Adult PUJ Obstruction

Common presentations

- Intermittent abdominal and flank pain
  - May be associated with nausea and vomiting
- Incidentally found during investigation of
  - Azotemia
    - Obstruction of a functionally or anatomically solitary kidney
  - Haematuria
  - UTI, pyuria

Approach to Mx

- Acute obstruction (urosepsis, azotemia with solitary kidney, pain with UTI)
  - Relieve obstruction
  - Investigate once settled
- No acute problem
  - investigate

Goal of investigation

- Determine anatomic site
- Functional significance

- PUJ obstruction is defined as functionally significant impairment of urinary transport from renal pelvis to ureter
- Delayed emptying with dilated pelvicalyceal system & normal ureter
- If intermittent there may be normal imaging between episodes

Investigations

- Ultrasound
  - Good in neonates
  - Demonstrates hydronephrosis
  - Can distinguish between hydronephrosis and multicystic kidney
  - Useful if there is poor excretion of contrast of nuclear isotope
- Constrast CT
  - Demonstrates hydronephrosis with site of obstruction
  - Not quantitative

Investigations

- IVP
- DTPA
  - Good concentration of isotope even with decreased parenchyma (but not if multicystic)
  - Quantitative, lasix, position
- RGP
  - Done at time of repair (to prevent introduction of infection)
  - Identifies anatomy (rest of ureter)
  - Decompresses system

Investigations

- Percutaneous nephrostomy
  - Can be done if too sick
  - Allows pressure study
    - >15cm H20 suggests functional obstruction
  - invasive

Indications for intervention

- Acute obstruction
  - Sepsis
  - Pain
- Impaired renal function
- Progressive decrease in ipsilateral renal function
- Stones
- Recurrent infections

- Observe if asymptomatic or physiological significance not clear
- Nephrectomy if nonfuctioning or multiple repairs fail

Endoscopic Interventions

- Retrograde
  - Hot cutting wire ballon endopyeloplasty
  - Ureteroscopy and holmium laser
- Antegrade if stones are present as well

- Contraindications
  - Stricture >2cm
  - Infection
  - Coagulopathy

Open or Lap

- Pyeloplasty
  - Open
  - Laparascopic

- If one endoscopic fails try open/lap or vice versa

Pathogenesis

- Most commonly congenital
  - May present at any age
  - Aperistaltic segment of ureter
    - Spiral muscle replaced by longitudinal muscle or fibrous tissue
    - Failure to propel a wave of urine into ureter
- Lower pole arteries present in 1/3
  - Functional significance unclear
  - May cause obstruction of posterior to ureter

Pathogenesis

- Intrinsic disease
  - Infolding or kinks of ureteral mucosa or musculature
  - Retention of congenital folds
  - External bands or adhesions
  - Angulation or ureter at renal pelvis
    - Ureteral insertion carried proximally leading to inadequate drainige of lower pelvis

Pathogenesis

- Acquired
  - Stricture is less common
    - Eg iatrogenic
  - Reflux in kids may cause dilated, tortuous ureter with kinks that may mimic radiological PUJ obstruction