



CONGENITAL URETERIC VALVE: A CASE REPORT

Paediatric Surgery

Dr Pratiksha Basant Joshi	Senior Resident, Department Of Pediatric Surgery, Lokmanya Tilak Municipal Medical College And Hospital, Sion, Mumbai, India.
Dr Maitreyee Save	Assistant Professor, Department Of Pediatric Surgery, Lokmanya Tilak Municipal Medical College And Hospital, Sion, Mumbai, India.
Dr Paras Kothari	Professor & Head, Department Of Pediatric Surgery, Lokmanya Tilak Municipal Medical College And Hospital, Sion, Mumbai, India.
Dr Abhaya Gupta	Additional Professor, Department Of Pediatric Surgery, Lokmanya Tilak Municipal Medical College And Hospital, Sion, Mumbai, India.
Dr Shahaji Deshmukh	Assistant Professor, Department Of Pediatric Surgery, Lokmanya Tilak Municipal Medical College And Hospital, Sion, Mumbai, India.

ABSTRACT

Congenital ureteric valve is a rare entity. Often it is misdiagnosed as obstructive megaureter or pelviureterojunction obstruction. We report a case of 4 month old female child with left mid-ureteric valve causing hydronephrosis with proximal hydroureterosis with history of febrile urinary tract infection. Excision of segment containing ureteric valve along with uretero-ureteric anastomosis done. Diagnosis of ureteric valve to be considered while evaluating patients with hydroureteronephrosis.

KEYWORDS

ureteric valve, febrile urinary tract infection, hydroureteronephrosis

INTRODUCTION:

Congenital ureteric valve presents with hydronephrosis and proximal hydroureterosis and is often confused with pelviureteric junction obstruction. A high index of suspicion is required to make a correct preoperative diagnosis.

Antenatal ultrasound often revealed hydronephrosis. Postnatally children presents with incidental finding of hydronephrosis or abdominal pain and lump due to obstruction. Along with the radiologic investigations, retrograde pyelography aids to the diagnosis of ureteric valve.

The gold standard treatment is resection of the obstructive segment and ureteroureterostomy.

Case Presentation:

4 month old female child was referred with history of one episode of febrile urinary tract infection 1 month ago. ANC scans were normal. Physical examination was normal. Her vital parameters were stable. Routine complete hemogram, renal function tests, urine analysis were normal at present. Kidney ultrasonography (USG) showed left hydronephrosis, Antero-posterior diameter of pelvis was 3.5 cm. Renal parenchymal thickness of left kidney was reduced with mild dilatation of left ureter. Micturating urethrogram was normal with bladder capacity adequate for age.

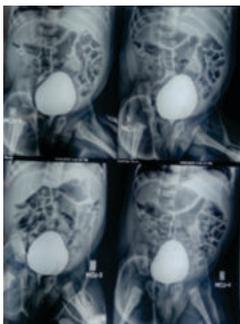


Fig.1 : MCU

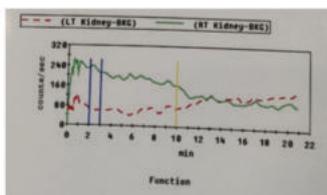


Fig.2 : DTPA

Renal scintigraphy (DTPA) was suggestive of left pelvi-ureteric junction obstruction. Function of left kidney was 21% while right kidney function was preserved. CT urography was suggestive of dilated left renal pelvis of APD 2.3 cm and left upper ureter of 7 mm and lower ureter of 4 mm calibre.

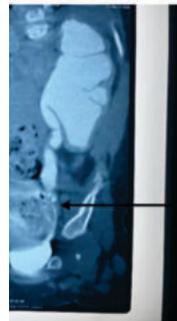


Fig.3: CT Urography



Fig.4: left RGP

Cystoscopy with left RGP done which was suggestive of dye reaching pelvis however guidewire of size 0.018 inch could not be negotiated till pelvis.

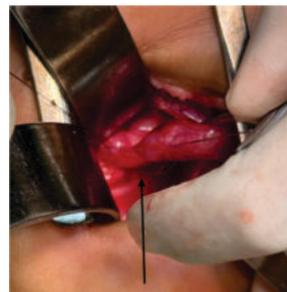


Fig.5: intraoperative finding



Fig.6: cut section of ureteric valve

Intraoperative evidence of dilated pelvis with dilated and tortuous upper and mid ureter with normal lower ureter noticed with transition at lower ureter (Fig 5). Ureterotomy done 1 cm proximal to transition point. Infant feeding tube of number 5 or guidewire could not be passed, provisional diagnosis of ureteric valve made clinically. (Fig 6).

Obstructive segment containing the valve excised, dekincking of upper ureter done and ureteroureterostomy done over 3Fr 10 cm Djstent.

Postoperative period was uneventful and child was discharged on postoperative day 3.

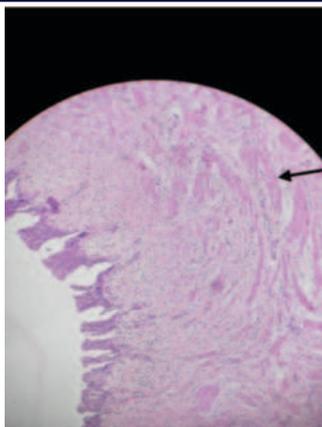


Fig. 7: Histopathological slide of ureteric valve specimen Arrow indicates the smooth muscle

Histopathological report revealed hypertrophied urothelium with smooth muscle bundles seen.

