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# Congenital midureteric stricture: A rare entity in pediatric patient

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***Abstract***

Congenital midureteric obstruction is a rare entity which can be caused by either ureteric valves, strictures or an adynamic segment. When encountered, it is generally misdiagnosed as megaureter or ureteropelvic junction obstruction. A high index of suspicion is required to make a correct pre-operative diagnosis. Antegrade or retrograde urography would clinch the diagnosis. Our patient presented with a history of left loin pain. Investigations suggested mid-ureteric stricture. Resection of stricture segment and primary ureteroureteric anastomosis was done which relieved the symptoms. Histopathological examination showed muscle fibrosis.

***Keywords***

Midureteric stenosis; midureteric stricture; hydronephrosis; ureteroureteric anastomosis.

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## Introduction

Congenital midureteric strictures (CMUS) are extremely rare cause of obstructive uropathy. Children with this disorder are often misdiagnosed as having either pelviureteric junction (PUJ) obstruction or primary megaureter. Diagnosis is suspected after computed tomography (CT) urography. Retrograde pyelography (RGP) and/or intravenous urography (IVU) may be helpful for anatomic localization of stenosis/stricture and the course of ureter, as shown in our cases. The final diagnosis is confirmed during surgical exploration [1,2]. We report here our experience in clinical findings, pre-operative investigations, and operative treatment in 4 year old boy diagnosed as midureteric stricture.

## Case Report

A four and half years old male child complained of intermittent colicky pain in

left flank since one year. Patient had no other urinary complaints. His bowel habits were normal. Physical examination revealed tenderness in left flank. Rest of abdomen was normal. His vital parameters were stable. Routine complete hemogram, renal function tests, urine analysis were normal. Kidney ultrasonography (USG) showed left hydronephrosis, Antero-posterior diameter of pelvis was 3.5 cm. Renal parenchymal thickness of left kidney was normal compared to right kidney. Left upper ureter showed mild dilatation.

Renal scintigraphy was suggestive of left pelvi-ureteric junction obstruction. Both kidneys had normal function. There was no scarring [Fig. 1].

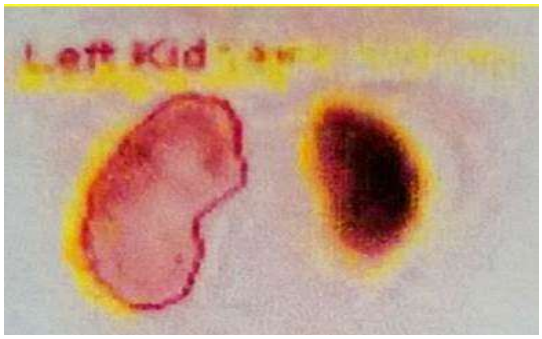

**Fig. 1.** Renal scan showing hydronephrotic left kidney.

CT urography revealed smooth tapering at the junction of upper and mid ureter at the level of L4 with poor opacification of distal ureter on prone scan, possibility of valve or membrane in ureter [Fig. 2]. Retrograde pyelography was done on table. It showed non-visualisation of upper and mid-ureter [Fig. 3].

**Fig. 2.** CT urography showing smooth tapering at the junction of upper and mid ureter at the level of L4 with poor opacification of distal ureter on prone scan.

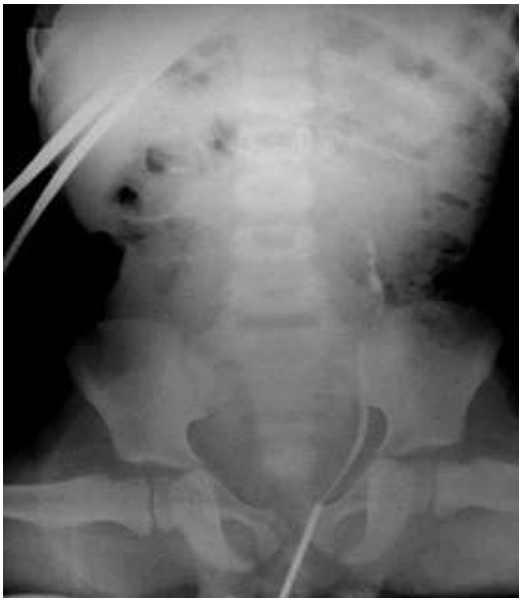

**Fig. 3.** Retrograde pyelography showing non visualization of upper and mid ureter.

Patient was explored through flank incision. Intraoperatively a stricture was found at the junction of upper and mid ureter with dilated upper ureter [Fig. 4].

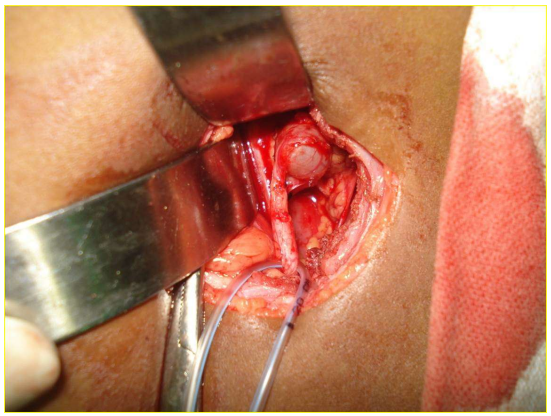

**Fig. 4.** Intra-op photo showing upper ureter dilatation and stricture segment.

The stricture was excised and ureteroureteric anastomosis was done over a DJ stent. DJ stent was removed after 6 weeks. Histopathological examination of excised segment revealed normal urothelial lining, wall showing thickening with muscle fibrosis. Patient is asymptomatic since 1 year on follow-up. Left renal hydronephrosis resolved.

## Discussion

Congenital midureteric strictures (CMUS) are a rare entity, which may narrow of ureteral lumen diameter by 60% [3]. The pathophysiology and etiology of CMUS is not certain, but has been attributed to various factors such as abnormal ureteric embryogenesis, intrauterine ureteritis, extrinsic compression by blood vessels and some derangement during recannulization of the ureter during fetal life [4]. In severe strictures, the smooth muscle layer is replaced by fibrous tissue and associated with other abnormalities of the urinary tract [5,6]. The differential diagnosis must additionally include ureteral valves and fibro epithelial polyps [7,8].

For a good treatment planning, it is important to obtain the exact localization of the ureteral tract obstruction. Hamid et al [9] recommended that the RGP should be performed in this cases where information provided by USG, IVU, and diuretic renal scintigraphy is equivocal. Otherwise, magnetic resonance urography has the potential to give accurate anatomical, functional details of ureterorenal system and, arguably, the location of the stricture. Additionally, CT urography may be helpful, as in our case.

Definitive management includes open or laparoscopic resection of the stenosed segment with uretero-ureterostomy [8,10]. Endourological dilatation or endoscopic incision of the ureteral stricture may be considered, but these techniques have a lower chance of success than an ureteroureterostomy or ureteral reimplant [11]. In the current case, the stricture was

excised and uretero-ureteral anastomosis over a DJ stent was done.

As a results, CMUS is a rare but important differential diagnosis of hydronephrosis. There should be a systematic sequence of imaging studies for the evaluation of hydronephrosis. However, RGP still have an important roles for the accurate diagnosis of the stenosis. Tension-free primary uretero-ureterostomy is the most favorable treatment option.

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