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Case Study Of Puj Stricture And Its Management

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Abstract-

Pelvi-ureteric junction (PUJ) stricture is a condition characterized by a functional or anatomical obstruction at the junction of the renal pelvis and ureter, leading to hydronephrosis and impaired drainage of urine. It can be congenital or acquired and is commonly diagnosed in children or young adults.

Introduction-

Pelvi-ureteric junction (PUJ) stricture, also known as ureteropelvic junction obstruction, is a condition characterized by narrowing or functional impairment at the junction between the renal pelvis and the proximal ureter. This leads to impaired urinary drainage from the kidney to the bladder, resulting in hydronephrosis and potentially progressive renal damage if left untreated. PUJ obstruction may be congenital, often due to intrinsic muscular abnormalities or external compression by crossing vessels, or acquired, following trauma, infection, or iatrogenic injury.

Although PUJ stricture is commonly diagnosed in neonates and infants due to prenatal ultrasonography, it can present later in childhood or adulthood, often with non-specific symptoms such as intermittent flank pain, nausea, or recurrent urinary tract infections. In adults, it is frequently an incidental finding on imaging for unrelated complaints. The diagnosis is typically confirmed using ultrasonography, contrast-enhanced CT urography, and functional studies like a diuretic renogram (MAG3 or DTPA scan), which help assess both anatomical obstruction and renal function. The mainstay of treatment is surgical intervention, most commonly **Anderson-Hynes dismembered pyeloplasty**, which can be performed via open, laparoscopic, or robotic approaches depending on available resources and expertise.

Case presentation- Chief Complaints-

A 12 years old male patient visited OPD of our hospital for pain in abdomen at Left lumbar region with nausea, vomiting and fever since 5 days

History of present illness-

Approximately since 5 days, the patient has pain in abdomen at left lumbar, periumbilical and right iliac region. For which he visited our OPD for immediate surgical intervention.

History of past illness-

Other than the present complaints, the patient had no history of chronic diseases and surgeries.

Personal and family history-

The patient was a student.

Physical signs-

P- 90/Min

BP-110/70 mmHg

Sp02- 98% on RA

RR-22/Min

The results of physical examinations revealed tenderness at Right iliac, periumbilical and left lumbar region with negative Boas sign, Rovsing sign, Obturator test and rebound tenderness.

Laboratory examinations-

Hb- 14.9 gm/dl

WBC- 6310/cmm

Plat- 4.12 lakh/cmm

Sr Creat- 0.7 mg/dl

Pulmonary Function Test(PFT) – Within Normal Limit

Imaging Examination-

USG (Abdo + Pelvis)

Moderate to gross left hydronephrosis with relatively normal appearing ureter.

PUJ obstruction.

CT (Abdo + Pelvis)

Grade 3 hydronephrosis with parenchymal thinning seen in left kidney with abrupt transition at PU junction.

S/o PUJ Stricture

Final Diagnosis-

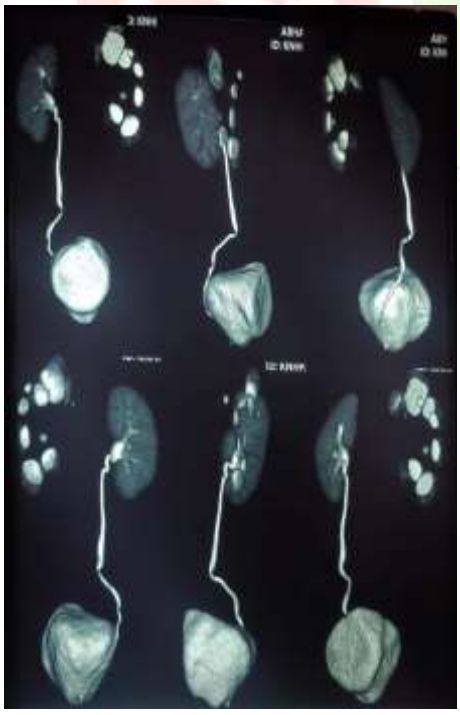
Physical , Laboratory and Imaging findings indicated the presence of Left PUJ stricture.

Treatment-

After diagnosing, intravenously administered antibiotics- Inj Ceftriaxone 1gm IV BD, Inj Metronidazole 500mg IV BD, because of its efficacy in treating and preventing renal infections and UTI, due to its good penetration into renal tissue and urine.

Anderson Hynes pyeloplasty surgery was performed.

- The patient was placed in right lateral debubitus position under General Anaesthesia.
- Under all aseptic precaution painting and draping done.
- A Transverse incision taken parallel to 12th Rib approximately 6-7 CM with the help of blade no. 23
- Then layerwise dissection done (skin – subcutaneous fat – deep fat – internal oblique sliping incision taken.
- Then split the psoas muscle and separate the blood vessels from renal fascia.
- Then ureter is identified and lifted with the infant feeding tube no. 5
- An extra vein crossing over the ureter found which is separated from stricture site
- Stricture site is identified.
- Incision made on renal pelvis and cut tissue send for histopath.
- Then vertical incision made on ureter to form fish mouth for anastomosis with the renal pelvis.
- Three stay suture taken upon pelvis and guide wire passed through ureter.
- After passing the guide wire DJ stent no. 5 pass through the guide wire into the ureter.
- After passing the DJ stent ureter and pelvis anastomosis done.
- Then abdominal drain put inside the abdominal cavity.
- Wash given with Normal Saline.
- Haemostasis achieved.
- Layerwise closure done with vicryl 1.0
- Skin closed with monocryl 3.0 in subcuticular manner.
- Dressing with betadine done.
- Foley's catherization done.
- Patient shifted to ward in good condition.



