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Case Report

Acute Appendicitis Secondary to Caecal Tumour

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Introduction

Acute appendicitis in older adults, though relatively uncommon, may represent the initial presentation of an underlying colorectal carcinoma (CRC). The pathogenesis of appendicitis in such cases involves several mechanisms. Direct obstruction of the appendiceal lumen by a colorectal tumour or inflammation and oedema caused by an adjacent neoplasm can trigger appendicitis. Additionally, partial obstruction of the distal colon due to the malignancy may elevate intraluminal pressure, thereby facilitating the onset of appendicitis. Another proposed mechanism is immune-mediated lymphoid hyperplasia associated with malignancy, which can result in luminal obstruction and subsequent appendicitis (1,2).The association between right-sided colon cancer and acute appendicitis was first described by Shears in 1906, and numerous case reports have further corroborated this link (3,4).

In the early 1980s, several small-scale studies and case reports suggested an elevated incidence of colorectal cancer (CRC) among elderly patients presenting with appendicitis (4, 5). A Taiwanese study conducted in 2006 reported a nearly 40-fold increase in the odds ratio for underlying colorectal cancer in patients over the age of 40 who presented with acute appendicitis (6). However, the study did not account for potential confounding factors such as age, gender, or ethnicity, thereby likely overestimating the strength of this association.

At present, the correlation between acute appendicitis and colonic carcinoma in the elderly is well-established. However, this association remains uncommon in individuals under 40 years of age. Colorectal cancer is identified in only 3% of patients within the 20 to 40-year age group. These younger patients tend to present with more advanced stages of the disease and higher-grade tumors, when compared to the broader population (7, 8).

While a reassuring pre-operative CT scan may be considered useful in differentiating pathologies, studies have demonstrated that CT imaging is a suboptimal diagnostic tool for detecting colonic malignancies, particularly in an unprepared bowel. Its sensitivity in such cases is reported to be only 70%, with even lower accuracy in the context of acute appendicitis (9, 10).

Case Presentation

A 76-year-old female was admitted to the casualty surgical ward with a two-week history of persistent lower abdominal pain and vomiting. She reported a significant loss of appetite but denied experiencing fever. She had previously undergone investigations for anemia by the medical department, and an ultrasound scan performed two months prior to admission had indicated early chronic kidney disease and fatty liver. Upon examination, she was febrile (99°F) but hemodynamically stable. She exhibited tenderness throughout the lower abdomen, predominantly in the right lower quadrant, with muscular guarding and no significant findings in the upper abdomen. On examination, she was febrile with a recorded temperature of 99°F but remained hemodynamically stable. Abdominal examination revealed generalized tenderness in the lower abdomen, with maximal tenderness and muscular guarding noted in the right lower quadrant. No significant abnormalities were detected in the upper abdomen.

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Laboratory investigations revealed elevated inflammatory markers, including a white blood cell count of 11,500/µl and a C-reactive protein (CRP) level of 54 mg/dl. The patient was also noted to have anaemia, with a haemoglobin level of 10.6 g/dl, and a serum creatinine level of 57 mmol/L.

Considering her advanced age and the chronic nature of her symptoms, a contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis was performed. The scan demonstrated an irregular circumferential mass at the cecum, causing partial intestinal obstruction. Furthermore, a distended, fluid-filled appendix was observed, likely secondary to obstruction by the cecal mass, along with evidence of regional lymphadenopathy.

The final diagnosis was acute appendicitis secondary to obstruction caused by cecal carcinoma. The patient underwent a right hemicolectomy, and her postoperative recovery was uneventful. She was discharged on the eighth postoperative day in stable condition. At the time of discharge, a follow-up colonoscopy was planned to exclude the presence of synchronous lesions.

