Section: General Surgery

Case Series

CAECAL CARCINOMA PRESENTING AS AN APPENDICULAR MASS: A CONSECUTIVE THREE-CASE SERIES AND REVIEW OF THE DIAGNOSTIC CHALLENGE

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ABSTRACT

Background: Caecal carcinoma is an uncommon but important cause of right iliac fossa pain in older adults and may closely mimic an appendicular inflammatory mass. The overlap in clinical presentation often leads to an initial diagnosis of complicated appendicitis, delaying definitive oncological management. Early recognition of this atypical presentation is essential to facilitate timely diagnosis and curative treatment.

Case Presentation: We report three consecutive patients aged 58–71 years who presented with right iliac fossa pain and clinical features suggestive of an appendicular mass. Initial ultrasonography supported an inflammatory appendiceal pathology, and all patients underwent successful conservative management according to the Ochsner–Sherren regimen. Despite improvement in inflammatory symptoms, each patient had a persistent right iliac fossa mass, prompting further evaluation. Contrast-enhanced computed tomography demonstrated suspicious caecal wall thickening with regional lymphadenopathy, and subsequent colonoscopy confirmed malignant caecal lesions. Histopathological examination established adenocarcinoma in all three patients, including one mucinous subtype. Curative right hemicolectomy with regional lymphadenectomy was performed in every patient. Two patients had pathological stage III disease (pT3N1), while one had locally advanced disease (pT4aN2a). Surgical margins were negative in all cases. Postoperative recovery was uneventful except for one patient who developed transient postoperative ileus that resolved with conservative treatment. All patients were referred for adjuvant chemotherapy.

Conclusion: Persistent or atypical appendicular masses in patients older than 50 years should prompt evaluation for underlying caecal carcinoma. Contrast-enhanced computed tomography followed by colonoscopy enables accurate diagnosis and appropriate oncological management. Maintaining a high index of suspicion can minimize diagnostic delay and improve clinical outcomes.

Keywords: Caecal carcinoma; Appendicular mass; Right-sided colorectal cancer; Colonoscopy; Computed tomography; Right hemicolectomy.

INTRODUCTION

Colorectal cancer remains one of the leading causes of cancer-related morbidity and mortality worldwide, with right-sided colonic malignancies accounting for a substantial proportion of newly diagnosed cases.[1-3] Unlike left-sided colorectal cancers, caecal carcinoma frequently follows an indolent clinical course because of the larger luminal diameter of the proximal colon and the liquid consistency of intestinal contents. Consequently, patients often present with nonspecific symptoms such as vague abdominal pain, iron deficiency anaemia, anorexia, weight loss,

or a palpable abdominal mass rather than classical features of intestinal obstruction.[1,4]

An unusual but clinically significant presentation of caecal carcinoma is its ability to mimic an appendicular inflammatory mass. Tumour-related inflammation, localized perforation, appendiceal obstruction, or secondary bacterial infection may produce clinical and radiological findings indistinguishable from complicated appendicitis.[5-8] As a result, patients are frequently managed conservatively with antibiotics, leading to temporary resolution of the inflammatory process while the underlying malignancy remains undetected. This diagnostic overlap poses a considerable challenge for emergency surgeons and may delay definitive oncological treatment.[5,6]

Although ultrasonography is commonly used as the initial imaging modality for suspected appendicular pathology, its ability to distinguish inflammatory lesions from underlying caecal neoplasms is limited.[4,9] In contrast, contrast-enhanced computed tomography provides superior assessment of bowel wall abnormalities, regional lymphadenopathy, and pericolic inflammatory changes, while colonoscopy with biopsy remains the definitive investigation for histological confirmation.[1,3,10] Recognition of persistent or atypical appendicular masses is therefore crucial, particularly in older adults in whom the likelihood of colorectal malignancy is substantially higher.[6,11]

This study presents consecutive three-patient case series of histologically confirmed caecal adenocarcinoma initially diagnosed as an appendicular mass. Through these cases, we highlight the diagnostic challenges, emphasize the role of cross-sectional imaging and colonoscopy in establishing the diagnosis, and discuss practical considerations that may facilitate earlier recognition and appropriate oncological management.

