

INCIDENCE: 1.4% of fetuses. Persist postnatally in 0.7%.

DEFINITION: Dilatation of some portion of the renal collecting system, calyces and / or renal pelvis. Also called renal ectasia or pyelocaliectasis. Hydronephrosis and obstruction are not synonymous: a dilated kidney may not have a pathological obstruction.

Obstruction: restriction of the flow of urine. When it is complete it causes kidney damage and if it is incomplete it can be physiological, which does not affect renal or pathological function that causes kidney damage.

ETIOLOGY: Among the causes of obstruction, the most frequent is **“PELVIURETERIC JUNCTION (PUJ) OR URETEROPELVIC JUNCTION (UPJ) OBSTRUCTION/STENOSIS”**, constituting **67% of the 0.7% of hydronephrosis**. Obstruction is produced by an anatomical abnormality (which may be intrinsic due to a narrow segment with muscular discontinuity or extrinsic by polar vessels, kinking of the junction, high insertion of the ureter, polyps or more rarely, mucous valves) or by an alteration of the conduction of peristalsis.

SYMPTOMS: Nowadays most of them have a **prenatal diagnosis**.

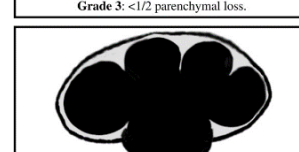
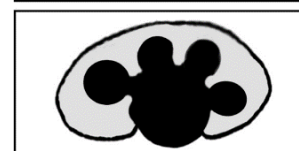
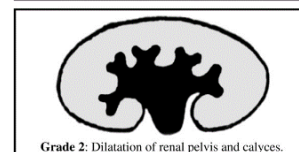
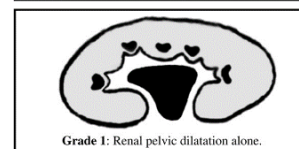
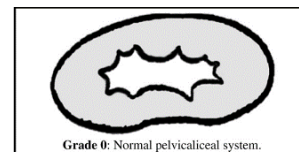
NEWBORNS: Abdominal mass, hematuria, urinary tract infection (UTI) or gastrointestinal disorders.

CHILDREN: UTI, abdominal flank pain (Dietl's crisis), hematuria, chronic nausea... Sometimes it's an incidental finding when studying other pathologies such as trauma, tumors, etc.

ASSOCIATED ANOMALIES: **Ano-Rectal Malformation (ARM), contralateral multicystic kidney, cardiac. malf.**

DIAGNOSIS:

- ULTRASOUND:** Main diagnostic test. The grading system of the Society of Fetal Urology (SFU) classifies hydronephrosis in 4 degrees.
- DIURETIC ISOTOPIC RENOGRAM (MAG-3 Tc 99m).** Analyzes three parameters:
 - **Elimination curves** (I- Normal, II- Obstructive, IIIa- Non-obstructive dilation y IIIb- dilation with doubtful elimination).
 - **Average wash time** (Half-time) – (< 10' unobstructed, 10-20' doubtful obstruction, >20' - obstruction)
 - **Differential kidney function** (KF) – (>40% good, 20 -40% regular y < 20% poor).
- VOIDING CYSTOURETROGRAPHY (VCUG):** Rules out vesicoureteral reflux (VUR), which is associated in <10% of the cases. Some groups always perform it while others only do it in high grades.
- DIURETIC URO-MRI:** In doubtful cases or when there is discordance between ultrasound and renogram. It analyzes renal anatomy and contrast excretion.



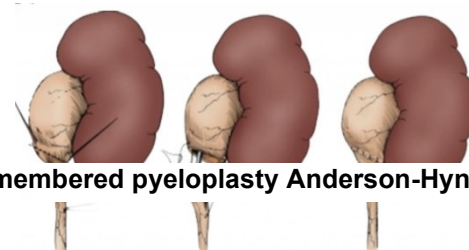
EVOLUTION AND TREATMENT:

- **Dilatation grade I** - Pediatrics control and if UTI symptoms reassess again.
- **Dilatation grade II** - Control with **ultrasound at 3, 6 months and 1 year**. If there is no increase of dilatation and patient is asymptomatic: control by pediatrician.
- **Dilatation grades III and IV** : **Diuretic MAG-3**:

- Non-obstructive curve:** Follow up with **US**.
- Doubtful curve and Good KF:** Repeat renogram in 3 months or perform F-15 renogram variant.
- Impaired kidney function, increase in US dilatation or lost in KF > 10%:** propose **surgery**.
- Obstructive curve:** **surgery**.
- If symptoms of colic pain with dilatation III or IV:** plan surgery independently of renogram.

* In dilations I and II, antibiotic prophylaxis is not necessary. Controversy in III and IV.

SURGERY: “GOLD STANDARD” → ANDERSON-HYNES PIELOPLASTY, open approach (posterior, posterolateral or subcostal lumbotomy), laparoscopic or robot-assisted. **Success in 90 – 96%. Most important complication is restenosis (4-6%).**



Dismembered pyeloplasty Anderson-Hynes

