CASE REPORT

Primary appendicular adenocarcinoma presenting as haematuria

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SUMMARY

Adenocarcinoma of the vermiform appendix is a rare malignant neoplasm of the gastrointestinal tract encountered rarely within general surgical practice. We present the case of a 49-year-old man who, while undergoing investigations for haematuria, was diagnosed with an appendicular adenocarcinoma following bladder biopsy. Consequently he underwent right hemicolectomy and partial cystectomy followed by adjuvant chemotherapy. By discussing this case we hope to raise awareness within the medical profession of this rare presentation so that it may be considered within clinicians' differential diagnoses.

BACKGROUND

Adenocarcinoma of the vermiform appendix is one of the rarer colorectal neoplasms representing less than 0.5% of all malignant gastrointestinal tumours.¹ Epidemiology reports suggest an increased incidence of appendicular adenocarcinoma among male patients, with a peak incidence between 50 and 70 years of age.²

At presentation; symptoms may vary from abdominal pain mimicking appendicitis to palpable appendicular masses, bowel obstruction or gastrointestinal bleeding.³ Surgical treatment with right hemicolectomy is recommended in surgically fit patients with adjuvant chemotherapy to reduce risk of recurrence.⁴

CASE PRESENTATION

A 49-year-old man presented to his general practitioner in March 2012 with dysuria and worsening haematuria on a background of two recent community antibiotic courses for urinary tract infections without any positive urinary cultures. Clinical urogenital examination within the surgery revealed no abnormalities except a smoothly enlarged non-tender prostate.

Given the worsening haematuria in the absence of an obvious infective cause, the patient was referred to a 2-week rapid access urological outpatient clinic. Concurrently, a repeat urine sample was sent, routine blood tests collected and an urgent urinary system ultrasound scan was requested.

The urine cytology revealed large numbers of polymorphs with no atypical cells and the blood tests were unremarkable. The ultrasound scan, however, identified two areas with increased echogenicity and vascularity indenting into the right posterolateral bladder wall measuring 10 and 12 mm, respectively (as visualised within [figure 1](#)).

The ultrasound scan report conclusion was that these likely represented urinary bladder tumours.

In light of these findings, after urological clinic attendance the patient underwent a transurethral resection of bladder tumour operation (TURBT) with samples of a presumed muscle invasive transitional cell carcinoma with cystitis cystica sent for histology.

Microscopic examination of the biopsy specimens however, revealed an area of focal chronic inflammation with cystitis glandularis in the first; and an invasive adenocarcinoma of moderate differentiation with at least one area of detrusor muscle invasion (stage pT2) in the second.

This histological finding was inconsistent with the typical pathogenicity of urological cancers and the case was subsequently discussed at both urology and colorectal multidisciplinary team (MDT) meetings. Subsequently an urgent staging CT scan was arranged which confirmed thickening of the urinary bladder wall at the area where TURBT had been performed and a thickened small bowel loop adherent to it (as visualised within [figure 2](#)). There was no evidence of any distal metastases and a conclusive diagnosis of primary appendicular adenocarcinoma with subsequent bladder invasion was reached.

After sharing the MDT findings with the patient he was subsequently scheduled for a right hemicolectomy and partial cystectomy with right ureteric stent insertion. Postoperative recovery was unremarkable following a short, planned postoperative critical care admission, the patient returned to a routine ward before being discharged home with a long-term catheter prior to outpatient cystogram. Subsequent cystogram revealed a small, contained leak on right side of the urinary bladder close to the vesicouretric junction. The urethral catheter was safely removed on the same day and a post-void bladder scan was satisfactory.

The final histological report from the resected specimen confirmed a well-differentiated adenocarcinoma of the appendix arising on top of appendicular adenoma (pT4b N0 M0) invading the urinary bladder with areas of bladder ulceration and inflammation. Following discussion at urology and colorectal MDT meetings, the patient received adjuvant postoperative chemotherapy (a total of eight cycles of oxaliplatin and capecitabine on a three weekly basis).

DIFFERENTIAL DIAGNOSIS

► Haematuria secondary to non-urogenital tumours.

CrossMark

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Figure 1 Ultrasound scan demonstrating two areas with increased echogenicity indenting into the right posterolateral bladder wall.

- Primary urological malignancy.
- Urinary tract infection.

OUTCOME AND FOLLOW-UP

The patient remains in remission to date following surgical resection and adjuvant chemotherapy. Right ureteric stent was removed successfully prior to the start of chemotherapy. He remains under annual outpatient colorectal clinic surveillance.

DISCUSSION

Primary adenocarcinoma of the appendix is an uncommon gastrointestinal malignancy. It accounts for less than 0.5% of all the malignant gastrointestinal tract tumours¹ and was first described in 1882.⁵ Males are typically more frequently affected than females with a peak incidence between 50 and 70 years of age.²

In about 37% of reported cases patients usually present with acute appendicitis.⁶ Less commonly, they may present with an appendicular mass or abscess. Rare presentations reported in

published literature to date include intussusception, ureteric obstruction, renal mass, lower gastrointestinal bleeding and ovarian mass.^{6–8}

Surgical treatment of appendicular adenocarcinoma with right hemicolectomy has been reported as the treatment of choice because it facilitates lymph node resection to enable accurate tumour staging. Several studies have showed significantly better 5 year survival rates in patients treated with right hemicolectomy compared to appendicectomy alone.^{2,9} In advanced disease, peritonectomy and intraperitoneal chemotherapy should be considered.¹⁰ Oophorectomy has been described in female patients with appendicular adenocarcinoma for the dual purpose of staging and removing a potential site of recurrence.¹¹

Our case report discusses a highly atypical presentation of appendicular adenocarcinoma with haematuria secondary to urinary bladder invasion. Very few similar published case reports have addressed similar presentations of secondary bladder invasion by primary non-urological cancers.^{12–14} This case report aims to highlight the diagnostic difficulty surrounding appendicular adenocarcinoma and raise awareness of its' potentially unusual presenting symptoms. Moreover it reminds us that histological examination of resected specimens can reveal unexpected results.

Learning points

- Haematuria can be a presenting symptom of primary gastrointestinal malignancy when there is secondary urological involvement.
- Appendicular adenocarcinoma can pose a diagnostic challenge to clinicians potentially delaying treatment.
- Histological examination of surgical specimens can reveal unexpected results.
- Multidisciplinary team discussion of complex cases is essential to ensure patients receive optimum treatment.

Figure 2 CT scan demonstrating thickening of the urinary bladder wall with an adherent thickened small bowel loop.

Contributors BA wrote the article with NS-V and KM providing contributions and assisting in the editing process. BA obtained the patient consent and radiological imaging. All authors worked within the general surgery team providing patient care within the treatment process.

Competing interests None.

Patient consent None.

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