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Female urethral diverticula

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Urethral diverticula are frequently under-diagnosed. The pathogenesis of this condition is poorly understood, and these lesions represent a spectrum of disorders ranging from isolated suburethral cysts to herniation of the urethral lining into the vaginal mucosa. Women with this disorder frequently complain of a host of symptoms referable to the lower urinary and genital tracts. Accurate diagnosis is based on history and clinical evaluation. Perineal ultrasound and MRI are often helpful. Repeated courses of antibiotics and urethral dilatation often fail to resolve the problem, and definitive intervention usually requires surgical excision to provide relief. This chapter describes the current management of this condition, and it heralds a re-look at the patho-aetiology in view of recent MRI findings of symptomatic non-communicating microcystic lesions.

Keywords: urethral diverticula; pseudo-diverticula; periurethral microcysts.

A true 'diverticulum' is defined by Dorland's Medical Dictionary as a 'normally occurring or a herniated pouch of lining mucous membrane through a defect in the muscular coat of a tubular organ'. The theory of pathogenesis currently in vogue involves the rupture of a suburethral cystic collection into the urethra, in a manner that contradicts the inherent meaning of a true diverticulum. On the other hand, a later theory of pathogenesis of what is coined 'pseudo-diverticulum'[1] approximates the definition of a true diverticulum more aptly. This illustrates the lack of concrete understanding of this condition.

Generally, a urethral diverticulum is described as a urethral protrusion into the urethra/vaginal potential space with a surface lining usually identical to the urethral

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mucosa. It was William Hey who first described a urethral diverticulum in 1805 in his publication *Of Collections of Pus in the Vagina*. Very little was subsequently written about the subject until the latter half of the 20th century, when more sensitive radiological methods were developed, exemplified in the first major series of 50 cases reported by Davis and TeLinde[2] using double-balloon urethrography. Gradually, urethral diverticula surfaced into medical consciousness, and in the last few decades, in pace with the development of female urology and urogynaecology, more has become known about this condition. The prevalence of this condition varies widely across population groups, which may reflect varying levels of awareness of this potential diagnosis rather than true sociographic or racial variations.

The delay in recognition and diagnosis will prolong the suffering of many women, not only from lower urinary tract symptoms, but also the psychological morbidity and the socio-economic impact that comes with it. Besides, urethral diverticulum carries with it the potential for significant morbidity such as calculus formation and malignant change.

EPIDEMIOLOGY

Urethral diverticula are rarely identified in the paediatric age group[3]; the majority are diagnosed in adults, usually between the third and sixth decades of life.[4] Females have a higher incidence than males, and there is no racial predilection[5,6], although Andersen has suggested that it occurs more frequently in black populations.

Among adult women, the estimated prevalence is between 0.6 and 6.0%.[7,8] It is noticeably more common among women with chronic genitourinary conditions, such as recurrent infections, post-void dribbling, and dyspareunia. In fact, in women with persistent lower urinary tract symptoms (LUTS), prevalence rates of 16 and 40%[9] have been reported. Among women with genuine stress urinary incontinence, 1.4% are identified as having urethral diverticula.

The true frequency of the disorder is impossible to estimate. Studies have demonstrated a sizeable pool of asymptomatic women with demonstrable diverticula; some estimated it to be 2%. Among the clinically occult urethral diverticula, the asymptomatic group has not been estimated, but an estimate of 10% is likely. A prevalence of urethral diverticula of 3% was reported in an asymptomatic group of women with cervical cancer. Many of these diverticula were small, ranging in size from 2 to 16 mm in diameter, and the smallest of these may have been large but otherwise normal paraurethral glands.

PATHO-AETIOLOGY

The myriad of clinical presentations of urethral diverticula possibly suggests multiple aetiologies. In fact, urethral diverticula may be congenital or acquired, and in the latter group well-regarded theories include acute or chronic inflammation of, and direct or indirect trauma to, the urethra.

Congenital diverticula

Though very uncommon, urethral diverticula have been reported in children and neonates.[6] It is reported that these congenital lesions are lined by epithelium,