Urethral leiomyoma: a rare case of voiding difficulty

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DESCRIPTION

A woman aged 28 years presented with a history of voiding difficulty with straining on micturition for 2 months. She was completely asymptomatic and had no symptoms of voiding difficulty prior to this. On physical examination, she was found to have a firm tender mass measuring 2.5×2 cm, involving the posterior periurethral region. The urethral orifice could not be separately identified. Uroflowmetry was performed and was within the normal limit. Transperineal ultrasound revealed a well-defined homogeneously hypoechoic solid lesion anterior to the vagina. The posterior urethral wall could not be separately delineated from the lesion. On colour Doppler interrogation, the lesion showed significant internal vascularity (figure 1). There was no significant postvoid residue. MRI was performed for further characterisation of the lesion and its relation to adjacent structures. Axial, coronal and sagittal T2-weighted, short tau inversion recovery (STIR) and precontrast and post-contrast T1-weighted images were acquired. A well-defined focal lesion measuring 2.8×2.5×2.3 cm was noted below the level of pubic symphysis arising from the posterior wall of the distal urethra displacing the urethral meatus anteriorly. This lesion was anterior to the vagina with preserved intervening fat planes. The lesion showed intermediate signal intensity and was isointense to muscle on T1-weighted images (figure 2). It was hyperintense on T2 and STIR images when compared with muscle (figure 3). On postcontrast images, homogeneous enhancement was noted (figure 4). In view of the aforementioned imaging findings, a diagnosis of urethral leiomyoma was made. As the lesion had very well-defined non-infiltrative margins, a malignant aetiology was considered unlikely. The patient was posted for excision of leiomyoma. Intraoperatively, the mass was seen arising from the posterolateral wall of the distal urethra. The mass was excised and the specimen was sent for histopathological examination (HPE). HPE showed spindle-shaped cells arranged in whorls and fascicles consistent with leiomyoma (figure 5). The patient had an uneventful post-operative period. On follow-up, she had no symptoms of straining on micturition and had no significant postvoid residue on transabdominal sonography.

Leiomyomas are benign tumours arising from smooth muscle usually involving the genitourinary tract but may arise in any anatomic site.¹ Among extrauterine leiomyomas, urethral leiomyomas are rare.² The most useful imaging modalities for characterisation of such lesions are ultrasonography and MRI.^{1 3} In the genitourinary tract, urethra is a relatively rare location for leiomyoma. Approximately 120 cases of leiomyoma in female urethra have

been reported in the literature so far.¹ They occur in women of reproductive age group and show relation to hormonal status that is indicated by their increase in size during pregnancy and regression in the postpartum period.⁴ Rarely, these tumours occur in men and postmenopausal women.⁵ Most patients with urethral leiomyoma present with periurethral mass, haematuria, straining on micturition, dyspareunia and recurrent urinary tract infections.⁶ These tumours most commonly arise from the posterior wall of the proximal urethra.^{7 8} However, the lesion in our patient was noted arising from the posterior wall of the distal urethra.

On sonography, leiomyomas are solid, homogeneous, smooth-walled hypoechoic lesions with a typical whorled appearance which on colour Doppler sonography show internal vascularity.⁹ The primary role of USG is to determine whether the lesion is solid or cystic as this narrows down the differential diagnosis. MRI serves as a problem solving tool. It helps in the precise localisation of the mass and also to assess infiltration of surrounding structures.¹ On MRI, leiomyomas show intermediate signal intensity on T1-weighted images, low to intermediate signal intensity on T2-weighted images and homogeneous postcontrast enhancement.¹⁰ The lesion in our patient showed similar signal intensity, except that on T2-weighted images, hyperintense signal was noted.

Differential diagnosis of a distal urethral mass in females includes malignant neoplasm of distal urethra, haemangioma, nerve sheath tumour, caruncle, urethral diverticulum and Skene duct cyst. Malignant neoplasms are more common in postmenopausal age group, usually have infiltrative ill-defined margins and show heterogeneous enhancement on contrast MRI.¹¹ Haemangiomas and nerve sheath tumours show very high signal on T2-weighted images. Caruncles also show high

Figure 1 USG image showing a well-defined solid hypoechoic focal lesion showing Doppler flow signals within.

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Figure 2 Axial T1 and short tau inversion recovery (STIR) images showing a T1 isointense, STIR hyperintense focal lesion in the distal urethra.

Figure 3 Sagittal T2 and postcontrast T1 fat sat images showing a T2 mildly hyperintense distal urethral focal lesion with homogeneous contrast enhancement.

Figure 4 Coronal short tau inversion recovery (STIR) and postcontrast fat sat T1 images showing STIR hyperintense distal urethral focal lesion showing homogeneous contrast enhancement.

Figure 5 Photomicrograph showing spindle-shaped tumour cells arranged in fascicles and whorls.

signal on T2-weighted images and are seen in postmenopausal patients.¹⁰ Urethral diverticulae and Skene gland cysts show fluid signal intensity on MRI with no enhancement. Complicated cysts and diverticulae can show variable signal intensity on MRI with variable enhancement.¹¹

Learning points

- ▶ Urethral lesions are a rare cause of voiding difficulty. Of these, diverticulae and caruncles are the most common.
- ▶ Leiomyoma should be considered in the differential diagnosis of a urethral lesion in women of reproductive age group. The finding of a well-defined solid, homogeneously enhancing mass should raise the possibility of the same. An infiltrative lesion should raise the possibility of a malignant neoplasm.
- ▶ Ultrasound and MRI are invaluable tools in characterising focal lesions of the female urethra.
- ▶ On histopathology, leiomyomas typically show spindle-shaped cells arranged in whorls and fascicles.

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