Scope
This guideline is aimed at all Health care professionals involved in the care of infants within the Neonatal Service.

Aims

- To indicate what interventions are required when there has been an antenatal finding of polyhydramnios.
- To highlight other infants who have an increased risk of oesophageal atresia.

Key Points

1) A recent audit\(^1\) has demonstrated routine passage of NG tube in isolated mild polyhydramnios is not a useful screening tool for oesophageal atresia.

2) This should be reserved for those infants where there is clinical suspicion of Tracheo-oesophageal fistula+/−Oesophageal atresia (TOF+/−/OA) either from antenatal scan findings or presence of other associated anomalies antenatal or postnatal.

3) There should be a low threshold for considering the diagnosis where respiratory symptoms exist in conjunction with polyhydramnios.

4) Infants that require a NGT passing to diagnose TOF+/−/OA should have this in conjunction with a chest X-ray after admission to the neonatal unit for assessment.

Background

TOF+/−/OA occurs in approximately 1 in 3500 live births.\(^3\)

We would therefore expect 3-4 cases TOF/year in UHL.\(^1\)

100-200/year paediatric alerts will be generated for polyhydramnios based on incidence of 1-2%.\(^1,3\)
An audit\(^1\) performed in 2015 reviewing a 5 years’ retrospective cohort in UHL. The results did not support the use of NGT passage as a routine screening test where polyhydramnios is an isolated finding.\(^7\)

An underlying disease\(^4\) is only found in 17% of cases in mild polyhydramnios. In contrast, an underlying disease is detected in more than 80% cases of severe polyhydramnios.

The literature lists the following potential aetiologies:

- Fetal malformations and genetic abnormalities (8-45%)
- Maternal diabetes mellitus (5-26%)
- Multiple pregnancies (8-10%)
- Fetal anaemia (1-11%)
- Viral infections: parovirus B19, rubella, and cytomegalovirus
- Other infections, e.g. toxoplasmosis and syphilis
- Other rare causes: Barter Syndrome, neuromuscular disorders, maternal hypercalcaemia.

**Process / Procedure**

Recommended approach based on the audit findings and available evidence:

1. **Paediatric alert** should be generated for polyhydramnios. The Paediatric alert should include:
   a) Identifiable cause if known
   b) Severity of polyhydramnios\(^2\) (mild – AFI < 30 or moderate to severe – AFI ≥ 30)
   c) Comment on stomach bubble wherever possible (i.e. small, normal, large or not visualised).
2. Postnatal Management

A: Isolated MILD POLYHYDRAMNIOS (AFI <30cm) on antenatal scans:
Clinical review and 8 hours observations
- Clinical review by midwife for congenital abnormalities.
- Routine nasogastric tube placement is not indicated.
- These infants will need to stay in hospital for at least 8 hours under observation, in particular to review success with feeds
- If unwell with respiratory difficulties then pass a nasogastric tube and arrange chest x-ray on the neonatal unit.

B: MODERATE or SEVERE POLYHYDRAMNIOS (AFI ≥ 30):
Clinical review and 8 hours observations
- Neonatal team review at or soon after delivery (for congenital abnormalities or other causes of polyhydramnios)
- Review scan results and antenatal testing.
- Routine nasogastric tube placement is not indicated.
- These infants will need to stay in hospital for at least 8 hours under observation, in particular to review success with feeds.
- If unwell with respiratory difficulties then pass a nasogastric tube and arrange chest x-ray on the neonatal unit.

C: OTHER AT RISK GROUPS requiring postnatal assessment on NNU for Oesophageal Atresia

Admission to NNU, nasogastric tube insertion and chest x-ray in the following:

1. Antenatal scan finding: Small or absent stomach bubble (with or without polyhydramnios).

2. Antenatal scan finding: Association of abnormalities within the VACTERL group. (TOF/OA can be seen in up to 70% of patients with this association). This could include a combination of polyhydramnios with a renal abnormality or spinal abnormality.

