Diagnosis and Management of Polyhydramnios

Key Points

- Polyhydramnios is defined as Deepest Vertical Pool (DVP)>10cm.
- Most of the time is unexplained, but can be caused by maternal, fetal or placental conditions.
- Polyhydramnios is classified as mild, moderate or severe.
- Further investigations include glucose tolerance test and blood test for toxoplasmosis/CMV infection.
- Referral to Fetal Medicine Unit is indicated in cases of suspected fetal abnormality, severe polyhydramnios or concerns about fetal movements.
- Consider induction of labour at 39-40 weeks.
- Routine postnatal neonatal check and advice to parents about any feeding difficulties.

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Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AFI</td>
<td>Amniotic fluid index</td>
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<tr>
<td>ANC</td>
<td>Antenatal Clinic</td>
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<td>CMV</td>
<td>Cytomegalovirus</td>
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<td>DAU</td>
<td>Day Assessment Unit</td>
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<td>DVP</td>
<td>Deepest Vertical Pool</td>
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<td>FADS</td>
<td>Fetal Akinesia Dyskinesia Syndrome</td>
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<td>FGR</td>
<td>Fetal Growth Restriction</td>
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<td>IM</td>
<td>Intramuscular injection</td>
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<td>IOL</td>
<td>Induction of Labour</td>
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<td>iu</td>
<td>International unit</td>
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1. **INTRODUCTION**

Polyhydramnios is defined as excessive accumulation of amniotic fluid, based on ultrasound evidence of a constant value of amniotic fluid index (AFI) $\geq 25$ cm or deepest vertical pool (DVP) $\geq 10$ cm across all gestational ages. The reported incidence of this condition is between 0.2 and 3.9\%\textsuperscript{1,2}. Clinical suspicion is based on rapidly increasing symphysis fundal height measurements above the 90th centile on customised growth charts. Despite extensive prenatal assessment, in 50–60\% of pregnancies, polyhydramnios remains unexplained\textsuperscript{1}.

In most cases, polyhydramnios develops late in the second or in the third trimester of pregnancy. Acute polyhydramnios at 16–22 weeks is mainly seen in association with twin-to-twin transfusion syndrome\textsuperscript{3}.

Polyhydramnios has been associated with a variety of adverse pregnancy outcomes including preterm prelabour rupture of membranes (PPROM), preterm Birth (PTB), cord prolapse and admission to neonatal unit. Maternal complications include increased risk of postpartum haemorrhage (PPH) and lower segment caesarean section (LSCS). There is a two- to five-fold increase in perinatal mortality\textsuperscript{1}. Perinatal morbidity and mortality are higher if, polyhydramnios develops at an earlier gestation.

2. **AETIOLOGY**

A wide variety of maternal, fetal and placental conditions are associated with polyhydramnios\textsuperscript{4}.

**Maternal**
- Uncontrolled diabetes mellitus (pre-gestational and gestational)
- Rhesus and other blood group isoimmunisation leading to immune hydrops
- Drug exposure, such as lithium leading to fetal diabetes insipidus.

**Fetal**
- Structural: trachea oesophageal fistula, oesophageal atresia, duodenal and intestinal atresia.
- Chromosomal and genetic abnormalities: trisomies, Beckwith-Wiedemann syndrome, Fetal Akinesia Dyskinesia Syndrome (FADS).
- Congenital infections: toxoplasma, rubella, cytomegalovirus, and parvovirus,
- Macrosomia
- Fetal tumours: teratomas, nephromas, neuroblastoma, and haemangioma\textsuperscript{5}.

**Placental**
- Placental tumours such as chorioangiomas and metastatic neuroblastoma are associated with an increased incidence of polyhydramnios in approx. 30\%\textsuperscript{6}

**Unexplained**
- In 50–60\% of cases no maternal, placental or fetal cause is found. It is a diagnosis of exclusion.
3. CLASSIFICATION AND DIAGNOSIS

The deepest vertical pocket (DVP) measurements refer to the vertical dimension of the largest pocket of amniotic fluid which must not contain umbilical cord or fetal extremities and which is measured at a right angle to the uterine contour. This requires an assessment of the entire cavity before measurement. Using DVP measurement the following definitions apply:

a. Mild Polyhydramnios (80%) DVP measuring 10 to 12cms
b. Moderate Polyhydramnios (15%) DVP measuring 13 to 14cms
c. Severe Polyhydramnios (5%) DVP >=15cms

4. ASSESSMENT AND INVESTIGATIONS

Rapidly increasing symphysis fundal height measurements, above the 90th centile on customised growth charts, may be indicative of polyhydramnios. A detailed ultrasound examination is important to exclude congenital fetal infection (such as hydrops/ascites, intracranial calcifications, hydrocephalus/microcephaly and hepatosplenomegaly) or any fetal abnormalities.

