Antenatal hydronephrosis (Neonates / Paediatric)
Postnatal investigation and management

Who must comply with this procedure?
Monash Health medical, nursing and midwifery staff within the Women’s and Children’s Program

This procedure applies in the following setting:
This procedure is applicable to all babies born at Monash Health facilities, in whom hydronephrosis was detected antenatally.

It does not apply to those babies for whom a specific management plan was constructed antenatally (for example, through FDU). For these babies, the specific plan should be followed.

Precautions and Contraindications
Ask and look for antenatal counselling and / or antenatally-constructed plan (eg. check SMR, ask the mother)
If YES, follow antenatal management plan

Procedure

1. Commence antibiotic prophylaxis:
   trimethoprim 2mg/kg or cephalexin 10mg/kg once daily

2. Examine baby for palpable kidney or bladder
   YES? → urgent ultrasound and call paediatric urology
   NO? → proceed to next step

3. Stratify risk, based on antenatal reports and images (see below - SFU grading system)

   **High Risk = any of:**
   - bilateral hydronephrosis ≥ SFU 3 (“mod-severe”, APD >10mm)
   - unilateral dilatation SFU 4 (“severe”, APD >15mm)
   - single kidney
   - duplex system
   - ureteric dilatation
   - ureteroceles (seen at any point)
   - oligohydramnios

   **Low Risk = none of above and:**
   - unilateral hydronephrosis SFU1-3 (mild or mod, APD <15mm)
   - bilateral hydronephrosis, SFU 1-2 (mild-mod, APD <10mm)
   - no ureteric dilatation
   - normal bladder
   - no renal anomaly apart from HN

4. Follow appropriate risk pathway

   **4.1 High-risk, no antenatal plan**
   1. Commence antibiotic prophylaxis
   2. Examine baby: palpable kidney or bladder? YES → urgent ultrasound and call urology
   3. NO palpable kidney or bladder: **USS 48-72 hours**
      SFU 0 – 2 → refer nephro-urology clinic with repeat USS at 1 month
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→ educate parents on UTI symptoms
SFU 3 – 4 → inpatient urology or nephrology consult
Renal parenchymal abnormality → inpatient nephrology consult

4.2 Low-risk, no antenatal plan
1. Commence antibiotic prophylaxis
2. Examine baby: palpable kidney or bladder? YES → urgent ultrasound and call urology
3. NO palpable bladder or kidney: **USS 1 month**
   - normal → repeat at 6 months
   - stop antibiotics and educate parents on UTI symptoms
   - SFU 1-2 → repeat at 6 months, 12 months and 2 years
   - stop antibiotics and educate parents on UTI symptoms
   - discharge from surveillance once normal, or stable at 2 years
   - SFU 3-4 → refer to nephrourology clinic
   - continue antibiotic prophylaxis

Criteria for referral to Nephro-Urology (during “low risk” HN follow-up)
1. Dilatation increases during surveillance (SFU grade increases, RPD increases >50%)
2. Renal size discrepancy >1cm
3. UTI <1yo
4. Bladder anomalies

SFU grading system guide
*Society for Fetal Urology Grading System – congenital hydronephrosis*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Central renal complex</th>
<th>Parenchyma</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>intact</td>
<td>normal</td>
</tr>
<tr>
<td>1</td>
<td>slight splitting of pelvis</td>
<td>normal</td>
</tr>
<tr>
<td>2</td>
<td>evident splitting of intrarenal pelvis or dilated extrarenal pelvis</td>
<td>normal</td>
</tr>
<tr>
<td></td>
<td>major calyces dilated</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>wide splitting of pelvis</td>
<td>normal</td>
</tr>
<tr>
<td></td>
<td>major and minor calyceal dilatation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>wide splitting of pelvis</td>
<td>thinned or reduced</td>
</tr>
<tr>
<td></td>
<td>major and minor calyceal dilatation</td>
<td></td>
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Keywords or tags
Pyelectasis, PUJ obstruction, renal dilatation, duplex system, ureterocele, pelvi-calyceal dilatation, posterior urethral valves, urinary obstruction, megaureter, vesico-ureteric reflux, reflux nephropathy, MCU. MAG3, VUR

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