The pathological diagnosis was T3N2M

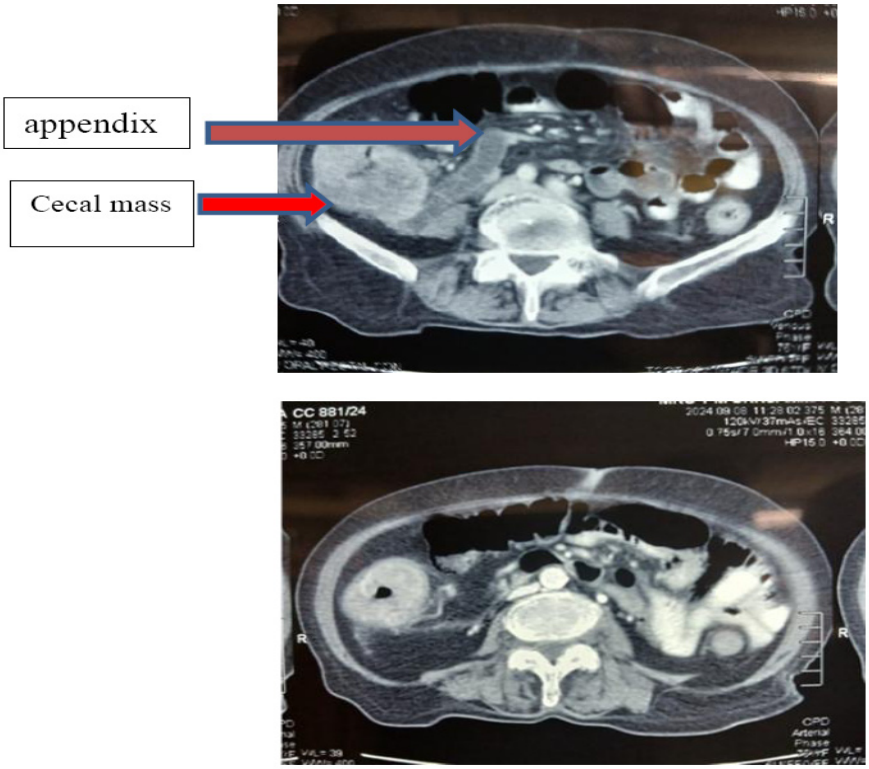

Figure 1. *Computed tomography (CT) examination show an enlarged appendix (Red arrows).*