Further tests include:

- Oral glucose tolerance test (gestational diabetes) OGTT or a week of BM monitoring at home, if >=36+0 and delivery planned after>=38 +0 weeks
- Blood test to exclude fetal infection **ONLY** in cases of moderate or severe polyhydramnios, where no other cause has been identified. The request should include test **ONLY** for toxoplasmosis and cytomegalovirus. Testing for parvovirus should be requested, after discussion with a Fetal Medicine Consultant.
- Check maternal blood-group status for any atypical red cell antibodies (booking and 28 weeks).
- In cases of severe polyhydramnios, transvaginal ultrasound scan should be offered to assess cervical length and quantify risk of preterm labour and need for administration of steroids.

5. ADVERSE OUTCOMES RELATED TO POLYHYDRAMNIOS

Adverse outcomes related to polyhydramnios
- Maternal respiratory compromise
- Prelabour rupture of membranes
- Umbilical cord prolapse
- Fetal malposition
- Macrosomia complicated by shoulder dystocia
- Placental abruption
- Longer second stage labour
- Postpartum haemorrhage due to uterine atony
6. INDICATIONS FOR REFERRAL TO FETAL MEDICINE UNIT

A referral to Fetal Medicine Unit is indicated in case of:

- Suspected fetal anomaly
- Signs of congenital fetal infection (such as hydrops/ascites, intracranial calcifications, hydrocephalus/microcephaly and hepatosplenomegaly)
  - Small for gestational age (<10th centile and/or restricted growth)
  - Concerns with fetal movement and rapid onset of polyhydramnios (could indicate muscular dystrophy)
  - Severe polyhydramnios (DVP >=15cms)

7. MANAGEMENT

- Transfer care of all women with diagnosed polyhydramnios to consultant led care. The scan needs to be reviewed in DAU/MAC and then referral to antenatal clinic, should be arranged.
- Antenatal management and surveillance as per flowchart [Figure 1] and it depend on the underlying cause and patient symptoms.
- On diagnosis of polyhydramnios a detailed scan should be performed, with focus on stomach, bowel, kidneys, spine and heart due to the association with VACTERAL anomalies (vertebral defects, anal atresia, cardiac defects, tracheoesophageal fistula, renal anomalies, and limb abnormalities).
- At each ANC appointments, enquire whether mothers are symptomatic, e.g., have regular tightenings or shortness of breath and perform an abdominal palpation (to assess and document fetal lie, engagement, how tense the uterus feels).
- Advise women diagnosed with polyhydramnios of the small risk of cord prolapse if the membranes rupture, increased risk of premature labour and placental abruption. The patient must therefore contact triage if suspicions of labour, rupture of membranes or vaginal bleeding.
- Consider admission of women with unstable/transverse/breech lie from 38 weeks gestation
- For mild/moderate polyhydramnios individual plan of care, depending on risk factors identified/ head engagement. Consider induction of labour at 39-40 weeks. For cases of severe polyhydramnios, Fetal Medicine Consultant to arrange plan of delivery, depending on additional risk factors.
- In cases of severe polyhydramnios admitted for induction of labour, a controlled ARM should be performed by a doctor or with a doctor present due to the risk of cord prolapse.
- Active 3rd stage of labour with syntometrine 500mcg/5iu IM. In cases of severe polyhydramnios or signs of uterine atony when the placenta is delivered, administer oxytocin infusion.
- Routine NIPE and patient information leaflet to be given to the parents to monitor for any feeding difficulties.
- In cases of severe polyhydramnios, neonatal review must take place prior discharge home.
- Alert neonatal team if any feeding difficulties at birth.
Figure 1: Flowchart of management

Polyhydramnios (Review in DAU/MAC)

Mild (DVP 10-12cm) → OGTT

Moderate (DVP 13-14cm) → OGTT/ blood test for Toxoplasmosis & CMV

Severe (=>15cm) → Refer to Fetal Medicine Unit

OGTT/ blood test for Toxoplasmosis & CMV → Evidence of recent /primary infection

Arrange Antenatal Clinic and Serial growth scans every 3 weeks

Mild/moderate polyhydramnios: Individual plan of care, consider IOL 39-40 weeks
Severe polyhydramnios: Fetal Medicine Consultant to arrange plan of delivery, depending on the additional risk factors/findings on USS
References


7. Beloosesky R and Ross MG (2022) Polyhydramnios: Etiology, diagnosis and management. In UpToDate, Post TW (Ed), UpToDate, Waltham, MA. Available at: https://www.uptodate.com/contents/polyhydramnios-etiology-diagnosis-and-management (Accessed 08.06.22)
APPENDIX 1: PATIENT LEAFLET POLYHYDRAMNIOS

Maternity, Obstetrics and Gynaecology
Frimley Park Hospital / Wexham Park Hospital

Polyhydramnios

What is polyhydramnios?

An ultrasound scan has shown that you have polyhydramnios, which means that there is more amniotic fluid seen than is expected on the scan around your baby. A follow up appointment will be arranged with your obstetrician to answer your questions about this.

What is amniotic fluid?

