Case Report

Retrocaval Ureter with Hydronephrosis

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Abstract

Retrocaval ureter is one of the rare congenital anomalies. We report a case of retrocaval ureter who presented with right lumbar pain, renal stone and hydronephrosis. The diagnosis was made on intravenous urography which showed typical "J" shape deformity in the proximal dilated ureter with moderate hydronephrosis. CT scan mapped out the course of ureter. The patient was operated and findings were confirmed. The ureter was transected near the pelvis, renal stone removed and a uretero-uretral anastomosis with anteriorisation of the ureter performed.

Introduction

In retrocaval ureteric anomaly, 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.[1] The incidence of retrocaval ureter is one in 1500 cadavers; male to female ratio is 3 or 4:1.[1-3] 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.

Case Report

A 35 year old man presented with right flank pain since four months, the pain was dull and intermittent. There was no other history related to urinary tract. No abnormality was found on general and abdominal physical examination. Complete laboratory evaluation including urinalysis, 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. CT scan of the abdomen revealed hydronephrosis and dilatation of the right proximal ureter upto the level of L4. The ureter was found to be coursing medially posterior to the IVC, at this level with normal caliber distal to it. Findings were consistent with retrocaval ureter. A stone was

found in the lower pole minor calyx of right kidney measuring1.0x0.8 cms. A diagnosis of postcaval ureter was established and surgery was planned.

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 anteromedially 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. 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.

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.[4] A retrocaval ureter on left is seen only with persistence of left cardinal vein or with complete situs inversus. 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.

Retrocaval ureter is classified into two types based on radiological appearance and the site of narrowing of ureter.[4,5]

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).

The various anomalies associated with retrocaval ureter are Horseshoe kidney, double IVC[6] and left retrocaval ureter with Goldenhar syndrome.[7]

Treatment is surgical transection of ureter at 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.[2]

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 retroperitonioscopic dissection of ureter, transection and ureteric reanastomosis using automatic suture device.[8]

References

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