Seminars in Diagnostic Pathology 32 (2015) 238–244

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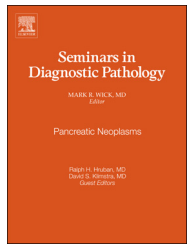

Clinicopathological features of carcinoma of the distal penile urethra

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ARTICLE INFO

Keywords:
Urethral cancer
Penile cancer
Squamous cell carcinoma
Basaloid carcinoma
Penile intraepithelial neoplasia

ABSTRACT

Distal urethral carcinomas are very rare and are similar in their pathology and behaviour to tumours of the glans penis and foreskin. Similarly they are associated with penile intraepithelial neoplasia (PeIN) of both differentiated and undifferentiated types. Current management is mainly surgical, but increasingly involves specialist penile-preserving techniques. Handling and dissection of the specimens is broadly the same as other primary penile tumours.

The prognosis of distal urethral lesions is believed to be worse than penile tumours and better than prostatic urethral tumours, but the evidence is sparse. The staging system for urethral tumours does not distinguish between proximal and distal, apart from prostatic urethra, and has led to much confusion in the literature.

Although the subtypes of tumours seen in the distal urethra are the same as those on the glans and foreskin, there is an increased proportion of basaloid squamous carcinoma and malignant melanoma whereas the majority of tumours seen in the proximal and prostatic urethra are of urothelial origin.

In future, distal urethral tumours should be separately designated with site-specific staging/TNM and reporting system and pathologically classified in the same way as penile and foreskin tumours. Ultimately, this will improve the quality of data and produce evidence to inform management.

Introduction

Primary carcinoma of the urethra is very rare. Only a small proportion of such tumours arise in the distal urethra, with the majority found in the proximal and prostatic urethra.[1,2] The proximal tumours are usually of urothelial origin, although they may show evidence of squamous differentiation. The tumours found in the distal urethra are almost exclusively squamous in type, and are similar to those seen arising on the glans penis and foreskin.[3–5] Distal urethral tumours are associated with precancerous lesions now known as penile intraepithelial neoplasia (PeIN)[6] and also

Disclosure: Catherine Corbishley is the chair of the UK national penile pathology group "the Hobnobs" and is the lead author of the Royal College of Pathologists Penile and Distal Urethral dataset.

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http://dx.doi.org/10.1053/j.semdp.2014.12.015
0740-2570/

Table – TNM staging of tumours of the urethra (TNM7, 2009).

Primary tumour (male and female) (excluding prostatic urethra)	
TX	Primary tumour cannot be assessed.
T0	No evidence of primary tumour.
Ta[a]	Noninvasive papillary, polypoid, or verrucous carcinoma.[a]
Tis	Carcinoma *in situ*.[b]
T1	Tumour invades subepithelial connective tissue.
T2	Tumour invades any of the following: corpus spongiosum, prostate or periurethral muscle.
T3	Tumour invades any of the following: corpus cavernosum, beyond prostatic capsule or bladder neck.
T4	Tumour invades other adjacent organs.
Regional lymph nodes	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single lymph node 2 cm or less in greatest dimension.
N2	Metastasis in a single node more than 2 cm in greatest dimension, or in multiple nodes.
Distant metastasis	
M0	No distant metastasis.
M1	Distant metastasis.

[a] The authors view is that the use of this category is to be avoided as it is not evidence based.
[b] Now designated as PeIN in the distal urethra.

with lichen sclerosus [previously known as balanitis xerotica obliterans (BXO)].[7]

In recent years, subspecialisation in urological surgery and the advent of penile-preserving surgery with reconstruction have led to penile and distal urethral tumours being referred to specialist surgical teams in some countries. In parts of the UK, the establishment of penile cancer supranetworks within the national cancer plan[8] has formalised this approach, with specialist penile cancer centres in the England and Wales treating between 25 and 130 new cases per year. Even in the largest of these centres, the numbers of primary distal urethral cancers are relatively small.

Incidence and clinical findings

Exact figures on incidence of distal urethral cancer are difficult to obtain as most of the literature lumps urethral cancer from proximal and distal urethra, prostatic urethra, and male and females together.[1] Additionally, the current TNM classification does not distinguish tumours by site of origin within the urethra or gender, apart from separating those of the prostatic urethra[9] (Table).

In our experience of operating on over 1000 cases of primary penile and distal urethral cancers and precancers over the last 14 years in the South East of England, we have found 6% (57 cases) originate in the distal urethra (unpublished observations).

Tumours may present in a number of ways including visible lesions around the meatus, haematuria or discharge, obstruction, penile mass, fistula, or metastases, usually to inguinal nodes[7] (Figs. 1 and 2).

Management

The surgical management of distal urethral tumours is similar to that currently undertaken for penile tumours and includes radical or subtotal penectomy as well as penile-preserving procedures such as glansectomy or distal urethrectomy[2,10] (Figs. 3–8).

Surgical resection margins may need to be more generous than for penile carcinoma as these tumurs may spread submucosally. Intraoperative frozen section assessment of margins may be helpful in some cases.[2,7] These tumours metastasise initially to inguinal nodes rather than

Fig. 1 – Glansectomy (left) and radical penectomy (right) for urethral tumours presenting with meatal lesions.