Case Series

Case 1

A 58-year-old man presented with a 10-day history of progressively worsening right iliac fossa pain associated with low-grade fever and reduced appetite. He also reported intermittent constipation over the preceding three months but denied rectal bleeding, altered bowel habits, or significant weight loss. Physical examination revealed localized tenderness with a firm, poorly defined right iliac fossa mass measuring approximately 6 × 5 cm. Laboratory investigations demonstrated leukocytosis (14,200 cells/mm³) and elevated inflammatory markers, while liver and renal function tests were within normal limits.

Ultrasonography suggested an appendicular inflammatory mass, and the patient was managed conservatively using the Ochsner–Sherren regimen. Although abdominal pain and inflammatory markers improved, the palpable mass persisted, prompting further evaluation. Contrast-enhanced computed tomography (CECT) demonstrated eccentric caecal wall thickening with adjacent inflammatory fat stranding and enlarged ileocolic lymph nodes, raising suspicion of an underlying malignancy. Colonoscopy revealed an ulceroproliferative caecal lesion, and biopsy confirmed moderately differentiated adenocarcinoma.

Following multidisciplinary discussion, the patient underwent elective open right hemicolectomy with D2 lymphadenectomy. Histopathological examination demonstrated a moderately differentiated adenocarcinoma invading the pericolic fat (pT3N1b), with three metastatic lymph nodes among eighteen examined. Surgical margins were negative. The postoperative recovery was uneventful, and the patient was discharged on postoperative day seven before commencing adjuvant chemotherapy. He remained disease-free during the initial six months of follow-up.

Case 2

A 64-year-old woman presented with recurrent right iliac fossa pain for two months that had worsened during the preceding week. She reported anorexia, generalized fatigue, and an unintentional weight loss of 5 kg but denied rectal bleeding or previous colorectal disease. Examination demonstrated localized tenderness with an ill-defined right iliac fossa mass. Laboratory evaluation revealed microcytic hypochromic anaemia (haemoglobin 9.4 g/dL), leukocytosis, and elevated inflammatory markers.

Abdominal ultrasonography demonstrated an appendicular inflammatory mass with a localized abscess. Conservative treatment with intravenous antibiotics, fluids, and analgesics resulted in symptomatic improvement; however, the abdominal mass remained palpable. Subsequent CECT showed asymmetric caecal wall thickening with regional lymphadenopathy, suggestive of a malignant lesion. Colonoscopy identified a friable circumferential caecal growth, and biopsy confirmed mucinous adenocarcinoma.

The patient underwent laparoscopic-assisted right hemicolectomy with complete mesocolic excision following multidisciplinary review. Histopathological examination demonstrated mucinous adenocarcinoma invading the pericolic adipose tissue (pT3N1a), with one metastatic lymph node among twenty harvested nodes. All resection margins were tumour-free. The postoperative course was uncomplicated, and she was discharged on postoperative day six. Adjuvant chemotherapy was initiated, and she remained clinically stable during follow-up.

Case 3

A 71-year-old man presented with fever, right iliac fossa pain, and progressively enlarging abdominal swelling of three weeks' duration. He had previously received oral antibiotics elsewhere for presumed acute appendicitis with only temporary symptomatic relief. His medical history included hypertension and type 2 diabetes mellitus. Examination revealed a firm, poorly mobile right iliac fossa mass measuring approximately 7 × 6 cm without evidence of

generalized peritonitis. Laboratory investigations demonstrated leukocytosis (15,300 cells/mm³), elevated C-reactive protein, and mild hypoalbuminaemia.

CECT demonstrated a heterogeneous inflammatory mass involving the caecum with focal mural thickening and enlarged mesenteric lymph nodes. Although complicated appendicitis remained a differential diagnosis, the radiological appearance was considered atypical. Following resolution of the acute inflammatory process, colonoscopy demonstrated an irregular ulcerated caecal lesion, and biopsy confirmed moderately differentiated adenocarcinoma.

Elective open right hemicolectomy was performed. Intraoperatively, dense inflammatory adhesions involving the caecum, terminal ileum, and greater omentum closely resembled a complicated appendicular mass. Histopathological examination revealed moderately differentiated adenocarcinoma invading the visceral peritoneum (pT4aN2a), with four metastatic lymph nodes among twenty-two examined. Surgical margins were negative. The postoperative course was complicated by transient paralytic ileus, which resolved with conservative management. The patient was discharged on postoperative day ten and referred for adjuvant chemotherapy.

