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Case Report Open Access

Endometrioid Endometrial Carcinoma of the Urinary Bladder - A Diagnostic Challenge

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Abstract

Endometriosis of the urinary bladder is uncommon and malignant transformation of bladder endometriosis is extremely rare. These malignant tumours can cause problems in differential diagnosis with bladder tumours. This report illustrates an interesting case of endometrioid adenocarcinoma of the urinary bladder, which illustrates the difficulties in diagnosis and the importance of morphology and ancillary studies in establishing the correct diagnosis.

Keywords: Bladder; Endometriosis; Endometrial carcinoma; Haematuria

Introduction

Presence of functional endometrial tissue outside the uterus is known as endometriosis. The most common affected sites are the ovaries, uterine ligament, pelvic peritoneum, cervix, labia and vagina. It can involve intestine, ureters, and urinary bladder, though the incidence is low [1]. Urinary bladder involvement with endometriosis is reported as less than 1%. We report a case of endometrioid carcinoma arising within endometriosis of the urinary bladder.

Case Report

A 58 year old lady presented to us with intermittent painless visible haematuria of two months duration. She has a fairly extensive past medical history including diabetes, hypertension, asthma, high grade B cell lymphoma (chemotherapy 2 years ago) and high BMI (45). Fifteen years ago she was diagnosed with endometriosis, and suffered from recurrent symptomatic ovarian cysts. As a result, she underwent a total abdominal hysterectomy and bilateral salpingo-oophrectomy (histology; endometriosis and cystadenoma of ovary). She also has a long-standing past medical history of recurrent urinary tract infections; however her cystoscopy ten years ago was normal.

For her recent symptoms of visible haematria, she had a cystoscopy which demonstrated a solitary solid tumour (3×2 cm) on the posterior bladder wall. A CT- urogram prior to the cystoscopy was normal. A transurethral resection of bladder tumour (TURBT) was performed. Initially histology of the resected specimen was reported as high grade muscle invasive transitional cell carcinoma (pT2) with areas of glandular differentiation based on morphological feature. No immunohistochemistry was performed at this time.

The case was discussed at the multidisciplinary team meeting, where a diagnosis of muscle invasive bladder cancer was confirmed. It was decided that she would not be a suitable candidate for radiotherapy due to a high BMI, and as an alternative she subsequently underwent open partial cystectomy. Her post-operative recovery was uneventful.

The final pathology results were quite interesting. On gross examination, the specimen measures 47×32×20 mm in maximum dimension (Figure 1a). The indurated area on the mucosal surface measures 22×20 mm in diameter (Figure 1b).

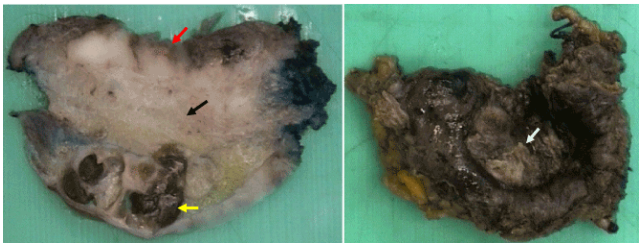

Figure 1: Gross specimens a) - Transverse section through the specimen, bladder mucosal surface (red arrow), tumour (black arrow), endometriosis (yellow arrow). b) – Mucosal surface of the excised specimen, previous resection site is shown (white arrow).

Multiple sections of the indurated area, solid tumour and adjacent endometriosis were sampled for processing and histological examination.

Standard Haematoxylin and Eosin (H and E) staining of the sections was used for initial microscopic analysis. Microscopic examination of the H & E stained tissues showed features of a high grade carcinoma with variable architecture, intimately associated with areas of endometriosis (Figure 2d). The tumour had a mixed solid, glandular and papillary architecture. Furthermore, the tumour was centered on the detrusor muscle and within peri-vesicle fat along with associated small areas of sub epithelial and subserosal extension (Figure 2a-c). No surface urothelial tumour was identified. These microscopic features were quite unusual for a bladder tumour. Hence, further characterisation of the specimens was assessed by immunohistochemistry. For immunohistochemistry, representative tissue sections were stained for oestrogen receptor, p53, vimentin, cytokeratin 7, cytokeratin 20, WT1 and EMA in order to confirm the suspected diagnosis of endometrioid endometrial carcinoma as

