

# URETERIC PSEUDO-DIVERTICULA - ITS IMPLICATIONS AND A REVIEW OF THE LITERATURE ON VARIOUS URETERIC DIVERTICULA

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## ABSTRACT

*Ureteric diverticula is classified as either congenital or acquired. The acquired form is further divided into false or ureter pseudo-diverticula. Of the various types, ureteric pseudo-diverticula have been associated with uro-epithelial tumour more often than expected. This report of a Chinese patient with ureteric pseudo-diverticula presenting with macroscopic haematuria is believed to be the first non-Caucasian to be reported in the literature.*

**Keywords:** ureteric pseudo-diverticula, uro-epithelial tumour, haematuria

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## CASE REPORT

A 78-year-old Chinese male presented with one episode of macroscopic haematuria. Previous clinical history, physical examination and laboratory test were all normal. Intravenous urography showed filling defects in the left lower ureter only. These were suspected to be uro-epithelial tumours but subsequent retrograde pyelography revealed multiple pseudo-ureteric diverticula. At the same time cystoscopy findings were normal. Follow-up six months later with urine cytology showed presence of inflammatory cells but no atypical or malignant cells.

## DISCUSSION

Ureteral diverticula are either congenital or acquired<sup>(1)</sup>. Congenital ureteric diverticula are due to aberrant development of the ureteric bud before it reaches the metanephrogenic tissue<sup>(2)</sup>. Clinically they are either asymptomatic or present as recurrent urinary tract infection.

Congenital ureteric diverticula represent an outpouching of all the layers from a normal ureteric wall and are usually single but occasionally can be several in numbers. These diverticula can be found anywhere along the ureter but are often restricted to one part of the ureter<sup>(3)</sup>. They are almost always greater than 0.5cm in diameter and with a tendency to be round or oval in shape. These have similar appearances in both children and adults. During intravenous urography these may not fill completely and a bladder diverticulum, a large ureteroceles or marked hydronephrosis can occasionally mimic their appearance. Therefore a retrograde pyelogram is usually necessary to delineate the diverticulum adequately.

The acquired form is either false or pseudo-ureteric diverticula. False diverticula are mucosal protrusions through a defect in the ureteric wall. They are often traumatic in origin. These are usually single and are larger than the pseudo-ureteric diverticula<sup>(4)</sup>.

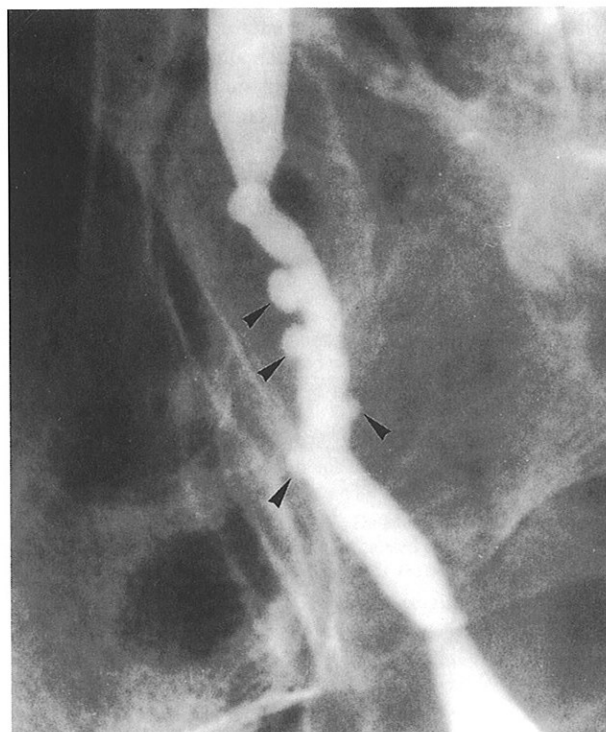
Pseudo-diverticula tend to be multiple and were first described by Holly and Sumcad in 1957<sup>(5)</sup>. Most series show a much higher incidence in men than in women. The male to female ratio was 6:1. They may be found in persons aged 23 to 85 years but the majority are over 60 years<sup>(6)</sup>.

Pseudo-ureteric diverticula are multiple in 91% and are generally less than 5mm in diameter<sup>(7)</sup>. These occur in both ureters in 75% of cases and about 85% are found in the upper and middle third of the ureter<sup>(4)</sup>. They tend to remain unchanged for years and the most common presenting symptom is haematuria.

Despite adequate ureteral compression, intravenous urography reveals these diverticula only 60% of the time. Retrograde pyelography is the method of choice as it not only reveals their presence but also their number<sup>(4)</sup>. This was further exemplified by our case.

The aetiology of ureteric pseudo-diverticula remains controversial. Wasserman et al hypothesised from a study of 200 post mortem ureters that ureteric pseudo-diverticula probably developed from benign epithelial changes leading to small intramural crypts as a response to focal subclinical inflammation. Local urine stasis is then believed to sustain the focal inflammatory process. In cases where these become radiologically detectable, it is believed that an increase in

Fig 1 - Ureteric pseudo-diverticula (arrowheads)



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intraluminal pressure is required which may be produced by vesico-ureteric reflux or obstruction<sup>(8)</sup>.

Carcinoma in a ureteric diverticulum is rare<sup>(9,10)</sup>. However, Wasserman et al reported that 26% of their patients with pseudo-ureteric diverticula had associated bladder tumour and the latency of identification of these diverticula to the development of tumour was found to be between 2 to 10 years. This association of uro-epithelial tumour with pseudo-ureteric diverticula has not been confirmed by any other reports. Until this association is further clarified it would be advisable to follow these patients with semi-annual or annual urinary cytology as baseline investigation for uro-epithelial tumour surveillance. Cystoscopy and ureteral cytologic studies should be performed when clinical suspicion is high<sup>(7,11)</sup>.

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