Summary of Cases

The clinicopathological characteristics of the three patients are summarized in **Table 1**. All patients were older than 55 years and initially presented with right iliac fossa pain and a clinically suspected appendicular inflammatory mass. Conservative management resulted in improvement of acute inflammatory symptoms but failed to achieve complete resolution of the abdominal mass. CECT consistently demonstrated suspicious caecal wall thickening with regional lymphadenopathy, and colonoscopy with biopsy established the diagnosis of caecal adenocarcinoma in every patient. All underwent curative right hemicolectomy with negative resection margins. Histopathological examination revealed node-positive stage III disease in all three cases, and each patient received adjuvant chemotherapy. Early postoperative outcomes were favourable, with only one patient developing transient postoperative ileus.

Table 1: Baseline Clinical Characteristics and Diagnostic Evaluation of the Three Patients

Variable	Case 1	Case 2	Case 3
Age (years)	58	64	71
Sex	Male	Female	Male
Presenting symptoms	Right iliac fossa pain, fever, reduced appetite	Right iliac fossa pain, anorexia, fatigue, weight loss	Right iliac fossa pain, fever, abdominal swelling
Duration of symptoms	10 days	2 months	3 weeks
Comorbidities	None	None	Hypertension, Type 2 diabetes mellitus
Initial clinical diagnosis	Appendicular mass	Appendicular inflammatory mass	Appendicular mass
Leukocyte count (cells/mm³)	14,200	11,800	15,300
Other laboratory findings	Elevated CRP	Hb 9.4 g/dL, elevated inflammatory markers	Elevated CRP, mild hypoalbuminaemia
Ultrasonography	Appendicular inflammatory mass	Appendicular inflammatory mass with localized abscess	Inflammatory caecal mass*
CECT findings	Circumferential caecal wall thickening with ileocolic lymphadenopathy	Asymmetric caecal wall thickening with regional lymphadenopathy	Heterogeneous caecal inflammatory mass with mesenteric lymphadenopathy
Colonoscopic findings	Ulceroproliferative caecal lesion	Friable circumferential caecal lesion	Irregular ulcerated caecal lesion
Preoperative biopsy	Moderately differentiated adenocarcinoma	Mucinous adenocarcinoma	Moderately differentiated adenocarcinoma

**CT was the principal diagnostic investigation in Case 3; ultrasonographic findings were not clearly documented in the clinical records.*

Table 2: Operative and Histopathological Findings

Variable	Case 1	Case 2	Case 3
Surgical approach	Open	Laparoscopic-assisted	Open
Procedure performed	Right hemicolectomy with D2 lymphadenectomy	Right hemicolectomy with complete mesocolic excision	Right hemicolectomy
Histological subtype	Moderately differentiated adenocarcinoma	Mucinous adenocarcinoma	Moderately differentiated adenocarcinoma
Depth of tumour invasion	Pericolic adipose tissue	Pericolic adipose tissue	Visceral peritoneum
Lymph nodes retrieved	18	20	22
Positive lymph nodes	3	1	4
Pathological stage (AJCC 8th edition)	pT3N1b	pT3N1a	pT4aN2a
Resection margins	Negative	Negative	Negative

Table 3: Postoperative Outcomes

Variable	Case 1	Case 2	Case 3
Postoperative complication	None	None	Transient paralytic ileus
Length of hospital stay (days)	7	6	10
Adjuvant chemotherapy	Yes	Yes	Yes
Follow-up status	Disease-free at 6 months	Clinically stable	Clinically stable
Final outcome	Good recovery	Good recovery	Good recovery

RESULTS

Caecal carcinoma is a recognised but uncommon cause of an appendicular inflammatory mass and remains an important diagnostic challenge in emergency surgical practice.[1,5,6] The close anatomical relationship between the caecum and the appendix allows tumour-related inflammation, localized perforation, or appendiceal obstruction to produce a clinical picture that closely resembles complicated appendicitis.[5,7] Consequently, many patients initially receive conservative treatment for presumed appendicular pathology, delaying the diagnosis of the underlying malignancy.[5,6] Our consecutive three-case series illustrates this diagnostic dilemma and highlights the importance of reassessing patients who demonstrate persistent right iliac fossa masses despite apparent clinical improvement.