From 12 weeks of pregnancy onwards, the amniotic fluid around your baby comes from the urine that your baby is passing. It allows your baby to move around the womb which helps to develop your baby’s muscles and bone. It protects your baby from trauma, like a shock absorber, and keeps your baby protected from infection. The fluid helps your baby's lungs and gut to develop.

How is polyhydramnios diagnosed?

During an ultrasound scan, the scan operator looks at the amount of fluid around your baby. If it appears to be more than expected, they will take a measurement of the deepest area which is called the Deepest Vertical Pool (DVP). If this measurement is more than 10cm you will be diagnosed as having polyhydramnios.

What causes polyhydramnios?

In the majority of the cases, no cause is identified and there is nothing wrong. Your baby is just producing more urine than other babies. Occasionally, increased urine production by an unborn baby can be linked to the mother developing diabetes during pregnancy (gestational diabetes). This can be checked by a blood test called glucose tolerance test.

Babies are continually swallowing the amniotic fluid around them. Occasionally, too much amniotic fluid can be present because your baby is not swallowing normally or has a blockage in the bowel. This can be caused by your baby’s windpipe and gullet being connected abnormally (tracheoesophageal fistula). This may only be evident after birth.

Further investigations

Other tests may be organized to rule out other problems in your baby prior to birth and to plan further care. You may be offered one of the following tests.

- A maternal blood test to screen for diabetes and infection.
- Further ultrasound scans (to monitor the amount of amniotic fluid around your baby as he/she grows).
- Referral to a Fetal Medicine doctor if there is severe polyhydramnios.
- Amniocentesis/amnio-drainage (draining off fluid from around the baby to relieve the pressure that can be very uncomfortable for the mother and risk going into labour too early).
What problems could this cause to the mother?

Polyhydramnios can be associated with:
- The abdomen may feel tense and uncomfortable
- Shortness of breath (difficulty in breathing)
- Premature birth and premature rupture of membranes (waters breaking)
- Umbilical cord prolapse (the cord slips into the birth canal)
- Your baby is in the wrong position (e.g., breech) and needs to be delivered by caesarean section
- Placental abruption (placenta comes away from the uterus)
- Increased risk of maternal bleeding once the baby is born

What about labour and delivery?

If your polyhydramnios is mild, your doctor will consider induction of labour at 39-40 weeks (term). If your polyhydramnios is severe or there are concerns about your baby’s wellbeing your labour may be induced earlier.
It is recommended that you have your baby in hospital to allow for monitoring of the baby’s heart during labour and more options for emergency care.

What happens after birth?

In case of severe polyhydramnios, the baby will be checked by the paediatrician (baby doctor). An information leaflet will be given on discharge with information about any signs of concern postnatally.

Useful numbers
- Frimley Park Hospital: 0300 613 4527
- Wexham Park Hospital: 0300 615 4520
For a translation of this leaflet or for accessing this information in another format:

Please contact (PALS) the Patient Advice and Liaison Service on:

**Frimley Park Hospital**
Telephone: 0300 613 6530
Email: fhft.palssirimleypark@nhs.net

**Wexham Park & Heatherwood Hospitals**
Telephone: 0300 615 3365
Email: fhft.palswexhampark@nhs.net

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<th>Wexham Park Hospital</th>
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<tr>
<td>Portsmouth Road, Frimley, Surrey, GU16 7UJ</td>
<td>Brook Avenue, Ascot, Berkshire, SL5 7GB</td>
<td>Wexham Street, Slough, Berkshire, SL2 4HL</td>
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**Hospital switchboard:** 0300 614 5000  
**Website:** www.fhft.nhs.uk

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<td>Department</td>
<td>Maternity</td>
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Polyhydramnios Postnatally

Congratulations on the birth of your baby.

There are many reasons why there is polyhydramnios in pregnancy although in most instances no cause is found. One of those can be caused by a congenital problem with your baby.

All babies will have a new-born check to identify any concerns, but some babies will demonstrate problems after certain hours of birth.

Therefore, it is essential that you look for any of the following symptoms:

- Feeding concerns
- Excessive drooling or bubbling
- Colour change in the baby, i.e., the baby looks blue/dusky
- Respiratory concerns
- Difficulty breathing
- Reduced wet and dirty nappies

If your baby shows any of the above signs, then contact your midwife or the postnatal ward for further advice. If there is difficulty in breathing to call 999

Useful numbers

Frimley Park Hospital: 0300 6145000

Wexham Park Hospital: 0300 614500
Polyhydramnios postnatally

E. Chrysanthopoulou  
A. Deans

Maternity

October 2021  
October 2024

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Heatherwood Hospital  
Wexham Park Hospital

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Brook Avenue, Ascot, Berkshire, SL5 7GB  
Wexham Street, Slough, Berkshire, SL2 4HL

Hospital switchboard: 0300 614 5000  
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This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date. This guideline is for use in Frimley Health Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

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**Related Documents**

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