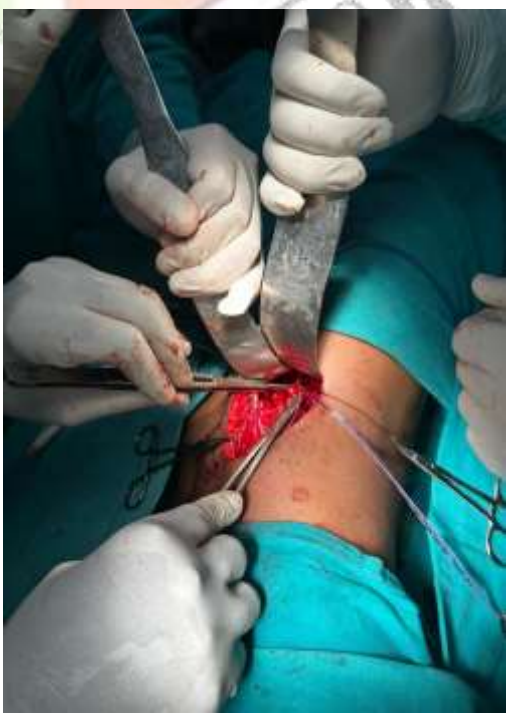
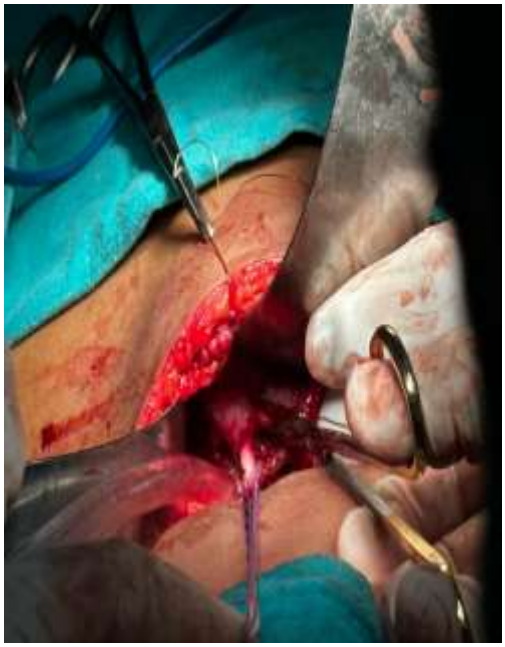


Fig 1- CT KUB showing left kidney

Grade 3 Hydronephrosis s/o PUJ stricture



Outcome and Follow up-

The patient experienced no complications during the early postoperative period. Two weeks after surgery the patient recovered and discharged. The patient was able to carry out daily activities without any post operative complications. The stent was removed after 45 days of surgery at the time of follow up.

Discussion-

Pelviureteric junction (PUJ) stricture is a narrowing at the junction between the renal pelvis and ureter, leading to obstruction of urine flow and resulting in hydronephrosis. It can be congenital, often due to intrinsic muscular abnormalities or extrinsic compression by an aberrant vessel, or acquired from infections, trauma, or previous surgeries. Patients typically present with flank pain, recurrent urinary tract infections, or may be asymptomatic with incidental findings on imaging. Diagnosis is confirmed through imaging such as ultrasound, diuretic renogram (DTPA or MAG3), and sometimes CT urography.

The Anderson-Hynes dismembered pyeloplasty is the gold standard treatment. It involves excision of the narrowed segment and re-anastomosis of the healthy ureter to the renal pelvis in a tension-free, dependent position. This approach allows for excellent long-term outcomes, with high success

rates in both open and minimally invasive (laparoscopic/robotic) techniques. In this patient, the choice of Anderson-Hynes pyeloplasty was appropriate due to symptomatic obstruction with preserved renal function.

Conclusion-

PUJ stricture is a significant cause of upper urinary tract obstruction and, if unaddressed, can lead to progressive renal damage. Accurate diagnosis through imaging and functional assessment is crucial for timely management. The Anderson-Hynes dismembered pyeloplasty remains the gold standard treatment, offering high success rates and durable outcomes.

Preoperative care involves thorough imaging to confirm diagnosis, assessment of renal function, optimization of hydration status, and evaluation for infection, which should be treated prior to surgery. Informed consent and anesthetic assessment are also essential.

Postoperative care includes pain management, monitoring urine output, ensuring proper stent or drain function (if placed), and preventing infection. Patients are typically discharged with a ureteric stent, which is removed after a few weeks. Follow-up includes imaging to confirm good drainage and renal function recovery.

In this case, timely diagnosis and appropriate surgical intervention with careful perioperative care ensured symptom relief and preservation of renal function.

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