opposed to the main differential diagnosis of papillary serous endometrial carcinoma. The immunohistochemisty showed positive staining for oestrogen receptor, vimentin, cytokeratin 7 and EMA with focal positivity for p53 and high molecular weight cytokeratin (Figure 3). However, immunohistochemistry for WT1, progesterone receptor and cytokeratin 20 were negative. The combination of positivie immunostaining for oestrogen receptor, vimentin, cytokeratin 7 and EMA (positive in endometrioid carcinoma) and negative immunohistochemistry for WT1 (which would be expected to be positive in serous carcinoma) with only focal positivity for p53 (as opposed to diffuse strong positive staining which would be expected in serous carcinoma) was highly suggestive of the diagnosis of endometrioid endometrial carcinoma, in this case arising within a histologically confirmed area of endometriosis. The tumour margins were clear.

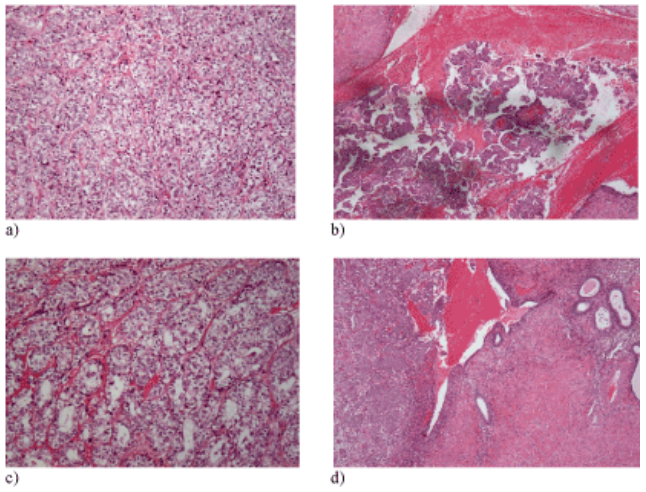

Figure 2: Microscopic examination of the specimen (H & E staining) Microscopic examination showed a high grade tumour with variable architecture associated with areas of endometriosis – a) Tumour with solid architecture (×200). b) Tumour with papillary architecture (×200). c) Tumour with glandular architecture (×200). d) Endometriosis merges with tumour (×100).

Discussion

Most endometrial tumours originate in the uterine fundus, and spread is usually to the uterine muscle, cervix and/or peritoneum; metastatic spread is most commonly to the vagina, ovaries or pelvic lymph nodes. In more advanced cases there may occasionally be distant spread to bladder or bowel mucosa, or to inguinal lymph nodes.

Endometrial cancers are most commonly endometrioid adenocarcinomas, but may also be adenosquamous, serous papillary or clear cell adenocarcinomas. Staging follows the FIGO (International Federation of Gynaecologists and Obstetricians) staging system. Endometriosis is a typically benign condition, and rarely progresses to malignancy. However, there is some evidence to suggest an increased risk of ovarian cancer in patients with longstanding endometriosis [2].

Vesical endometriosis is an uncommon entity characterized by the deposition of benign, hyperplastic endometrial tissue in the bladder. Reports of extra-uterine malignancies arising from pre-existing endometriosis are extremely rare. In 1990 a case of endometrioid adenosarcoma, arising from endometriosis in the bladder was documented [3]. It is also unusual to find endometrial carcinoma within the urinary bladder; there are few documented cases, however last year there was a report of a case of endometrioid carcinoma of the upper urinary tract [4].

The pathological diagnosis of endometrial carcinoma can be difficult. Endometrial hyperplasia and well-differentiated adenocarcinoma histologically have a close resemblance, and differentiation between the two may not be straight forward [5]. In addition, classification systems are complex [6], and intra- and inter-observer reproducibility in histological diagnosis (between hyperplasia and low grade carcinoma) is low [7]. In the rare cases where endometrioid carcinoma is found in the urinary tract, it can also be difficult on morphological grounds alone to distinguish it from poorly differentiated urothelial carcinoma or other types of gynaecological tract malignancy, and immunohistochemistry may be required to make the distinction [4].

This case is particularly interesting in several respects. Endometriosis is rarely found in the bladder, and when it is, will usually be on the outer bladder wall rather than within, as in this case. Malignant progression of endometriosis is uncommon and not well understood, in particular progression to endometrial cancer, making this case again extremely unusual.

This case demonstrates a further example of this extragonadal malignant transformation and illustrates an example of how such a case may be diagnosed using immunohistochemistry.

It would be interesting to hear of any other similar cases in recent years to gain a better understanding of what these patients have in common, and how frequently such cases arise.

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