Ureteral stenosis

Objective

- The main objective in the management of ureteral stenosis is to preserve renal function and to rule out neoplasia as the cause of stenosis.

Etiology

- Iatrogenic or ischemic trauma after surgery.
- Non-surgical trauma.
- Periureteral fibrosis.
- Malignant intra- or extraureteral neoplasm.
- Radiation therapy.
- Ureteral stone.
- Ureteral instrumentation.
- Infection: genitourinary TB or schistosomiasis.
- Idiopathic.

Diagnosis

- IVP and ascending pyelography: to define the location and length of the stenosis.
- URS with biopsy or selective cytology: to rule out intraureteral neoplastic causes in cases of unknown etiology.
- CT or MRI: in cases of unknown etiology and for the diagnosis of extrinsic or intrinsic ureteral causes.
- Diuretic isotopic renogram: provides information on differential renal function and identifies the presence of an obstruction. Data on ipsilateral renal function is essential for deciding on a treatment regimen (kidney function <25% on the affected side is predictive of a low success rate for endourological procedures).

Endourological treatment

- Insertion of a double J catheter: provides immediate and effective relief of obstruction. Perhaps the most comfortable treatment option in patients with a poor prognosis or who are not candidates for definitive repair. This involves inserting a long-life double J catheter with a low index of encrustation, with periodic changes.
- Retrograde or antegrade balloon dilation:
  - Indicated in stenoses <2cm without active infection, but with functional impairment.
  - The success rate in iatrogenic, non-anastomotic stenosis is 85% (50% in cases of anastomotic stenosis). Yields good results in cases of short, non-ischemic stenosis.
  - A double J catheter must be left in place for 4-6 weeks, with follow-up checkups 1, 6, and 12 months after its removal and then annually.
- Endoureterotomy: performed in combination with balloon dilatation. Retrograde access is preferable.
  - Energy type: electrocautery or laser.
  - Incision: an antero-medial incision is made in the mid- and lower ureter (to avoid the iliac vessels). In the lumbar ureter, lateral or posterior-lateral incisions are made (to avoid crossing vessels). A longitudinal incision must be made through the entire thickness, including 2-3 mm of healthy tissue, both in the proximal and distal directions.
  - Double J catheter for 4-6 weeks, with follow-up checkups 1, 6, and 12 months after its removal and then annually.
Surgical techniques

- **Uretero-ureterostomy**:  
  - *Indications*: for lesions of the upper or mid-ureter measuring 2-3 cm.  
  - *Success rate*: 90% in watertight and tension-free procedures.

- **Ureteroneocystostomy**:  
  - *Indications*: for lesions of the distal ureter measuring 4-5 cm.  
  - *Technique*: non-tension suture; no differentiation between procedures with or without reflux.

- **Psoic bladder**:  
  - *Indications*: for lesions in the distal ureter measuring 6-10 cm and in failed ureteroneocystostomies.  
  - *Contraindications*: patients with low bladder capacity or when bladder cannot be moved.  
  - *Success rate*: 85% (simple technique with little vascular compromise).

- **Boari flap**:  
  - *Indications*: lesion of the mid- or distal ureter measuring >10-15 cm.  
  - *Contraindications*: patients with low bladder capacity.  
  - *Success rate*: 85%.

- **Renal pexy**:  
  - Can extend up to 8 cm. The lower pole must be attached to the retroperitoneal musculature.

- **Davis intubated ureterotomy**:  
  - *Indications*: stenosis measuring 10-12 cm in the upper ureter.  
  - *An innovative modification* has been the use of buccal mucosa grafts.

- **Transuretero-ureterostomy**:  
  - *Absolute contraindications*: short length of donor ureter or a pathological ureter.  
  - *Relative contraindications*: nephrolithiasis, retroperitoneal fibrosis, malignant urothelial neoplasm, chronic pyelonephritis, irradiated ureter.

- **Ileal replacement**:  
  - *Indications*: for ureteral lesions measuring >15 cm or when other procedures are not feasible.  
  - *Absolute contraindications*: kidney failure, voiding dysfunction, chronic intestinal inflammatory disease, and enteritis caused by radiation.  
  - *Follow-up*: endoscopies are recommended due to the increased incidence of malignancy in the ileal segment from the 3rd year on.

- **Autotransplantation**:  
  - *Indications*: in cases in which the contralateral kidney has low function or is absent, or if other techniques have failed.