



AN INTERESTING CASE OF PUJ OBSTRUCTION DUE TO A VASCULAR BAR

General Surgery

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ABSTRACT

Pelvi-ureteric junction obstruction is a common urological entity presenting with hydronephrosis and pain. Most commonly the causative factor being a calculus in the upper ureter or at PUJ. Other causes being strictures, idiopathic fibrosis and less commonly aberrant renal vessel. Vascular bar is the new terminology coined for this vascular entity.

Here we present a case of 36 year old woman who presented with left PUJ obstruction, which was found to be due to a vascular bar crossing at the pelvi ureteric junction.

KEYWORDS

Pelvi-ureteric junction, vascular bar, hydronephrosis.

INTRODUCTION:

Pelviureteric junction obstruction is one of the most common causes of significant dilatation of foetal kidneys. It is now increasingly diagnosed prenatally. Its etiology is not very clear. The most common cause is congenital hydronephrosis which is thought to be due to intrinsic defect of muscular development or due to deficient nerves in the obstructed narrow segment.

CASE HISTORY:

36 years old female patient presented to the surgical department with a history of intermittent dull aching left loin pain since 2-3 months, the pain was non radiating, pain used to disappear on administering analgesics and used to reappear again.. There were no other relevant complaints like fever, hematuria, burning micturition etc. There were no other systemic complaints.

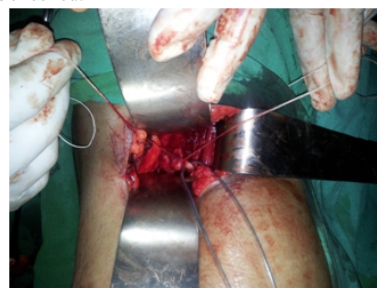
Patients general condition and vitals were stable. Per Abdomen examination was normal. Patient was subjected to investigations and was found out to have a Left sided hugely dilated renal pelvis with a Pelvi-Ureteric junction obstruction without any obvious calculus. X-Ray KUB didn't reveal calculus but outlined a hugely dilated renal pelvis. In view of finding out the cause of PUJ obstruction, Intravenous pyelography (IVP) was done. IVP confirmed a Left sided PU junction with a grossly dilated pelvis without any obstructive pathology like calculus. X-Ray and hematological investigations were within normal limits.

Patient was posted for Anderson-Hynes pyloplasty after optimizing general condition. On exploration it was found that an aberrant renal vessel was seen coming from above crossing the upper ureter from medial to lateral and causing narrowing at Left PU Junction. Pelvis was hugely dilated without any hydronephrosis.

**Fig. 1 - Grossly dilated renal pelvis with an aberrant vessel**

The vessel was dissected for sufficient length and cut between ligatures. Pelvis was opened at the constriction point and ureteric

patency was checked.

**Fig 2 - Ureteric acute kink checked & dissected off**

Pyloplasty was completed and D-J Stent was left in situ. Patient recovered well post-operatively and follow-up USG done after 4 weeks showed significant reduction in size of the pelvis.

**Fig 3 - Decompressed renal pelvis with normal PU Junction**

D-J Stent was removed after 6 weeks.

DISCUSSION:

Vascular bar is the new term coined for an old & popular term of an aberrant renal vessel in context with this pathology. Over the past decade, aberrant renal vessels have been encountered with increasing frequency, which is partly attributable to the more widespread use of angiography and other imaging modalities in recent years. Knowledge of the embryology of the renal vessels is necessary to understand the frequent anomalies that may occur. The renal blood supply undergoes successive changes in its upward migration through the three stages of pronephros, mesonephros and metanephros and the migration of the definitive kidney from the pelvic region, to the region of the posterior abdominal wall.

Arterial degeneration begins at the cephalic pole of the

metanephros. The segmental branch to the lower renal pole is the one most likely to remain as an accessory artery¹. The association between lower polar aberrant vessels and a dilated renal pelvis was appreciated which seemed to provide a logical explanation for the condition². It has been suggested that the obstruction may result from a neuromuscular inco-ordination of the ureteropelvic junction and the vascular obstruction is secondary rather than a primary event³. The work of Johnson⁴ who studied the manometric pressures and the electron microscopic evidence presented by Notley⁵ favor mechanical obstruction.

The symptoms of vascular uretero-pelvic junction obstruction may include colicky mid-abdominal pain, nausea and vomiting. The patient may have significant weight loss and palpable ptotic kidney³. However, our patient did not present such symptoms or signs, except an abdominal pain. The Congenital Renal Vessels (CRV) have been defined by different authors as “anomalous”, “aberrant”, or “crossing”. It would be more appropriate to speak them of a “vascular bar” rather than congenital vascular anomaly.⁶ UPJ obstruction remains an enigma in terms of both diagnosis and therapy.⁷

Accurate preoperative imaging is important for planning appropriate treatment. Uretero-pelvic junction obstruction presents with recurrent renal colic and hydronephrosis. Different imaging modalities like ultrasound, intravenous pyelography, Color Doppler ultrasound and renography have been described in literature.⁸ Multiphasic helical CT scan accurately delineate the spatial anatomy of the renal and perirenal area.⁹ The fast T2 weighted magnetic resonance imaging allows a noninvasive preoperative assessment of crossing vessels at the UPJ, but is limited by the high cost and the low sensitivity (80%).¹⁰

Several methods of surgical treatment have been reported. Currently, the most widely accepted surgical procedure is dismembered pyeloplasty, with the anastomosis performed anterior to the obstructing vessel³. The success rate of pyeloplasty is over 90 percent¹¹. It is recommended that the presence of a crossing vessel be routinely determined preoperatively in cases of UPJ obstruction by MDCT angiography, because it may influence the choice of treatment modality and thereby, the clinical outcome.

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