HUTT maternity
Hutt Valley Maternity Care

HUTT VALLEY DHB

Document ID: MATY117	Version: 1.0
Facilitated by: Ed Hyde	Last reviewed: August 2019
Approved by: Maternity Quality Committee	Review date: August 2023

Polyhydramnios – in a singleton pregnancy

Hutt Maternity Policies provide guidance for the midwives and medical staff working in Hutt Maternity Services. Please discuss policies relevant to your care with your Lead Maternity Carer

Introduction

Polyhydramnios is excess amniotic fluid and occurs in around 1% of pregnancies in the general obstetric population.
The degree of polyhydramnios can be considered as mild (66%), moderate (22%) and severe (12%).

The most common causes of severe polyhydramnios is a fetal anomaly, often associated with an underlying genetic diagnosis – 10-20% cases will have aneuploidy. (Karkhanis and Patni 2014). Milder cases are associated with maternal diabetes, multiple gestations and idiopathic factors.

In the absence of a maternal, fetal or placental cause, polyhydramnios is considered as unexplained or idiopathic. This category accounts for 50-60% of all cases. (Karkhanis and Patni 2014).

Purpose

This guideline outlines the practice that relates to the diagnosis and management of polyhydramnios.

Scope

All medical and midwifery staff employed by Hutt Valley DHB. All Hutt Valley DHB Maternity access holders.

Guideline

The degree of polyhydramnios can vary, as can its underlying cause and thus its implications. An understanding of these is important to correctly diagnose and manage women and their babies.

This guideline is based upon the Christchurch Women's Hospital guideline, 'Polyhydramnios' published in October 2018, as well as the Society for Maternal Fetal Medicine's 2018 guideline, 'Consult Series #46: Evaluation and management of polyhydramnios' (Dashe 2018).

Diagnosis

The diagnosis of polyhydramnios is based upon ultrasound assessment of the amniotic fluid volume. This can be done using the single deepest pocket (SDP), also referred to as deepest vertical pocket (DVP), or the amniotic fluid index (AFI). The 95th centile and above for gestation is defined as polyhydramnios.

The goal of amniotic fluid measurement is to detect underlying pathologies associated with poor outcomes. A systematic review of randomised studies found no evidence that one method was superior to another (Nabhan 2008).

Obstetric units in New Zealand generally, though not exclusively, use the single deepest pocket technique.

The reference ranges for the degrees of polyhydramnios are:

	Single deepest pocket (SDP)	Amniotic fluid volume (AFI)
Normal	2 – 7.9 cm	8 – 24.9 cm
Mild	8.0 – 11.9 cm	25 – 29.9 cm
Moderate	12 – 15.9 cm	30.0 – 34.9 cm
Severe	≥ 16.0 cm	≥ 35.0cm

Note – 'Section 88' (MOH 2012) (code 4021) states that, "Scan pools > 10cm" are a transfer of care.

Causes

The likelihood of identifying the cause of polyhydramnios antenatally correlates with the severity of the condition. An underlying disease is detected in only 17% of cases of mild polyhydramnios, but 91% in cases of moderate to severe polyhydramnios.

Causes to consider include:

- **Fetal malformation and genetic anomalies** – well-known malformations which impair fetal swallowing and gastrointestinal absorption include:
  - Tracheo-oesophageal fistula (TOF)
  - Oesophageal atresia
  - Duodenal atresia
  - Congenital diaphragmatic hernia (CDH)
  - Congenital cystic adenomatoid malformations (CCAM)
- **Trisomy 21 –** commonly see polyhyramnios and duodenal atresia
- **Neuromuscular disorders** such as myotonic dystrophy
- **Maternal diabetes**
- **Multiple pregnancy**
- **Fetal anaemia**
- **Viral infection** – strength of correlation is, however, unknown
  - Parvovirus B19, rubella, cytomegalovirus (CMV), Toxoplasma, syphilis
- Other causes e.g. maternal hypercalcaemia, maternal drug use (e.g. lithium)

Congenital infection usually presents with additional findings on ultrasound, such as non-immune hydrops fetalis (NIHF), hepatomegaly, splenomegaly or an enlarged placenta. In cases of polyhydramnios associated with hydrops (NIFH) or other ultrasound abnormalities, screening for fetal anaemia and congenital infection is recommended. (Dashe 2018)
In the absence of maternal signs and symptoms, or of other fetal findings, congenital infection (rubella, CMV, toxoplasmosis, syphilis) is unlikely to cause isolated polyhydramnios.

Prognosis
Polyhydramnios is independently associated with increased perinatal morbidity and mortality (Erez et al 2005).
The prognosis varies depending upon the underlying cause and severity of the polyhydramnios.

In a normal singleton pregnancy, amniotic fluid volume increases progressively until 33 weeks gestation, plateaus from 33 to 38 weeks, and then followed by a decline from 38 weeks onwards. Mild polyhydramnios frequently spontaneously resolves and is not usually associated with adverse perinatal outcomes. (Karkhanis and Patni 2014).

Small for gestational age (SGA) babies with polyhydramnios generally have the poorest prognosis. (Erez 2005).
Overall, perinatal mortality in pregnancies with polyhydramnios is increased two- to five-fold compared to pregnancies without. (Magann 2007). Care should be individualised, but consider elective delivery at term in view of the possible increased risk of late term fetal death in utero.

