Antenatally Detected Renal Tract Abnormalities - Paediatric Full Clinical Guideline - UHDB

Reference no.: NIC SS 13/Feb 23/v003

1. Introduction

To ensure a standardised approach to management of babies with abnormal antenatal scans

2. Aim and Purpose

For medical staff to ensure that appropriate investigation are carried out on babies with abnormal antenatal scans

3. Main body of Guidelines

Background

Improvements in second trimester ultrasound (USS) screening have resulted in an increased number of antenatally detected urinary tract abnormalities (AUTA).

Abnormalities fall into two main catagories:

- Abnormalities of renal parenchymal texture
- Abnormalities of drainage system (maximum transverse AP diameter of the renal pelvis ≥7mm at 18 – 20+6 weeks gestation or later is considered significant).

Abnormalities may be unilateral or bilateral.

The outcomes in patients with unilateral abnormalities are very good, though investigation is required postnatally.

The outcome from bilateral anomalies is also often good.

Risk factors for a poor outcome include

- bilateral renal parenchymal abnormalities
- oligohydramnios.

Significant oligohydramnios may lead to pulmonary hypoplasia which can result in stillbirth or early neonatal death.

Babies with family history of renal problems such as:

- vesicoureteric reflux (VUR)
- renal tract dilatation
- duplex kidney
- solitary kidney
- MCDK

with entirely normal urinary tracts on antenatal ultrasound scans do not need further follow up. Please give advice regarding urinary tract infection. Please contact relevant paediatrician or paediatric nephrologist to discuss individual cases with other maternal renal disease if unsure whether follow up is required.

Antenatal Management

Antenatal ultrasound

The detection of parenchymal or drainage system abnormalities at the “anomalies scan” will be followed up by the fetal medicine unit as appropriate. (This may include repeat scans at 28 and 34-36 weeks gestation). Results of the scans should be easily accessible for the postnatal examination and include the following information, where identified:

AP diameter of renal pelvis in mm
Description of calyceal involvement
Unilateral or bilateral defects
Presence of renal parenchymal defects

Antenatal counselling

Once a renal tract abnormality is detected on ultrasound, parents should receive specialist counselling by a doctor with appropriate competency in counselling, taking into account the severity of the condition. Prognosis will depend upon post-natal scans which may reveal the abnormality to be either more or less severe than noted ante-natally.

Although all AUTA should generate a neonatal alert form, severe anomalies should be discussed at the Feto-maternal medicine meeting with the neonatologists, to agree a clear postnatal plan, to be held in the neonatal alerts folder for reference to when the baby is born.

Severe anomalies include:

- Bilateral hydronephrosis AP diameter ≥10 mm
- Unilateral hydronephrosis AP diameter ≥20 mm
- Suspected bladder outlet obstruction {e.g. Posterior urethral valve (PUV), ureterocele}
- Unilateral hydronephrosis AP diameter ≥10 mm in a fetus with a single kidney or contra-lateral multi-cystic dysplastic kidney (MCDK)
- Bilateral abnormality of renal parenchyma
- Polycystic kidney (autosomal dominant or recessive inheritance. Check family history, and consider screening parents) or MCDK
- Congenital nephrotic syndrome (may be associated with polyhydramnios, raised AFP, large placenta, family history)
- Any renal abnormality associated with oligohydramnios (eg. echogenic kidneys)

The paediatric nephrologists and urologists in Nottingham or Birmingham are accessible for advice regarding ante natal counselling for the prognosis and up to date long term management plan of severe renal tract anomalies.

Post natal management

Urgent assessment

Identification and treatment of acute obstruction in the renal tract can prevent loss of renal function and risk of uro-sepsis in the neonatal period.

At the postnatal examination (NIPE check):

- check for any postnatal plans in the neonatal alert folder/form
- check for a palpable kidney
- ask about urine output and flow (a good stream does NOT exclude obstruction)
- review the antenatal scan reports to determine if an urgent scan is needed before discharge

If unsure discuss with the consultant neonatologist at RDH or on call consultant paediatrician at QHB.

Urgent ultrasound scan

Arrange prior to discharge (usually 24 hours after delivery) if

- Bilateral hydronephrosis with AP diameter ≥10 mm to rule out significant bilateral VUR, PUV or bilateral complete pelvi-ureteric junction obstruction (PUJO)
- Poor urine stream/dribbling of urine
- Suspected bladder outlet obstruction (e.g. PUV, large ureterocele)
- Unilateral hydronephrosis with AP diameter ≥10 mm in a fetus with a single kidney or contra-lateral MCDK
- A palpable kidney
- Unilateral hydronephrosis with AP diameter ≥20mm

If over the weekend, discuss case with Nottingham/Birmingham renal team or urology team for advice.

Discuss results with consultant neonatologist at RDH or on call consultant paediatrician at QHB.

Renal function tests

Arrange UE prior to discharge (usually 24 hours after delivery) if

- bilateral abnormality of renal parenchyma (e.g. “bright” small kidneys or bilateral polycystic kidneys)
- Any renal abnormality associated with oligohydramnios (e.g. echogenic kidneys)
- Single kidney
- MCDK

Discuss result with consultant neonatologist at RDH or on call consultant paediatrician at QHB.

Referral to paediatric urology / nephrology

All infants with bladder outlet obstruction or deranged renal function with a renal tract anomaly should be discussed with the regional nephrology team in Birmingham/Nottingham prior to discharge.

Unless otherwise advised, the patient should have a repeat renal ultrasound scan arranged at 6 weeks and a follow-up arranged in Dr Lee’s clinic at RDH (code AMLRN) or Dr

Ahmed's clinic at QHB in 8 weeks' time.

Standard follow-up

Most other anomalies can be discharged after

- Advising parents regarding fever and UTIs
- booking a renal ultrasound scan at 6 weeks post-delivery
- arranging a follow-up appointment in Dr Lee's clinic at RDH (AMLRN) or Dr Ahmed's clinic at QHB in 8 weeks.

Anomalies includes

- Bilateral hydronephrosis AP diameter ≥7mm but <10mm
- Unilateral MCDK/renal dysplasia/hypoplasia with normal contralateral kidney
- Single kidney
- Unilateral hydronephrosis AP diameter > 10mm
- Non obstructing ureterocele
- Other renal abnormality with normal liquor volume (e.g. echogenic kidney, duplex kidney, horseshoe/ectopic kidney)

In the referral letter (generated at the NIPE check) it would be helpful to include the antenatal scan details e.g. AP diameter of renal pelvis in mm, description of calyceal involvement, unilateral or bilateral defects, presence of renal parenchymal defects to facilitate consultation in the paediatric clinic.

Antibiotic prophylaxis

All QHB babies with renal pelvic dilatation of ≥10 mm should be prescribed Trimethoprim prophylaxis (2mg/kg Noct) and GP asked to continue the prophylaxis till advised otherwise.

4. Documentation Controls

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