

## Antenatally Detected Kidney Problems - Management

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### **1. Antenatal hydronephrosis (ANH)**

This is also called antenatal renal pelvis dilatation. Incidence: up to 5% of all pregnancies. This is a measurement of the maximum anteroposterior diameter of the renal pelvis (RPD). ANH can be unilateral or bilateral.

#### Anomaly scan at 20 - 21/40 weeks

RPD of > 7mm is abnormal. Mild cases will have a repeat scan at 34 weeks at St. Peter's Hospital. More severe cases may be scanned more frequently, or referred to St. George's Hospital for further management.

#### At 34/40 weeks

AP diameter < 10mm is normal and no further intervention is required.  
AP diameter ≥10 mm is abnormal and needs investigating.

### **Management of ANH – all babies**

- Check maternal notes and the “high risk” yellow folder to see if there is a management plan
- If the mother has been seen at a tertiary centre, a clear plan should be outlined in her notes and should be followed accordingly
- Examine the baby to look for an abdominal mass (palpable kidneys/bladder)
- Start prophylactic antibiotics – Trimethoprim 2mg/kg once daily. Please fill out a hospital TTO form, or an FP10 out of hours. Explain to the parents that these need to be continued until they are told to stop.
- Use the renal pelvis dilatation proforma. Make up a set of Paediatric notes for the baby and insert a copy of the antenatal scans. Document the dose of Trimethoprim prescribed and the management plan.
- Tick off the baby from the “high risk” yellow folder so we can feedback to the Obstetric department at the mother and baby meeting (alternate weeks during the grand round)

## UNILATERAL ANH

### Unilateral 10 – 20 mm at 34 week scan

- Trimethoprim 2mg/kg once daily as above
- Renal USS at 7 – 14 days postnatally
- See in clinic at 4 – 6 weeks
- Further outpatient management
  - If still < 20mm - repeat renal USS at 3 months
  - If significantly worsening AP measurements/calyceal dilatation/ >20mm for MAG 3 – discuss scans with radiologists if necessary
  - If uncertain, scans can be reviewed by Paediatric Urology team at St. George's (Mr. Murphy)
  - No need for MCUG
  - Stop antibiotics if hydronephrosis stable at 3 months
  - Long term follow up: renal USS 6 months – 1 year. If stable, no further follow up.

### Unilateral > 20 mm at 34 week scan

- Trimethoprim 2mg/kg once daily as above
- Mother may have been seen at a tertiary centre antenatally so check to see if there is a plan in her notes
- Renal USS at 7 – 14 days postnatally
- Neonatal Consultant to review result and decide on further follow up – baby likely to need MAG 3 renogram, but place (ASPH/ St. George's Hospital) and timing of investigation depends on severity of hydronephrosis

## BILATERAL ANH >10mm both sides

### BOYS

- **This is URGENT - Assume baby has bladder outlet obstruction (posterior urethral valves) until excluded on further investigation**
- Trimethoprim 2mg/kg once daily as above
- Check U+E at 24 hours
- Liaise with radiology department – will need renal USS on first day of life and if confirmed bilateral dilatation, baby will need urgent MCUG
- If PUV confirmed, Contact on call Paediatric Urology Registrar St. George's
- Beware – PUV can still exist even if baby has a “good stream”
- If PUV are excluded, baby will still need follow up with attending Consultant as a significant number will have an underlying problem (e.g. neuropathic bladder, bilateral vesicoureteric reflux)

### GIRLS

- Possibility of underlying bladder pathology
- Trimethoprim 2mg/kg once daily as above
- Renal USS 7 – 14 days
- MCUG 4 – 6 weeks
- Review MCUG with radiologists
- If no Vesicoureteric reflux or grade 1-3 – discuss with parents and advise stopping antibiotics
- If bilateral significant reflux consider DMSA as “baseline” to look for early discrepancy of size between kidneys, continue antibiotics, consider referral to urology for discussion re: deflux (collagen injection to treat reflux)

### **2. Antenatal Ureteric Dilatation (hydroureter or hydroureteronephrosis)**

- Check maternal notes and the “high risk” yellow folder to see if there is a management plan