Obstetric complications:
- Maternal dyspnoea, abdominal discomfort and uterine irritability
- Preterm labour, premature rupture of membranes and preterm birth
- Fetal malposition
- Umbilical cord prolapse
- Placental abruption following rupture of membranes
- Postpartum haemorrhage (PPH)
- Higher rates of Caesarean section for fetal indications

Neonatal complications:
- Higher rates of admission to neonatal or special care baby unit
- Higher risk of transient tachypnoea of the newborn (TTN)
- Higher birth weight
- Higher rates of congenital malformations and neurological disorders (Yefet 2016)

Outcomes of polyhydramnios based on severity (Dashe 2018)

	AFI / cm	SDP / cm	Incidence	Risk of fetal anomaly	Risk of neonatal abnormality
Polyhydramnios overall	≥ 25.0	≥ 8.0	0.3 – 1.0%		
Mild	25.0 – 29.9	8 – 11	65 – 70%	6 – 10%	1%
Moderate	30.9 – 34.9	12 – 15	20%	10 – 15%	2%
Severe	≥ 35.0	≥ 16	< 15%	20 – 40%	10%

The Society for Maternal Fetal Medicine highlight in their 2018 guideline (Dashe 2018) that:

- It is important to remember that idiopathic polyhydramnios is usually mild and detected in the third trimester.
- The identification of polyhydramnios should prompt a search for an underlying cause.
- The two most common causes of polyhydramnios are maternal diabetes and fetal anomalies.
- Even in the absence of diabetes, idiopathic polyhydramnios is associated with macrosomia in approximately 15-30% of cases, and this increases the risk of having a Caesarean birth.
- Progressively increasing polyhydramnios suggests an underlying structural or genetic cause.

Initial Management Considerations

Once diagnosis is made, consider:

Detailed anatomy review

- The anomalies most commonly missed are tracheo-oesophageal fistulae, cardiac septal defects and cleft palate

Maternal Fetal Medicine (MFM) referral

Urgent referral to Maternal Fetal Medicine at Wellington Hospital should be made in the presence of:

- Severe polyhydramnios (isolated or in association with other issues)
- Fetal anomaly
- Monochorionic twins with polyhydramnios (might have twin-to-twin transfusion syndrome etc.)

Exclude gestational diabetes

- Oral glucose tolerance test

Fetal anaemia or fetal hydrops

Exclude the following:

- Immunological causes: maternal blood group, Rhesus group, red cell antibody screen
- Feto-maternal haemorrhage: Kleihauer
- Acute Parvovirus B19 infection
- Haemoglobinopathy screen (if relevant)

TORCH screen

- Not indicated for women who have polyhydramnios with an otherwise normal ultrasound, given the low prevalence of TORCH infections and the limited implications on management
- Do consider in the context of other abnormalities on scan e.g. hydrops
- Infections to consider are toxoplasma, cytomegalovirus (CMV), rubella, parvovirus B19 and syphilis (rare but incidence increasing in New Zealand).

Antenatal Surveillance

No randomised control trials have evaluated whether pregnancies complications by idiopathic polyhydramnios benefit from any method of antenatal surveillance. (Dashe 2018)

Where a cause is identified, antenatal surveillance should be directed accordingly.

For cases of isolated, mild polyhydramnios, suggest:

- Growth scans to review biometry, liquor volume and umbilical artery pulsatility index every 4 weeks if polyhydramnios diagnosed prior to 36+0 weeks
- Growth scans to review biometry, liquor volume and umbilical artery pulsatility index every 2-3 weeks if polyhydramnios diagnosed at or after 36+0 weeks

Information to provide to women

- Inform LMC immediately on spontaneous rupture of membranes.
- Inform LMC at onset of regular uterine contractions, early admission in labour is advised.
- Women to be informed about knee-chest positioning in the event that membranes rupture and there is evidence of cord prolapse.
- If cord prolapse occurs outside of the hospital, advise women to call 111 for immediate transfer to Hutt Hospital.

Timing of planned birth

It is reasonable to offer elective delivery at 40 weeks if polyhydramnios is detected, to reduce the risk of adverse perinatal outcome.

The evidence is poor, mostly due to a lack of prospective randomised studies. It is known, however, that there is a two- to five-fold increased risk of perinatal mortality associated with polyhydramnios. (Karkhanis and Patni 2014). Therefore it is reasonable to manage this on-going risk of adverse outcomes, including fetal death in utero, by offering induction of labour.

If mild, unexplained polyhydramnios is present, it is reasonable to manage expectantly, but the woman should have the option of an induction of labour discussed with her.

Labour Management

- Women with pregnancies complicated by moderate- to severe polyhydramnios should labour and birth at Hutt Hospital with continual electronic fetal monitoring (EFM).
- Frequent assessment of fetal position to be undertaken during labour to confirm maintenance of vertex position.
- Rupture of membranes can lead to acute uterine decompression with risk of cord prolapse or placental abruption – monitor with CTG afterwards.
- Artificial rupture of membranes is only be done under controlled conditions.
    - Consider if having an available operating theatre is desirable, especially if presenting part is not engage
    - So if, inform Theatre Co-ordinator and Anaesthetic RMO
    - Consider whether to call in the on-call theatre team if out-of-hours and the team are not in the hospital
- It is important to rule out cord prolapse/presentation and confirm presentation following rupture of membranes.
- Active management of the third stage of labour is advised due to the increased risk of post-partum haemorrhage (PPH).

Neonatal care

Neonatal team to be in informed of all births in the case of moderate and severe polyhydramnios or if any fetal abnormality.

- In cases of unexplained polyhydramnios, a thorough neonatal examination is recommend.
- A minimum of checking the patency of the upper gastrointestinal tract using a nasogastric tube is recommended.

References

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Informed Consent

The right of a consumer to make an informed choice and give informed consent, including the right to refuse medical treatment, is enshrined in law and in the Code of Health and Disability Consumers' Rights in New Zealand. This means that a woman can choose to decline treatment, referral to another practitioner, or transfer of clinical responsibility. If this occurs follow the process map on page 18 of the Referral Guidelines (Ministry of Health, 2012).

Appendix 1: Polyhydramnios management flow chart