DISCUSSION:

Ureteric valve is a rare congenital anomaly. At six weeks of gestation in the lower portion of ureteric lumen an epithelial membrane is present called Chwalle's membrane. Pressure of urine excretion causes rupture of this membrane. However partial rupture of the membrane result in a ureteric valve causing obstruction¹. According to another theory, renal embryogenesis is comprised of growth of ureteric bud towards the metanephric blastema plus ascent of metanephros. When ureteric growth exceeds renal migration, ureteric folds are formed. Persistence of these physiological folds results into ureteric valve.

Most common site of ureteric valve reported is proximal ureter 50%, followed by distal ureter 33% and mid-ureter 17%.²

Following criteria is given by Wall and Wachter in 1952 for the diagnosis of ureteric valve: (1) presence of transverse folds of the ureteric mucosa containing bundles of smooth muscle on histopathological examination, (2) presence of obstruction proximal to the valve with a normal ureter distal to it, and (3) no other evidence of mechanical or functional obstruction.³

These patients can be diagnosed while evaluating suspected cases of megaureters, ureteropelvic or ureterovesical junction obstruction. Lump in the abdomen due to hydronephrosis or abdominal pain can be the presenting complaint.⁴

For a good treatment planning, the exact localization of the ureteral tract obstruction is important. Hamid et al⁵ recommended that the RGP should be performed in these cases where information provided by USG, IVU, and diuretic renal scintigraphy is equivocal. Magnetic resonance urography gives accurate anatomical, functional details of ureterorenal system and aids in the location of the stricture⁶. CT urography may also be helpful, as in our case.

Treatment options includes primary ureteroureterostomy, or excision of leaflet and ureteric reimplantation if located distally near VUJ or pyeloureterostomy depending on its location and the severity of renal damage. Endoscopic incision is an alternative treatment for the ureteric valves⁷. Nd-YAG laser ablation of ureteric valve in antenatal management has also been reported. Laparoscopic ureteral reconstruction has also been attempted.⁸

In our case, on the basis of all radiological investigations, the initial provisional diagnosis of left pelviuretero junction obstruction was made. Thus a high index of suspicion is needed to make a diagnosis of ureteric valve in cases with unilateral hydronephrosis and proximal hydroureter.

CONCLUSION:

This case adds to the literature a rare entity of ureteric valve. In cases with hydroureteronephrosis, renal ultrasound and radionuclide renography alone do not reliably demonstrate the site of obstruction. Retrograde pyelography is an important adjunct for correctly identifying the site of ureteral obstruction in cases with

hydronephrosis with proximal hydroureterosis.

REFERENCES:

1. Maizels M, Stephens FD. Valves of the ureter as a cause of primary obstruction of the ureter: Anatomic, embryologic and clinical aspects. *J Urol*. 1980;123:742-7. doi: 10.1016/s0022-5347(17)56113-3. [DOI][PubMed][Google Scholar]
2. Williams, D.I., *Ureteral valves*, Pediatric Urology, Butterworths, London, 1968; 169
3. Wall B, Wachter HE. Congenital Ureteral Valve: Its Role as a Primary Obstructive Lesion: Classification of the Literature and Report of an Authentic Case. *Journal of Urology* [Internet]. 1952 Oct 1 [cited 2025 Apr 4];68(4):684-90. Available from: [https://doi.org/10.1016/S0022-5347\(17\)68266-1](https://doi.org/10.1016/S0022-5347(17)68266-1)
4. Rossi E, Salas JR, Aucatoma FC, Muñoz MO, Fochs LM. Congenital ureteral valves: two new cases and a review of the literature. *J Pediatr Urol*. 2007 Oct;3(5):344-9. doi: 10.1016/j.jpuro.2007.02.002. Epub 2007 Apr 18. PMID: 18947772.
5. Hamid R, Bhat NA, Rashid KA. Congenital midureteric stricture: challenges in diagnosis and management. *Case Rep Urol*. 2015;2015:969246.
6. Payabvash S, Kajbafzadeh AM, Saeedi P, Sadeghi Z, Elmi A, Mehdizadeh M. Application of magnetic resonance urography in diagnosis of congenital urogenital anomalies in children. *Pediatr Surg Int*. 2008 Sep;24(9):979-86. doi: 10.1007/s00383-008-2196-7. Epub 2008 Jul 31. PMID: 18668256.
7. Fernández-Bautista B, Angulo JM, Ortiz R, Burgos L, Ordóñez J, Parente A. Endourologic Treatment in Two Cases of Ureteral Valves. *J Endourol Case Rep*. 2020 Sep 17;6(3):213-216. doi: 10.1089/cren.2019.0186. PMID: 33102729; PMCID: PMC7580609.
8. Paludo AO, Diaz JO, Menegola C, Cavaleri A, Gorgen ARH, Lucena IRS, Rosito NC, Tavares PM, Rosito TE. Laparoscopic ureteral reconstruction in infant with congenital mid ureteric valve. *J Pediatr Urol*. 2020 Dec;16(6):859-860. doi: 10.1016/j.jpuro.2020.10.022. Epub 2020 Oct 23. PMID: 33162333.