Original Research Paper

Volume - 16 | Issue - 08 | August - 2026 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Paediatrics

BILATERAL URETERIC STENOSIS MIMICKING URETERO PELVIC JUNCTION OBSTRUCTION - A DIAGNOSTIC DILEMMA !

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ABSTRACT 2-year-girl presented with bilateral hydronephrosis without hydroureter. EC Scan suggested bilateral PUJ Obstruction. At laparoscopic pyeloplasty, pelvis and upper ureter were dilated with narrowing at junction of upper with mid third ureter. Uretero-ureteric anastomosis done. 3 months later, contralateral ascending gram showed similar pathology and uretero-ureteric anastomosis was done.

KEYWORDS : Bilateral PUJ Obstruction, Ureteral Stenosis, 3D Laparoscopic Uretero-ureterostomy

Midureteral stenosis is a rare cause of hydronephrosis in children. We present an interesting case of congenital midureteral stenosis, focusing on the diagnostic dilemma. A 2 year old girl presented with fever and hypertension. Investigations revealed bilateral pyonephrosis without hydroureter, which was managed by intravenous antibiotics and anti hypertensives. Renal function tests were normal. Ethylenedicysteine scan (Ec Scan) after resolution of pyonephrosis showed obstruction of urinary outflow at pelvi-ureteric junction (PUJ). We planned bilateral 3D laparoscopic pyeloplasty with left side (better function) first. To our surprise, PUJ and upper ureter were significantly dilated and abrupt narrowing was seen at the junction of upper and middle 1/3rd of the ureter. Our working diagnosis of pelvi-ureteric junction obstruction (PUJO) had to be revised to mid-ureteric stenosis. 3D Laparoscopic excision of narrow segment, spatulation of lower ureter and stented uretero-ureteric anastomosis was done [Figure 1].

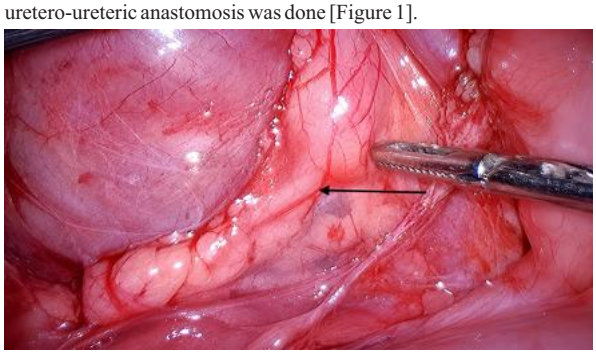
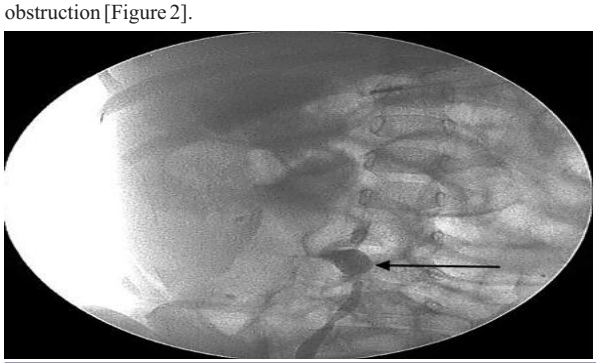


Figure 1 – Intra op Laparoscopic findings – Black arrow head marks stenosis at mid ureteric level, dilated upper ureter

Suspecting similar pathology on the contralateral side, 3 months later, we did an ascending urogram which showed similar level of obstruction [Figure 2].



Hence right 3D laparoscopic uretero-ureteric anastomosis was done. Patient has done well post operatively. Histopathology exhibited smooth muscle hyperplasia, fibrous tissue degeneration, chronic inflammatory cell infiltration implying ureteric stenosis. 1 year follow-up revealed no hydronephrosis, and improved drainage curves without obstruction on EC scan.

Congenital ureteral obstructions occur mainly at PUJ and vesicoureteral junction (VUJ). Obstruction along the length of the ureter is very rare; autopsy incidence of 4% and clinical incidence is only 1.6% of all ureteral obstructions (Meng)[1].

Two etiologies of ureteral stenosis exist: ureteral valves and true ureteral stenosis. Valves are transverse folds of ureteral mucosa with normal urothelium with occasional bundles of smooth muscle fibre. Ureteral stenosis is mechanical obstruction due to structural abnormalities in the wall, generally shorter than 1 cm. Stenosis is rarely at multiple sites, or associated with PUJO or VUJO (Vesico-ureteric junction obstruction). Microscopy generally reveals fibrous hyperplasia and muscle thickening of ureteral wall at site of narrowing. Postulated theories for congenital ureteric stenosis are compression by iliac vessels, non re-canalisation of ureter, fetal inflammation of ureter similar to biliary atresia [2].

Preoperative diagnosis is difficult. Experienced sonologist can see dilated ureter in well-hydrated children and repeated evaluation post voiding. Diuretic renogram, Intravenous Urography (IVU), Computed Tomography Urography (CTU) and Magnetic Resonance Urography (MRU) provide good anatomic delineation, but will only be done when suspected on Ultrasonography (USG). Some surgeons routinely perform retrograde pyelography (RGP) in all ureteral obstructions, which can pick up the stenosis. Alhazmi reported two such children, one treated laparoscopically[3]. Despite multiple modalities for diagnosis, ureteric stenosis are mostly missed preoperatively and are diagnosed only during surgery for PUJO or VUJO.

Treatment of ureteric stenosis is excision of the stenotic segment with end-to-end ureteral anastomosis, which can be done through open, laparoscopic or robotic approaches. If there are multiple stenoses, or if associated with PUJO or VUJO, the treatment is tailored accordingly. Ureteric replacement by ileal conduits might be needed (Kannaiyan, in 4 of 17 cases) [4]

Bilateral ureteric stenosis is even more uncommon. We found reports, Singh has reported 11 year child with bilateral ureteral stenosis operated by open surgery [2]. Very few reports have been found in literature for bilateral involvement.

Minimal Access Surgery has the advantage of picking up ureteral

obstruction because of wide exposure compared to open surgery. Progressively larger series are being reported with laparoscopy. VVS Chandrasekharam has a series of 7 laparoscopic ureteroureteric anastomosis, of which 5 were in infant [5]. Meng[1] and Alhazmi[3] have both done laparoscopic management in 3 and 2 children respectively.

In our case, laparoscopy significantly helped in diagnosing the preoperatively missed ureteric obstruction and dealing with it in the same sitting. 3D laparoscopy provided good depth perception and ease of suturing compared to 2D laparoscopy.

We recommend laparoscopic approach for most ureteric obstructions in experienced hands to avoid missing such cases.

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