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Primary transitional cell carcinoma of penis – A rare presentation

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ABSTRACT

Primary transitional cell carcinoma arising from the anterior portion of the male urethra is rare, with no recent cases reported in the literature. We present a case of penile TCC with positive urine cytology and a delayed definitive diagnosis.

Introduction

The penile urethra anatomically represents the transition area between the urothelium covering the urinary tract and the squamous mucosa covering the glans and the inner foreskin.[1] The proximal portion is lined by urothelium, whereas squamous mucosa lines the fossa navicularis distally. Analogous to other areas of mucosal transition, the type of penile urethral carcinoma (UC) depends on whether the tumour arises from the urothelium or squamous epithelium, and squamous cell carcinoma (SCC) accounts for the majority of tumours. Transitional cell carcinoma (TCC) of the anterior urethra is extremely rare, with no cases being reported in the literature in the last 15 years. Various risk factors such as urethral stricture, chronic irritation following recurrent instrumentation or urethroplasty and external beam irradiation therapy have been described.[2]

We report a case of primary UC of the anterior penile urethra presenting with positive urine cytology and delayed definitive diagnosis.

Case presentation

A 67-year-old man presented 10 years ago with atypical urine cytology, which was performed as part of a routine workplace health check. He was employed by a mining company and had exposure to coal tar pitch. At that time, he underwent investigation with cystoscopy and bilateral retrograde pyelograms and ureteric washings, which did not demonstrate any sign of malignancy. Random bladder and prostate biopsies were also performed which were benign. He was reviewed regularly by a urologist with repeat cystoscopic procedures and urine cytology at yearly intervals. These did not demonstrate any signs of malignancy, and since the first presentation, his urine cytology had been normal. He has no other significant past medical history.

He presented to his urologist when he noted difficulty voiding and a lump on the glans penis. Examination revealed two firm lesions which appeared to be adjacent to the urethra and an ultrasound of his penis demonstrated a lesion separate from the corpora cavernosa. Cystoscopy was performed which showed a papillary lesion inside the navicular fossa, extending over a length of approximately 2 cm which was suggestive of urothelial carcinoma. A biopsy was performed of the lesion which confirmed the diagnosis of UC. The remainder of the urethra, prostate fossa, and bladder were normal on cystoscopic examination. A computed tomography intravenous pyelogram (CT IVP) did not demonstrate any abnormalities in the upper tract and no lymphadenopathy. A tumescent magnetic resonance image (MRI) of his penis was performed which demonstrated a T2 tumour with involvement of the corpus spongiosum. A fluorodeoxyglucose (FDG)-positron emission tomography (PET) scan demonstrated focal intense uptake at the tip of the penis with SUV max 6.2. No PET/CT evidence of FDG avid nodal or distant haematogenous metastasis were noted.

He underwent a partial penectomy and bilateral dynamic sentinel lymph node biopsies which demonstrated high grade urothelial carcinoma (grade 3 TCC). The lesion was centred on the distal urethra, extending close to the meatus but not to the glans surface. The tumour demonstrated an immunophenotyped of GATA3 positive, CK7 positive, CK5/6 positive and p16 positive. There was multifocal lymphovascular invasion involving both deep corpora vessels and subepithelial vessels of the glans (Fig. 1, Fig. 2). Metastatic carcinoma involving bilateral sentinel nodes were identified, with extensive squamous differentiation and extra-nodal extension.

Six weeks post operatively, he commenced adjuvant chemotherapy (paclitaxel/ifosphamide/cisplatin), and completed 4 cycles of

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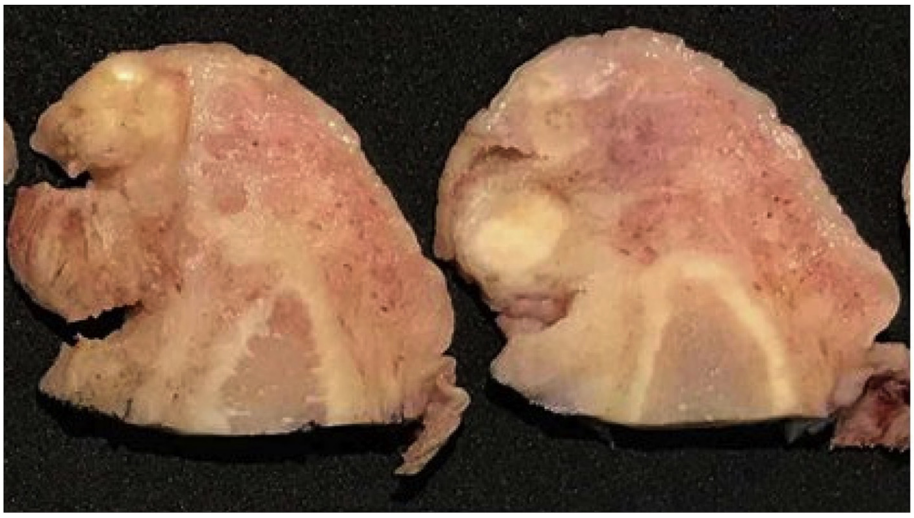

Fig. 1. Partial penectomy. Pathological stage pT2N3.

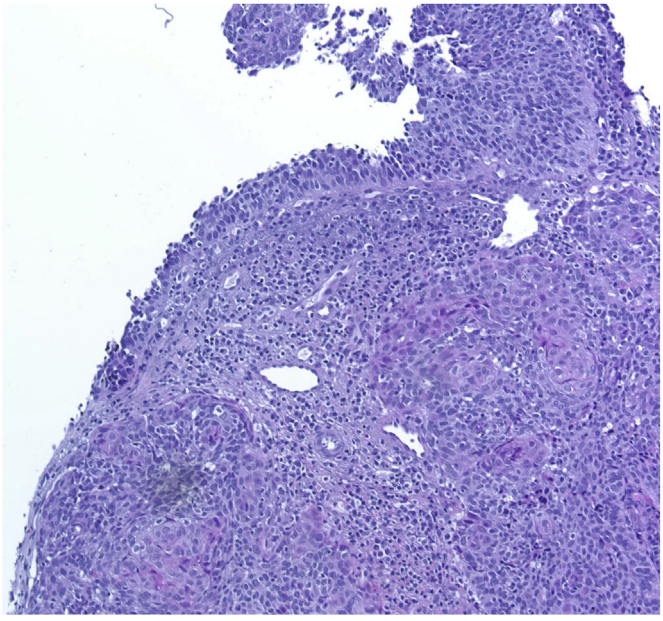

Fig. 2. High grade invasive urothelial carcinoma (Grade 3 TCC) with extensive squamous differentiation.

chemotherapy. At his six-month follow up, he has shown no evidence of disease recurrence on physical examination or CT imaging.

Discussion

Primary UC is a rare cancer, accounting for < 1% of all malignancies.[3] Anterior penile UC is uncommon, as UC usually presents in the posterior urethra, mainly in the prostatic portion where the epithelium is transitional and in continuity with the bladder.[3] Multimodal therapy in primary UC consists of definitive surgery plus chemotherapy with the option of radiotherapy, and is often underutilised in locally advanced disease.[4] The role of urine cytological assessment in suspect cases of primary UC depends on the underlying histological entity, with the sensitivity for UC in male patients reported at 80%.[5] In addition, risk factors such as occupational exposure, and HPV infection may play a role in the development of urethral UC.[3]

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2018.11.016.

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