núñez-Rocha et al., 2023).

CASE PRESENTATION

A 65-year-old woman presented to the surgical outpatient clinic with intermittent right lower quadrant abdominal pain that had persisted for approximately one year. The pain was described as dull, non-radiating, and gradually increasing in frequency over time. Initially, the symptoms occurred only occasionally; however, they became more persistent during the months prior to admission. The patient also reported occasional abdominal fullness and decreased appetite. She denied nausea, vomiting, fever, changes in bowel habits, urinary symptoms, gastrointestinal bleeding, or significant weight loss. There was no previous history of abdominal surgery, gastrointestinal malignancy, or inflammatory bowel disease.

On physical examination, the patient was hemodynamically stable and appeared in good general condition. Abdominal examination revealed mild tenderness localized to the right lower quadrant without rebound tenderness or guarding. No palpable abdominal mass was identified, and bowel sounds were normal. The remainder of the physical examination was unremarkable.

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Laboratory investigations were largely unremarkable. Complete blood count demonstrated a hemoglobin level of 13.1 g/dL, leukocyte count of 9.84 ×10³/µL, and platelet count of 335 ×10³/µL. Mild neutrophilia was noted, with a neutrophil percentage of 71.5%. Renal function tests were within normal limits, with serum urea and creatinine levels of 25 mg/dL and 1.0 mg/dL, respectively. Random blood glucose level was 123 mg/dL. Serologic tests for hepatitis B surface antigen and human immunodeficiency virus were negative. Bleeding time and clotting time were within normal limits. Overall, there was no evidence of severe systemic infection or significant organ dysfunction.

Abdominal ultrasonography demonstrated appendiceal dilatation measuring approximately 0.6–1.0 cm with a tubular appearance on longitudinal view and a doughnut sign on transverse section. Intraluminal calcification compatible with appendicolith was also identified without evidence of periappendiceal fluid collection or abscess formation. Based on the patient's chronic symptoms and ultrasonographic findings, a preoperative diagnosis of chronic appendicitis was established, and elective appendectomy was planned.

The patient subsequently underwent appendectomy under general anesthesia. Intraoperatively, the appendix was found to be markedly enlarged and cystically dilated, forming a tumoral mass that was inconsistent with uncomplicated chronic appendicitis. The lesion involved the appendiceal body and distal portion of the appendix and demonstrated a smooth cystic appearance suspicious for appendiceal neoplasm. No gross perforation, purulent contamination, or visible peritoneal dissemination was identified. The surrounding bowel and adjacent structures appeared intact without evidence of local invasion. Particular care was taken during surgical manipulation to avoid rupture of the lesion and potential intraperitoneal spillage.

Gross examination of the resected specimen demonstrated marked enlargement of the appendix with cystic tumoral morphology. The intraoperative and macroscopic findings strongly suggested an underlying appendiceal neoplasm. The specimen was subsequently submitted for histopathological examination to establish the definitive diagnosis and determine the histological subtype of the lesion.

The postoperative course was uneventful. The patient remained clinically stable throughout hospitalization and gradually resumed oral intake without difficulty. No postoperative complications were observed. The patient experienced significant improvement in abdominal pain following surgery and was discharged in stable condition with recommendations for outpatient follow-up and further evaluation based on histopathological findings.

METHOD

Macroscopis Examination

Received a cystically dilated appendix specimen measuring approximately 16 × 8 cm. The external surface appears smooth and grayish-brown in color. On sectioning, the lumen is markedly dilated and filled with whitish-yellow mucinous material, with focal thickening of the wall. No areas of necrosis or hemorrhage are identified (Figure 1).

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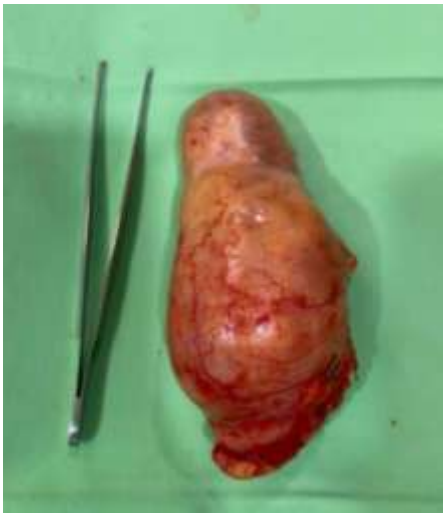

Figure 1. Macroscopic examination showed cystically dilated appendix specimen measuring approximately 16 × 8 cm.

Microscopic Examination

Histopathological examination reveals cystic dilatation of the appendiceal wall lined by a single layer of mucinous columnar epithelium with mild atypia. There is proliferation of mucinous epithelium accompanied by intraluminal mucin production. The epithelial architecture demonstrates features of low-grade dysplasia. No destructive stromal invasion, desmoplastic reaction, or features of invasive adenocarcinoma are identified. The stroma shows chronic inflammatory cell infiltration composed predominantly of lymphocytes and macrophages. No tumor necrosis or atypical mitotic figures are observed in the examined sections.

Diagnosis

Histopathological examination of the appendiceal specimen demonstrated cystic dilatation lined by mucinous columnar epithelium with low-grade dysplasia and intraluminal mucin production without evidence of destructive stromal invasion, desmoplastic reaction, or invasive adenocarcinoma, consistent with low-grade appendiceal mucinous neoplasm (LAMN).

