Acute Appendicitis Secondary To Metastasis From Previously Undiagnosed Small Cell Lung Carcinoma

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Abstract

Malignancies of the appendix are uncommon, with metastatic deposits rarer still. A 75 year old man with a significant smoking history presented to our institution with acute appendicitis. On pre-operative imaging, he was noted to have an incidental lung mass (likely primary malignancy). Pathological evaluation of his appendix confirmed the presence of a small cell metastatic deposit of likely lung origin.

KEYWORDS: Appendicitis, lung cancer metastasis
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Introduction

Tumours of the appendix are uncommon, even more uncommon are metastatic deposits to the appendix. Few cases have been documented in English literature of previously undiagnosed primary malignancies presenting with appendicitis from metastatic deposits obstructing the lumen of the appendix.

Case Report

A 75 year old man presented to the emergency department with a one day history of right iliac fossa pain. On presentation he was febrile to 38.5 °C, tachycardic to 124 bpm and had evidence of localized peritonitis in his lower abdomen. His relevant past medical history included mild dementia, ischemic heart disease, and a recent course of oral antibiotics for a lower respiratory tract infection diagnosed by his general practitioner on the background of being a reformed smoker (60 pack year history).

His investigations revealed a rise in acute inflammatory markers (WCC 13.4 x10^9/L and CRP 169.8 mg/L) and acute renal failure (serum creatinine 171 umol/L). A computed tomography (CT) scan was performed at this stage which revealed acute appendicitis (Figure 1) and incidentally noted a left lower lobe lung mass with associated hilar lymphadenopathy (Figure 2). The CT appearance of the lung lesion was highly suspicious of a primary lung malignancy.
In view of these findings, an emergency laparoscopic appendicectomy was performed. The procedure was uneventful and no other intra-abdominal pathology was noted. The patient’s post-operative recovery was likewise unremarkable and plans were made for outpatient respiratory follow-up for the incidental lung lesion.

The pathology report confirmed acute appendicitis, with a small cell carcinoma deposit (likely lung origin) obstructing the lumen of the appendix (Figure 3).

The patient and his family had an extensive discussion in the outpatient setting with respiratory physicians regarding the patient's likely primary lung cancer. Given his dementia and medical comorbidities (predominantly cardiac) the family decided against further investigation of the lung mass as they felt he would not tolerate any potential chemotherapy treatment.

Discussion

Malignancies of the appendix are uncommon, with neuroendocrine tumours and then adenocarcinomas being the most likely primary malignancies\(^1\). Secondary deposits to the appendix are rare indeed. A retrospective review of over two thousand appendicectomy pathology specimens revealed the most common sites of primary malignancy origin to be breast, lung, pancreas, and kidney\(^2\). These metastatic deposits become symptomatic by causing a mechanical obstruction in the lumen of the appendix with a subsequent bacterial overgrowth and inflammation in the appendix distal to the level of obstruction. As was highlighted in our case ensuing perforation is common.
This is only the third case reported in the literature of patients presenting with acute appendicitis secondary to a metastatic deposit from a small cell lung cancer\textsuperscript{3,4}. Five other case reports have been published highlighting metastatic deposits to the appendix detected on staging positron emission tomography (PET) and CT scans in patients with small cell lung cancers\textsuperscript{5-9}.

Small cell lung cancers make up approximately 18 per cent of all bronchogenic carcinomas\textsuperscript{10}. Despite the fact that this category of lung malignancies tend to respond well to chemotherapy, their prognosis remains poor. This poor prognosis related to their propensity for metastatic spread by the time of diagnosis. Metastatic spread outside the ipsilateral hemithorax is associated with a median survival of 8 to 13 months despite chemotherapy treatment\textsuperscript{11}. Given this poor prognosis despite chemotherapy, the decision for palliative treatment intentions instituted in our patient was not unreasonable. The most common sites of metastatic spread from small cell lung cancer includes the liver, bone, bone marrow, brain, and extrathoracic lymph nodes\textsuperscript{10}. Isolated spread to the appendix as is highlighted in our case is very rare.

Although metastases to the appendix are uncommon, clinicians need to be mindful of this unusual presentation, particularly when faced with unexpected incidental findings on pre-operative imaging.
Figure 1. Axial CT slice revealing evidence of acutely inflamed appendix. Appendix is indicated by the white arrow.
**Figure 2.** Axial CT slice with incidentally detected mass in left lung base. Lobulated mass indicated by white arrow.
Figure 3. Histopathology slides confirming the presence of small cell carcinoma deposit obstructing lumen of appendix. A: low power. B: high power.
References