Polyhydramnios and Nasogastric Tube testing Neonatal Guideline

University Hospitals of Leicester NHS Trust

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Contents

1. Introduction and Who Guideline applies to

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.
- To be aware of associations other than gut atresia when there is antenatal diagnosis of polyhydramnios

Key Points

1) Previous audit and recent review of cases has clearly demonstrated routine passage of Nasogastric tube (NGT) 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.

2. Polyhydramnios

2.1 Background

TOF+/-OA occurs in approximately 1 in 3500 live births.

We would therefore expect 3-4 cases TOF/year in UHL.

100-200/year paediatric alerts will be generated for polyhydramnios based on incidence of 1-2%.

A recent case review performed in 2021 reviewing 3 years' retrospective cohort in UHL. The results did not support the use of NGT passage as a routine as majority of the neonatal admissions to the unit had severe polyhydramnios or associated respiratory symptoms with it. Also, majority of this cohort were referrals from other nonsurgical centres.

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: parvovirus B19, rubella, and cytomegalovirus
- Other infections, e.g. toxoplasmosis and syphilis
- Other rare causes: Barter Syndrome, neuromuscular disorders, maternal hypercalcaemia.

Polyhydramnios is associated with preterm delivery, placental abruptio, cord prolapse, breech presentation, which could impact the neonatal transition and initial management. Idiopathic polyhydramnios is associated with increased neonatal morbidity at term.

2.2 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: (mild –Deepest vertical Pool (DVP) < 12 or moderate to severe – DVP>12 cm)

c) Comment on stomach bubble wherever possible (i.e., small, normal, large, or not visualised).

2.3 Postnatal Management:

A: Isolated MILD POLYHYDRAMNIOS (DVP<12cm) 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, 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 (DVP ≥ 12 cm): Clinical review and 8 hours observations

- Neonatal team review at or soon after delivery looking 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, 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 should have low threshold for nasogastric tube placement and chest x-ray on the neonatal unit.

2.4 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.[4]

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.

3. Education and Training

While planning discharge of babies from the unit, it would be advisable to mention history of polyhydramnios (Yes/No) in the Badger which would help in further audits and data collection.

4. Audit Criteria:

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

5. Supporting References

1. Review of NNU admissions from Badgernet data from 2018 Nov -2021 Nov.
2. UHL audit of Nasogastric tube patency test in Polyhydramnios 2010 and 2015.
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9. Polnaszek B, Liang B, Zhang F, Cahill AG, Raghuraman N, Young OM. Idiopathic Polyhydramnios and Neonatal Morbidity at Term. Am J Perinatol. 2023 Dec;40(16):1827-1833.

6. Key Words

Deepest Vertical Pool (DVP), Nasogastric Tube (NGT), Oesophageal atresia (OA), Stomach bubble, Tracheo-oesophageal fistula (TOF)

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

Contact and review details			
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Details of Changes made during review:			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
Sept – Oct 2015	**1**	Neonatal Guidelines Group Neonatal Governance Group	Minor amendments, inclusion of maternity polyhydramnios flow chart
Nov-Dec 2018	**2**	Badgernet data audit (authors) Neonatal Governance Meeting	Feedback from Maternity Guidelines – updated flowchart
Dec 2021-Jan 2022	**3**	Dilip Vasudev (ST3) Neonatal Governance Meeting	Review, inclusion of amended maternity polyhydramnios flow chart, AFI changed to DVP – Guideline Meeting
March 2025	**4**	Jatinder Khipal (ST 7)	Minor amendments, regarding literature

Appendix 1: UHL Antenatal Polyhydramnios Flow Chart

Assessment of liquor volume

a. Gestational age < 24 weeks gestation:

- **Do not measure unless liquor appears increased then use Deepest Vertical Pool (DVP).**
- All cases DVP >8cm centile refer to fetal medicine consultant.
- Midwife to organise GTT and infection screen (CMV, Toxo,Parvo).

b. Gestational age ≥ 24 weeks: Deepest vertical pool (DVP) and follow the following:

DVP > upper viewpoint centile but < 12cm	DVP ≥ 12cm (moderate/severe hydramnios)
Ultrasound Practitioner to check: Fetal lips/stomach/movements/Hydrops record on the scan report refer to Antenatal midwife **Antenatal midwife to:** Explain scan findings to the woman - any concerns arrange fetal medicine scan. 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*** **<u>36-week scan</u>** **DVP < 8cm** Discharge to Community Midwife **DVP ≥ 8cm** • 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 lips/stomach/movements/Hydrops record on the scan report refer to Antenatal midwife. **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 e.g. maternal diabetes or other obstetric conditions or reduced fetal movements	