- If the mother has been seen at a tertiary centre, a clear plan should be outlined in her notes and should be followed accordingly
- Examine the baby to look for an abdominal mass (palpable kidneys/bladder)
- Start prophylactic antibiotics – Trimethoprim 2mg/kg once daily. Please fill out a hospital TTO form, or an FP10 out of hours.
- Make up a set of Paediatric notes for the baby and insert a copy of the antenatal scans. Document in the baby's notes the dose of Trimethoprim prescribed and the management plan.
- Tick off the baby from the “high risk” yellow folder so we can feedback to the Obstetric department at the mother and baby meeting (alternate weeks during the grand round)
- Renal USS at 7 – 14 days postnatally
- Refer to Paediatric Urology at St. George's– they will arrange further investigations (repeat renal USS – may be at ASPH, followed by MCUG and Nuclear medicine scan within first 2-3 months)

### 3. Duplex Kidneys and Ureterocele

- Most duplex kidneys are benign and a “normal variant”
- There is however significant morbidity associated with duplex kidneys where there is a complicated duplex system with ureterocele
- Check maternal notes and the “high risk” yellow folder to see if there is a management plan
- If the mother has been seen at a tertiary centre, a clear plan should be outlined in her notes and should be followed accordingly
- Examine the baby to look for an abdominal mass (palpable kidneys/bladder)
- Start prophylactic antibiotics – Trimethoprim 2mg/kg once daily. Please fill out a hospital TTO form, or an FP10 out of hours.
- Make up a set of Paediatric notes for the baby and insert a copy of the antenatal scans. Document in the baby's notes the dose of Trimethoprim prescribed and the management plan.
- Tick off the baby from the “high risk” yellow folder so we can feedback to the Obstetric department at the mother and baby meeting (alternate weeks during the grand round)
- If ureterocele (cystic dilatation of intravesical ureter) seen antenatally – this is a complex duplex system - **ultrasound 48-72 hours**. Attending consultant to review result and decide further management – likely referral to Paediatric Urology
- If no ureterocele seen antenatally – renal USS 7 – 14 days. Follow up with attending consultant. If uncomplicated duplex, no further action required, stop antibiotics.

### 4. Multicystic Dysplastic Kidneys (MCDK)

- Check maternal notes and the “high risk” yellow folder to see if there is a management plan
- If the mother has been seen at a tertiary centre, a clear plan should be outlined in her notes and should be followed accordingly
- Examine the baby to look for an abdominal mass (palpable kidneys/bladder)
- Start prophylactic antibiotics – Trimethoprim 2mg/kg once daily. Please fill out a hospital TTO form, or an FP10 out of hours.
- Make up a set of Paediatric notes for the baby and insert a copy of the antenatal scans. Document in the baby's notes the dose of Trimethoprim prescribed and the management plan.
- Tick off the baby from the “high risk” yellow folder so we can feedback to the Obstetric department at the mother and baby meeting (alternate weeks during the grand round)
- Renal USS 7 – 14 days
- OPD 4 -6 weeks with attending consultant, check BP
- Repeat renal USS 3/12
- DMSA 3/12 – there should be no function if this is a MCDK

- Refer to Paediatric Urology service St. George's Hospital (Mr. Murphy) if MCDK remains >5cm and is not shrinking
- Stop Trimethoprim once diagnosis of MCDK confirmed (no function on DMSA)

#### 5. **Sibling with Reflux/Nephropathy**

- No need for antibiotics
- Renal USS 7 – 14 days

#### 6. **Solitary Kidney with no other abnormalities seen**

- No need for antibiotics
- Renal USS 7 – 14 days

#### 7. **2 vessel umbilical cord**

- If normal anomaly scan, no further action
- If no anomaly scan done, no antibiotics required, arrange renal USS 7 – 14 days

#### 8. **Isolated minor ear abnormalities**

There is no increased risk of renal abnormalities with isolated minor ear abnormalities (preauricular skin tags and pits, misshapen pinnae) and these babies do not require any renal imaging. If there are any other congenital malformations to suggest a syndrome (e.g. CHARGE) a renal USS should be performed.

### **Glossary**

ANH	Antenatal Hydronephrosis
MCDK	Multicystic Dysplastic Kidney
MCUG	Micturating Cysto Urethrogram
PUJ	Pelvi Ureteric Junction
PUV	Posterior Urethral Valves
RPD	Renal Pelvis Diameter
USS	Ultrasound scan
UTI	Urinary Tract Infection
VUR	Vesico Ureteric Reflux

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Rechecked Feb 2017, Review Feb 2022**