

## Retrocaval Ureter with Hydronephrosis

**Yasir I. Abass AL\_Janabi;**

*Tikrit University; College Of Medicine; Department of surgery.*

### **Case Report**

A 28 year old man presented with right flank pain since three months, the pain was dull and intermittent, associated by frequent attacks of recurrent urinary tract infections proved by urine culture. No abnormality was found on general and abdominal physical examination. Apart from urinalysis which showed 12-13 pus cells and epithelial cells but no red cells, complete laboratory evaluation including complete blood picture, urea, creatinine and electrolytes were within normal limits. X-ray KUB showed a small radio-opaque shadow in the region of right kidney. On ultrasonography, moderate hydronephrosis and upper hydroureter with a stone in lower pole of right kidney was found. Intravenous pyelography revealed right-sided hydronephrosis and hydroureter upto mid region with "J deformity" along with a stone in the lower calyx. Lower right ureter, left kidney, left ureter and urinary bladder were normal. Reyeurograde pyelography revealed normal lower part of the right ureter upto the point where the ureter cross behind the inferior vena cava (fig 1). A diagnosis of postcaval ureter was established and surgery was planned. The right kidney and ureter were approached by right sub costal lumbar incision. On exploration, right proximal ureter and pelvis were dilated. Dilated proximal ureter was curved medially then posterior to IVC. Finally curved anteromedial to IVC and took a downward course. Distal ureter was normal. Ureter was dissected and separated anteriorly from IVC and transected near the pelvis. The stone in the lower pole was removed and ureter was anteriorised and an oblique ureteroureteral anastomosis was done with 4/0 vicryl. A double J stent was placed inside the ureter across the anastomosis. Tube drain was placed and wound closed in layers. Drain was removed on fourth postoperative day. Patient recovered uneventfully. An IVU six weeks after surgery showed regression of hydronephrosis and hydroureter with no ureteric obstruction.

### **Introduction**

Retrocaval ureter is one of the rarest congenital anomaly. It is a condition in which the ureter deviates medially and passes behind the inferior vena cava (IVC), winding around and crossing in front of it from medial to lateral side. It was first reported by Hochstetler in 1893.<sup>1</sup> The incidence of retrocaval ureter is one in 1500 cadavers; male to female ratio is 3 or 4:1.<sup>1-3</sup> Most patients present with right lumbar pain. They may have recurrent urinary tract infection or episodes of acute pyelonephritis. Occasionally calculi may form above the obstruction.<sup>3</sup>

### **Discussion**

Anomalous development of vena cava (preureteric vena cava) allows the

infrarenal vena cava to form anterior to the ureter as sub cardinal vein in the lumbar portion which fails to atrophy and becomes primary right sided vein. A retrocaval ureter on left is seen only with persistence of left cardinal vein or with complete situs inversus.<sup>4</sup> Common presentations are right sided lumbar pain, dull aching or intermittent (renal pain), recurrent urinary tract infection and microscopic or gross haematuria. There is high incidence of calculi due to stasis. Diagnosis is confirmed by ultrasonography and intravenous pyelography. CT scan and MRI help to delineate the anomaly clearly.<sup>4,5</sup> Retrocaval ureter is classified into two types based on radiological appearance and the site of narrowing of ureter. Type I is more common. The Ureter crosses behind the inferior vena cava at the level of the third

lumbar vertebra and has fish hook shape (S shaped) deformity at the point of obstruction. Marked hydronephrosis is seen in 50% of the patients. In Type II, cross over occurs higher at the level of the renal pelvis. There is lesser degree of hydronephrosis or none at all and the renal pelvis and upper ureter lie horizontal before encircling the vena cava in a smooth curve (sickle shaped curve).<sup>6</sup> The various anomalies associated with retrocaval ureter are Horseshoe kidney, double IVC and left retrocaval ureter with Goldenhar syndrome.<sup>6-7</sup> Treatment is surgical transection of ureter at the pelvis, dissection of the ureter anteriorly from the inferior vena cava, anteriorisation and uretero-ureteral anastomosis. There may be severe hydronephrosis, Anderson Hynes pyeloplasty with precaval transposition of the ureter has been advocated. Occasionally nephrectomy may be required in the presence of thinned out cortex, poor function or severe infection.<sup>2</sup> The most recommended mode of treatment for a retrocaval ureter is surgical correction including transection, anteriorisation and end to end anastomosis of the ureter. The other modalities used are PCN, ureteric stenting and retroperitonscopic dissection of ureter, transection and ureteric reanastomosis using automatic suture device.<sup>8</sup>

## **References**

- 1- Resnick MI, Kurush ED. Extrinsic obstruction of the ureter, in Walsh P, Retik AB, Stamey TA, Vaughan ED Jr .(Eds): Campbells Urology, 6th Ed, Philadelphia:WB Saunders, 1992, pp. 533-69.
- 2- Richard N, Schluskel, Alan B Relik. Anomalies of upper urinary tract-anomalies of ureteric position: Walsh pc, Retik AB, Vaughan ED Jr. (Eds): Campbells Urology, 7th Ed, Philadelphia, WB Saunders, Philadelphia: 1998, pp. 1850-7.
- 3- Heslin JE, Mamonas C. Retrocaval ureter. Report of four cases and review of literature. J Urol 1951;65:212-22.
- 4- Bateson EM, Atkinson D. Circumcaval ureter, A new classification. Clinical Radiol 1969;20:173-7.
- 5- Kenawi MM, Williams DI. Circumcaval ureter. A case report of four cases in children with a review of literature and new classification. Br J Urol 1976;48:183-92.
- 6- Kokubo T, Okado Y, Yashiro N, Itai Y, Lio M. CT diagnosis of retrocaval ureter associated with double inferior vena cava: report of a case. Radiat-Med 1990;8:96-8.
- 7- Ishitoya S, Arai Yes, Okubo K, Suzuki Y. Left retrocaval ureter associated with the Goldenhar Syndrome (Brachial arch syndrome). J Urol 1997;158:572-3.
- 8- Soichi Mugiya, Kazuo Suzuki, Tomoaki Ohhira, Toshiyuki Un-No, Tastsuya Takayamal, Kimio Fujita. Retroperitoneoscopic treatment of a retrocaval ureter. Int J Urol 1999;6:419.

*Retrocaval Ureter with Hydronephrosis (( a case report ))*

**Fig(1)** : reterograde pyelogram shows the S shape deformity of the right ureter with gross dilatation of pelvicalyceal system proximal to the site of obstruction due to retrocaval ureter.

