Neonatal urinary tract obstruction

Causes of obstruction

<table>
<thead>
<tr>
<th>Cause</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vesicoureteral reflux (VUR)</td>
<td>See chapter on Vesicoureteral reflux (VUR)</td>
</tr>
<tr>
<td>Pelviureteral junction (PUJ) obstruction</td>
<td>Most common cause of prenatal hydronephrosis</td>
</tr>
<tr>
<td>Primary megaureter</td>
<td>Second most common cause of prenatal hydronephrosis</td>
</tr>
<tr>
<td>Posterior urethral valves (PUVs)</td>
<td>Most common cause of lower urinary tract obstruction in the newborn male and third leading cause of prenatal hydronephrosis</td>
</tr>
<tr>
<td>Hydrometrocolpos</td>
<td>Cystic dilatation of the vagina and uterus secondary to obstruction of the vagina (vaginal atresia or imperforate hymen)</td>
</tr>
</tbody>
</table>

Diagnosis

- Urinary tract obstruction is detectable with a prenatal ultrasound starting at the 16th week of pregnancy.

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Report</th>
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<tbody>
<tr>
<td>Renal and vesical ultrasound</td>
<td>Renal ectasia, renal size, cortical structure, and bladder</td>
</tr>
<tr>
<td>VCUG</td>
<td>Indicated in cases with ureteral dilatation or UTI</td>
</tr>
<tr>
<td>DMSA</td>
<td>Renal function, detection of scars in the kidney</td>
</tr>
<tr>
<td>MAG3 renogram</td>
<td>Renal function, detection of the presence of renal obstruction</td>
</tr>
<tr>
<td>Intravenous urography (IVU)</td>
<td>Not before the 1st month of life. Only in cases with inconclusive previous investigations</td>
</tr>
</tbody>
</table>

Diagnostic-therapeutic algorithm of neonatal urinary tract obstruction

Prenatal pyelocaliectasis

- Ectasia
  - Grade I-II
  - Grade III-IV-V
    - Normal Renal Function
    - RF, sepsis
      - Investigations + Antimicrobial prophylaxis
      - Decompress urinary tract

- No ectasia
  - Repeat US 1-3 m
    - The non-confirmation of ectasia (20%) may reflect a transient fetal ectasia or an obstructive process masked by a relative neonatal oliguria which should manifest in a few weeks
Prenatal Ureteropyelocaliectasis

US

Ectasia

No ectasia

Repeat US 1-3 m

VCUG

VUR

PUVs

Primary megaureter

Urethral or suprapubic bladder catheterization

After several days of drainage

Normal Renal function

Abnormal Renal function

Transurethral valve ablation

Temporary cutaneous vesicostomy

Normal Renal function

Cr < 1.5 mg/dL

Abnormal Renal function

Cr > 1.5 - 1.8 mg/dL