3. Postnatal Clinical Suspicion: Feed-related desaturations, respiratory distress, drooling, increased oral secretions, particularly if associated with polyhydramnios during pregnancy.
When considering TOF/OA:

1. Discuss with neonatology registrar on-call or consultant neonatologist.

2. Keep nil by mouth.

3. Estimate the length of tube to be inserted - Do this by measuring the NGT from the tip of the nose, to the earlobe and then to the xiphisternum. Use at least size 8 French gauge in term babies. In affected babies, the NGT cannot be passed further than approximately 10-15 cm.\(^3\)

4. Pass the NGT and admit to NNU for an urgent X-ray.

5. If a diagnosis of TOF+/-OA is confirmed, then inform the surgical team and pass a Replogle tube.

6. If TOF+/-OA is ruled out, then feeds and routine care if no further clinical concerns. Discharge back to mother.

Audit Criteria
Appropriate passage of nasogastric tube according to criteria above (100%)

Guideline development:

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References

1. UHL audit of Nasogastric tube patency test in Polyhydramnios 2010 and 2015.


3. Oermann, CM. Congenital anomalies of the intrathoracic airways and tracheoesophageal fistula. Up to Date (Sept 2015)


Appendix 1: Maternity Polyhydramnios Flowchart (overleaf)
**UHL Antenatal Polyhydramnios Flow Chart**

(Updated November 2018)

**Assessment of liquor volume**

- **Gestational age < 24 weeks gestation:**
  - Do not measure unless liquor appears increased then use MPD. (Accurate measurement of AFI is not possible around 20 weeks gestation).
  - All cases MPD > 95 centile Refer to fetal medicine consultant.
  - Midwife to organise GTT and infection screen (CMV, Toxo, Parvo).

- **Gestational age ≥ 24 weeks:** Use AFI and follow the following:

  ![AFI < 30 cm (Mild polyhydramnios)](image1)
  ![AFI ≥ 30 cm (Moderate/severe polyhydramnios)](image2)

  **Sonographer to:**
  - check Fetal lips/stomach/movements/Hydrops and record on the scan report. Any concerns refer to fetal medicine consultant.

  **Antenatal midwife to:**
  - Explain scan findings to the woman
  - If < 32 weeks – GTT & CMV/Toxo/Parvo
  - If ≥ 32 weeks – HbA1c & CMV/Toxo/Parvo
  - Follow up results of blood tests
  - **Plan repeat growth and liquor scan at 36 weeks**

  **36 week scan**
  - AFI normal
    - Discharge to Community Midwife
  - AFI increased/remains above normal limits
    - Antenatal midwife to explain that the baby will be checked by the midwife after birth and will need stay in for 8 hours to monitor feeding
    - Complete Paed alert stating polyhydramnios and refer to scan report. Attach a copy of the scan report.
    - Complete Intrapartum care plan and file in notes

  **Sonographer to:**
  - Check Fetal anatomy – refer to Fetal medicine consultant.
  - **Antenatal midwife to:**
    - Explain scan findings to the woman and perform HbA1c
    - CMV/Toxo/Parvo and follow up results
    - Arrange Fetal medicine scan.
  - **Fetal medicine Consultant to:**
    - Check fetal anatomy
    - Review HbA1c/CMV/Toxo results
    - Consider red cell antibody
    - Consider cervical length scans
    - Plan Serial growth scans
    - Assess premature labour risk and consider steroid treatment.
    - Complete Intrapartum care plan.
    - Complete Paed alert stating polyhydramnios, include any associated abnormalities & refer to the scan report. Attach a copy of the scan report.
    - Explain possible need for NGT and chest x-ray after birth if antenatal scan findings suggestive of oesophageal atresia (OA) or other anomalies in the VACTERL group. Baby will need to stay in hospital for at least 8 hours under observation and to establish feeding. If baby develops respiratory difficulties then NGT will be inserted and CXR performed to investigate for possible OA.

There is insufficient evidence in the literature for induction of labour for mild/moderate polyhydramnios alone. However induction of labour is indicated when polyhydramnios is part of a clinical picture eg maternal diabetes or other obstetric conditions or reduced fetal movements.