RESULT DISCUSSION

Appendiceal neoplasms are uncommon lesions that are frequently identified incidentally during surgery or histopathological examination following appendectomy. Their rarity, combined with nonspecific clinical manifestations, often makes preoperative diagnosis difficult. In the present case, the patient initially presented with chronic right lower quadrant abdominal pain and was preoperatively diagnosed with chronic appendicitis based on clinical and ultrasonographic findings. However, surgery revealed a markedly enlarged cystic appendiceal mass suspicious for neoplasm. This case illustrates how appendiceal neoplasms may present with indolent and nonspecific symptoms, leading to delayed recognition and potential underdiagnosis in routine surgical practice (Dohner et al., 2024).

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The clinical presentation of appendiceal neoplasms varies considerably depending on histological subtype, tumor size, and disease extent. While some patients remain asymptomatic, others present with symptoms resembling acute or chronic appendicitis. Chronic right lower quadrant abdominal pain, as observed in this patient, represents a less common but clinically important presentation that may delay definitive diagnosis. Similar findings have been described in previous reports, in which appendiceal neoplasms were only identified after surgical intervention for presumed appendicitis. This overlap in clinical presentation contributes to the low rate of preoperative suspicion reported in the literature (Legué et al., 2019; Pereira et al., 2021) .

Appendiceal neoplasms are more commonly encountered in older adults, particularly during the sixth and seventh decades of life, with a slight female predominance. The demographic characteristics of the present patient are therefore consistent with previously reported data. In elderly patients, persistent or atypical right lower quadrant pain should prompt consideration of underlying appendiceal pathology beyond simple inflammatory disease. Failure to recognize this possibility may delay diagnosis and definitive management (Guanjun et al., 2026).

Imaging studies remain essential in the initial evaluation of appendiceal disease. In this case, ultrasonography demonstrated appendiceal dilatation, tubular appearance, doughnut sign, and intraluminal calcification compatible with appendicolith. These findings initially supported the diagnosis of chronic appendicitis. However, imaging findings of appendiceal neoplasms may overlap considerably with inflammatory appendiceal conditions, particularly when computed tomography is not performed. Appendiceal dilatation, cystic changes, mural calcification, or mucocele formation should raise suspicion for an underlying neoplastic process, especially in elderly patients with chronic symptoms. Nevertheless, definitive diagnosis often remains difficult until intraoperative assessment or histopathological examination is performed (Dsouza et al., n.d.).

An important aspect of this case was the unexpected intraoperative finding of a markedly enlarged cystic appendix forming a tumoral mass. Such findings should alert the surgeon to the possibility of appendiceal neoplasm, as inadvertent rupture during surgical manipulation may result in intraperitoneal dissemination of mucinous material or epithelial cells. In mucin-producing neoplasms, this may lead to pseudomyxoma peritonei, a severe condition associated with significant morbidity and poor long-term outcomes. Therefore, meticulous surgical technique and careful specimen handling are essential whenever appendiceal neoplasm is suspected intraoperatively. In the present case, the lesion was removed intact without evidence of perforation or visible peritoneal dissemination (Dsouza et al., n.d.).

Histopathological examination remains the gold standard for establishing the definitive diagnosis and determining the histological subtype and malignant potential of appendiceal neoplasms. Although histopathological results were not yet available at the time this report was prepared, the gross intraoperative appearance strongly suggested an underlying neoplastic lesion. This case further emphasizes the importance of routine histopathological evaluation of all appendectomy specimens, particularly in elderly patients or in cases with atypical intraoperative findings. Reliance solely on preoperative clinical diagnosis may result in missed or delayed identification of clinically significant appendiceal pathology(Guanjun et al., 2026).

The postoperative course in this patient was uneventful, and her abdominal symptoms improved significantly following appendectomy. Although appendectomy alone may be adequate for localized appendiceal lesions, further management depends largely on the final histopathological diagnosis,

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surgical margin status, and the presence of extra-appendiceal spread. Additional surgical intervention or oncological surveillance may be required depending on the final pathological findings (Guanjun et al., 2026).

This case provides several important clinical lessons. First, chronic or recurrent right lower quadrant pain in elderly patients should not automatically be attributed to chronic appendicitis alone. Second, appendiceal dilatation and cystic changes on imaging warrant careful evaluation for possible underlying neoplasm. Finally, careful intraoperative assessment and routine histopathological examination remain essential to avoid missed diagnosis and to guide appropriate postoperative management (Guanjun et al., 2026).

CONCLUSION

Appendiceal neoplasms are rare lesions with nonspecific clinical manifestations that may present as chronic appendicitis, particularly in elderly patients. This case underscores the diagnostic challenge of differentiating chronic inflammatory appendiceal disease from underlying neoplastic pathology based solely on clinical presentation and initial imaging findings. Persistent or atypical right lower quadrant abdominal pain in older patients should therefore prompt further evaluation for possible appendiceal neoplasm. Careful intraoperative assessment, meticulous surgical handling to prevent rupture, and routine histopathological examination of appendectomy specimens remain essential for establishing an accurate diagnosis and guiding appropriate postoperative management.

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