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CLASSICS IN ABDOMINAL RADIOLOGY

"Horseshoe" sign in a female urethral diverticulum

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A horseshoe sign is a relatively uncommon imaging finding representing the female urethral diverticulum (UD). While this sign may be appreciated on several different imaging modalities, Magnetic Resonance Imaging (MRI) has high sensitivity and specificity for the detection and characterization of a urethral diverticulum. As shown in Fig. 1, on T2-weighted MR imaging, there is a fluid-filled sac in a curvilinear or horseshoe configuration (Fig. 2), partially wrapping around the urethra.

Urethral diverticulum has a reported incidence of 1–6%, and involves isolated cyst-like appendages which connect to the urethral lumen via a single or multiple ostia [1]. The diverticula may extend partially (in a horseshoe configuration) or circumferentially around the urethra. It is usually diagnosed in the third-to-fifth decade of life but can present at any age [2, 3].

Most patients are asymptomatic. Few women present with a wide array of non-specific genitourinary symptoms like frequency, urgency, dysuria, recurrent urinary tract infection, dyspareunia, hematuria, and post-micturition dribbling. The prevalence of UD in patients with recurrent episodes of urinary infection may be as high as 40% [4, 5].

Several imaging modalities like urethroscopy, voiding cystourethrogram, double-balloon urethrogram, and ultrasound can be used but MRI is the investigation of choice for a definitive diagnosis and is essential before any intervention can be planned [2, 6].

Surgery is the primary modality of treatment. Untreated or chronic UD can result in repeated urinary tract infections. Infection and urinary stasis may also result in the formation of calculi. Rarely, neoplasm, most commonly adenocarcinoma, can arise within a urethral diverticulum as evidenced by a focal filling defect or enhancing mass [7, 8].

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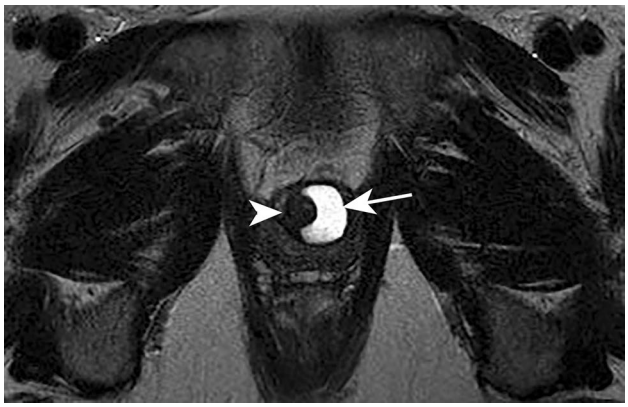

Fig. 1 Axial T2-weighted image of the female pelvis shows a "horseshoe"-shaped cystic structure (arrow) adjacent to the urethra (arrowhead), consistent with a urethral diverticulum

Fig. 2 Photograph of a horseshoe, which recalls the imaging findings

Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

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