Double dumb-bell calculus in childhood

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ABSTRACT:

An eight-year old male was admitted with complaints of right scrotal swelling, dysuria and intermittent retention of urine for 10 days. On per-rectal examination, a hard mass was palpable in the posterior urethra. An X-ray (KUB) of the abdomen revealed a double dumb-bell calculus at the base of bladder, extending into the posterior urethra. A cystolithotomy via the suprapubic approach was successfully curative.

Key words: Double dumb-bell calculus, urinary tract calculi, vesicourethral junction

DOI: 10.4103/0189-6725.54781

INTRODUCTION

Urinary tract calculi at various anatomical locations constitute a common problem. A stone at the vesicourethral junction is a rarity in childhood. Dumb-bell shaped calculus have been recorded at this site previously; however, the literature lacks regarding the details of double dumb-bell calculus at this site in children.

CASE REPORT

An 8-year-old male presented with swelling of right hemiscrotum [Figure 1], low grade fever, dysuria, and intermittent retention of urine of ten days duration. Systemic examination was normal, but local examination showed inflamed right hemiscrotum. Per rectal examination revealed a palpable hard calculus in the posterior urethra. X-ray kidney, urethers, and bladder (KUB) showed double dumb-bell shaped calculus corresponding to the area of base of bladder and posterior urethra [Figure 2a]. Ultrasonography (USG) of the KUB was normal. There was a 4 × 3 × 1.5 cm^3 calculus in the posterior urethra extending into the bladder neck. Ultrasound of scrotum showed right epididymoorchitis. Perurethral catheterisation was done thereby causing disimpaction of the stone from the urethra into the bladder. Epididymorochitis decreased with intravenous antibiotics and antiinflammatory drugs. It was followed by suprapubic cystolithotomy [Figure 2b]. The patient developed intraoperative malignant hypertension for which he was treated in intensive paediatric care unit (IPCU) for 10 days until the blood pressure was under control with hydralazine and losartan. Stone analysis revealed urates and uric acid, phosphates, xanthine, magnesium, calcium, and oxalate. On discharge, patient's vitals were normal; antihypertensives were continued. On follow-up, micturating cystourethrogram and intravenous pyelogram was done which showed no abnormality.



Figure 1: Clinical photograph showing right epididimoorchitis

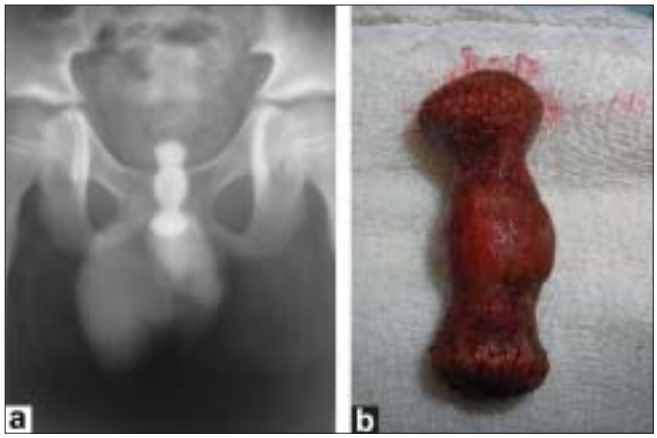


Figure 2: (a) Photograph of X-ray KUB showing double dumb-bell vesicouretheral calculus. (b) Photograph of double dumb-bell vesicouretheral calculus

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'Dumb-bell' vesicourethral calculi have been recorded in adults on numerous occasions.[1-3] Such calculi are either grouped as either primary[2] or secondary,[3] around a nidus of catgut knot[1] or tags of prostatic tissue.[3] A calculus in the vesicouretheral junction is a very rare site in children. Till date, only three such cases are being reported.[4,5] A calculus, forming in bladder itself, may partially protrude in the urethra from urinary bladder.[5] On distension of the bladder, such stone would be lifted-up in ball valve fashion and gets dislodged into the urinary bladder. This may account for periodic episodes of urinary retention.[5] However, due to gradual increase in stone size, a stage may be reached when the calculus gets firmly impacted in the urethra leading to urinary retention, obstruction and episodes of epididimoorchitis. The stone formation may also start in the posterior urethra consequent to dilatation and stasis due to an obstructive lesion such as posterior urethral valve.[6] Distal bulge of calculus might have disrupted the posterior urethral valve, accounting for normal urethra on micturating cysto-urethrogram (MCU). However, calculus formation may happen in normal urethra also, as had been reported by Sharma.[5] A complete urinary work up, especially to rule out obstructive lesion in the urethra is mandatory.[5]

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Source of Support: Nil, **Conflict of Interest:** None.

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