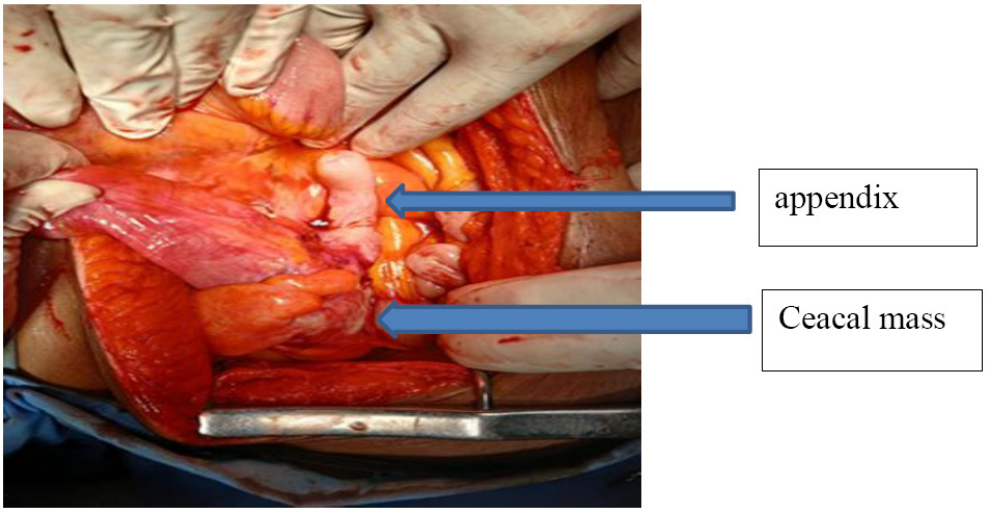

Figure 2. *Picture taken during surgery*

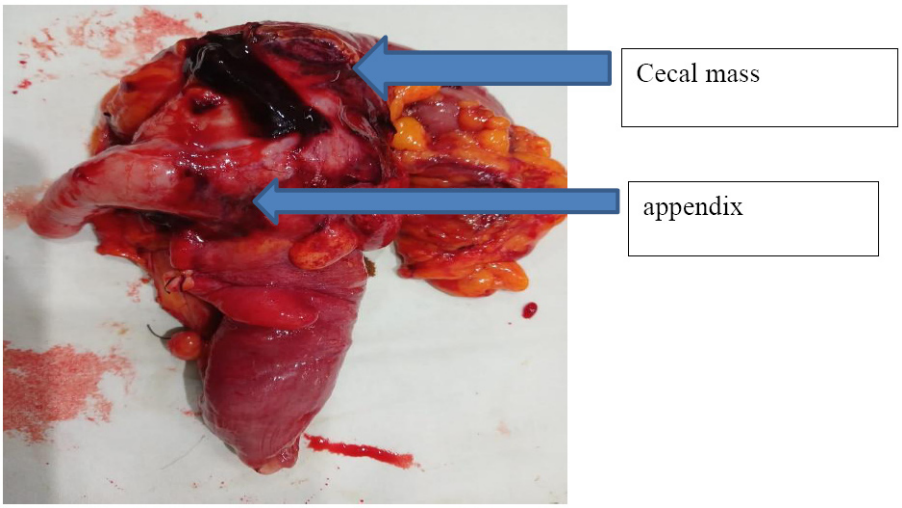

Figure 3. *Specimen with ceacal mass and the appendix*

Discussion

Appendicitis frequently necessitates surgical intervention and carries a lifetime risk of 8.6% in males and 6.7% in females in the United States (11). Although the exact aetiology remains unclear (12), appendicitis is believed to result from increased intraluminal pressure within the appendix, typically caused by obstruction, leading to ischemia of the appendiceal mucosa. This obstruction impairs normal secretion, creating an environment conducive to bacterial overgrowth (13). Common causes of obstruction include faecoliths, lymphoid hyperplasia, or cecal neoplasia (14, 15).

While treatment approaches may demonstrate slight variations, appendectomy remains the gold standard for managing acute appendicitis (13). In this particular case, despite the absence of clinical signs indicative of pan-peritonitis, the patient presented with diffuse lower abdominal pain. This symptomatology warranted an emergency intervention to evaluate the possibility of appendiceal perforation.

Appendiceal perforation is strongly associated with age, with the highest incidence observed in elderly individuals and children under five years of age. This increased risk is largely attributed to diagnostic challenges and delays in surgical intervention (11). In elderly patients, factors such as vascular sclerosis, luminal narrowing due to fibrosis, and fat infiltration into the muscular layer compromise the integrity of the appendiceal wall, rendering it more susceptible to perforation (16).

In this case demonstrate, obstruction of the appendix by a ceacal tumour resulted in appendiceal dilation and subsequent perforation. Intestinal perforation secondary to malignant tumours of the gastrointestinal tract, particularly colorectal cancer, typically follows two distinct patterns: perforation occurring at the site of the tumour, which accounts for approximately 70% of cases, and perforation proximal to the tumour, observed in about 30% of cases (17).

A significant limitation in performing colonoscopy in patients with acute appendicitis is the requirement for bowel preparation. Bowel cleansing in the context of active appendicitis can exacerbate abdominal pain and may increase the risk of complications, including perforation or bleeding, with an estimated incidence of 0.038% (18, 19, 20).

This case underscores the importance of routine preoperative CT scans in patients over 40 years of age presenting with acute appendicitis. It highlights that ceacal lesions may serve as an underlying cause of appendicitis, a condition frequently necessitating emergency surgical intervention in daily medical practice. Therefore, when managing acute appendicitis in older adults, particularly in advanced age, the possibility of a malignant tumour should always be considered.

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