All three patients in the present series were older than 55 years and initially fulfilled the clinical criteria for an appendicular inflammatory mass. Conservative management successfully controlled the acute inflammatory process, but complete resolution of the abdominal mass did not occur. This persistent finding proved to be the pivotal clinical clue that prompted further investigation and ultimately established the diagnosis of caecal adenocarcinoma. Similar observations have been reported in previous case reports and systematic reviews describing occult right-sided colorectal malignancy presenting as appendicitis or appendicular mass.[5,6,8]

Age remains one of the most important factors that should influence clinical suspicion. Although acute appendicitis predominantly affects younger individuals, the incidence of colorectal carcinoma increases substantially after the fifth decade of life.[1,3] A recent systematic review demonstrated that patients older than 40 years presenting with acute appendicitis have a significantly higher risk of underlying right-sided colon cancer than the general population, supporting routine colonic assessment in appropriately selected patients.[11] In our series, the presence of iron deficiency anaemia, constitutional symptoms, and persistent abdominal masses further strengthened the suspicion of an underlying malignant process.

Our cases also demonstrate the limitations of ultrasonography in differentiating inflammatory appendiceal disease from caecal carcinoma. Although ultrasonography accurately identified inflammatory pathology, it failed to identify the underlying tumour in the initial assessment. Similar limitations have been reported previously, particularly in the presence of extensive inflammatory changes and bowel gas.[4,9] Consequently, ultrasonography should be regarded as a useful initial investigation but should not replace cross-sectional imaging when the clinical course is atypical.

Contrast-enhanced computed tomography proved to be the investigation that fundamentally altered the diagnostic pathway in all three patients. Suspicious features including asymmetric caecal wall thickening, pericolic inflammatory changes, and regional lymphadenopathy prompted colonoscopic evaluation and histological confirmation before surgery. Previous studies have similarly demonstrated that CT is the most valuable imaging modality for distinguishing inflammatory appendiceal disease from underlying caecal malignancy and for planning definitive surgical treatment.[5,8,11]

Colonoscopy remains indispensable once malignancy is suspected. In our series, colonoscopy established the diagnosis in every patient and enabled histological confirmation before definitive surgery. This approach allowed appropriate multidisciplinary planning and ensured adherence to accepted oncological principles. Current colorectal cancer guidelines continue to recommend endoscopic evaluation whenever imaging raises suspicion of a colonic neoplasm.[2,3]

All patients underwent curative right hemicolectomy with regional lymphadenectomy, achieving complete tumour clearance with negative surgical margins. Histopathological examination demonstrated node-positive disease in all three patients, emphasizing that inflammatory presentations frequently represent biologically advanced tumours despite relatively short symptom duration. Nevertheless, complete oncological resection followed by adjuvant chemotherapy offered favourable early postoperative outcomes, underscoring the importance of timely diagnosis and definitive surgical management.[1-3]

The observations in our series closely parallel previously published reports describing caecal carcinoma masquerading as appendicitis or appendicular inflammatory masses.[5-8] Across these reports, advanced age, persistent right iliac fossa masses, incomplete resolution following conservative treatment, and suspicious CT findings consistently emerged as the principal indicators of underlying malignancy. Our experience reinforces these observations and supports a structured diagnostic pathway incorporating clinical

reassessment, contrast-enhanced CT, and colonoscopy in patients with persistent or atypical appendicular masses.

Although limited by the small sample size and retrospective design, this case series highlights a rare but clinically important presentation of caecal carcinoma. Greater awareness of this diagnostic pitfall may facilitate earlier recognition, reduce delays in oncological treatment, and improve patient outcomes.

CONCLUSION

Caecal carcinoma should be considered in the differential diagnosis of persistent appendicular masses, particularly in patients older than 50 years. Resolution of inflammatory symptoms following conservative treatment does not exclude an underlying malignancy. In our series, persistent right iliac fossa masses prompted contrast-enhanced computed tomography and colonoscopy, leading to timely diagnosis and curative right hemicolectomy in all three patients. A structured diagnostic approach incorporating clinical reassessment, cross-sectional imaging, and endoscopic evaluation can minimize diagnostic delay, facilitate appropriate oncological management, and improve patient outcomes.

Learning Points

- Caecal carcinoma may present as an appendicular inflammatory mass, particularly in older adults.
- Clinical improvement after conservative treatment does not exclude an underlying colorectal malignancy.
- Persistence of a right iliac fossa mass should prompt contrast-enhanced computed tomography.
- Colonoscopy with biopsy is essential for definitive diagnosis and preoperative planning.
- Early recognition enables timely oncological resection and appropriate adjuvant treatment.

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