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<th>Polyhydramnios: Diagnosis and Management</th>
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**Polyhydramnios: Diagnosis and Management**

**INTRODUCTION**

Physiologically, the volume of amniotic fluid volume (AFV) increases with gestation to a maximum at 36-37 weeks. Polyhydramnios is defined as an abnormally large volume of amniotic fluid and the incidence varies from 1-2%. It is known to be associated with adverse pregnancy outcomes with greater deviations from the norm being more strongly associated with abnormality.

**PATHOGENESIS**

The AFV reflects the balance between fluid production and movement of fluid out of the amniotic sac. In late gestation the primary source are fetal urination and secretion of lung fluid and the main source of amniotic fluid removal are fetal swallowing and adsorption via the intramembranous pathway.

**ETIOLOGY**

Causes are numerous and can include:

- Idiopathic (around 50%)
- Congenital abnormalities and genetic disorders
  - Oesophageal and duodenal atresia
  - Cardiovascular defects
  - Muscular disorders
  - Microcephaly or anencephaly
  - Neural tube defects
  - Renal defects e.g. Bartter’s syndrome
  - Trisomy 21, 18 and 13
  - Pena-Shokeir syndrome (arthrogryposis, growth restriction, facial deformities)
  - Beckwith-Wiedemann syndrome
- Maternal diabetes (5-26%)
- Multiple pregnancies (8-10%)
- Fetal anaemia (1-11%)
- Congenital infections e.g. toxoplasmosis, parvovirus, rubella, CMV (rare)
- Hydrops fetalis
- Maternal substance abuse
- Maternal metabolic abnormalities e.g. hypercalcaemia

**CLINICAL MANIFESTATION**

Polyhydramnios should be suspected by uterine size large for gestational age. Fetal parts may be difficult to palpate. It also may be detected as an incidental finding on an ultrasound examination. Usually it is asymptomatic but the mother may experience shortness of breath, uterine irritability and contractions in severe cases or pain if rapid increase in amniotic fluid volume [e.g. TTTS- Twin to twin Transfusion Syndrome]

**CLINICAL SIGNIFICANCE**

Many idiopathic cases resolve spontaneously but polyhydramnios has been associated with an increased incidence of many adverse outcomes such as:

- Maternal respiratory compromise
- Preterm labour or premature rupture of membranes and preterm delivery (spontaneous or iatrogenic)
- Fetal malposition
- Macrosomia
- Cord prolapse
- Uterine abruption [especially after Rupture of membrane]
- Longer 2\(^{nd}\) stage of labour
- Postpartum uterine atony
- Low APGAR score at 5 minutes, transient tachypnoea of newborn, jaundice, hypoglycaemia, admission to neonatal unit
- Perinatal mortality especially close to term
**DIAGNOSIS**

If there is clinical suspicion of polyhydramnios a sonographic assessment of AFV should be performed.

- **Qualitative assessment.** An experienced sonographer/clinician scans the uterine contents and subsequently reports the AFV as oligohydramnios, normal or polyhydramnios based on his/her experience with similar sensitivity as the semi-quantitative techniques. Mostly used prior to 20w of gestation

- **Semi-quantitative methods**
  - **Single deepest pool (SDP) or Maximum vertical pool depth.** The vertical dimension of the largest pool of amniotic fluid not persistently containing umbilical cord or fetal extremities and measured at a right angle to the uterine contour. The horizontal component must be at least 1cm. The following interpretations are generally accepted:
    - Oligohydramnios: <2cm- severe
    - Polyhydramnios: >8cm-mild, >10cm-moderate, >12cm-severe
  - **Amniotic fluid index (AFI).** Calculated by dividing the uterus into four quadrants using the linea nigra for the right and left divisions and the umbilicus for the upper and lower quadrants. The maximum vertical amniotic fluid pocket diameter in each quadrant not containing cord or fetal extremities is measured in cm; the sum of these is the AFI. The following interpretations are generally accepted:
    - Oligohydramnios: <5cm-severe
    - Polyhydramnios: >24cm

**MANAGEMENT**

There are no guidelines or large studies to guide management decisions. The likelihood of identifying the aetiology prenatally correlates with the severity of AFV.

A comprehensive sonographic evaluation should be performed to look for fetal anomalies or fetal hydrops. Fetal genetic studies should be
offered when congenital anomalies are detected and each case should be managed individually.

A monochorionic multiple gestation with polyhydramnios/oligohydramnios sequence is suggestive of twin-twin transfusion syndrome (TTTS).

Screening for diabetes with GTT should be offered if not recently performed.

Congenital infection may be associated with maternal signs or symptoms of infection and/or fetal abnormalities. In the absence of maternal signs and symptoms or fetal findings (other than polyhydramnios), congenital infection (rubella, CMV, toxoplasmosis, syphilis) is an unlikely cause of isolated polyhydramnios.

Sonographic surveillance every 2-4 weeks is generally recommended in mild polyhydramnios that can be amended to every 2 weeks in moderate to severe cases until 37 weeks and then weekly. The surveillance can stop if the polyhydramnios resolves.

Corticosteroids should be given if preterm delivery is imminent or considered.

Amnioreduction should be offered only in severe symptomatic cases (associated with significant maternal discomfort or preterm labour) before 34 weeks of gestation. Two methods are available:

- Amnioreduction or decompression amniocentesis.
- Prostaglandin synthetase inhibitors, mainly indomethacin. These drugs may stimulate fetal secretion of arginine vasopressin and facilitate vasopressin-induced renal antidiuretic responses and reduced renal blood flow, thereby reducing fetal renal flow. They also may impair production or enhance reabsorption of lung liquid. It cannot be used in TTTS or above 32 weeks as the risk outweighs benefits. The main risk is fetal ductus arteriosus constriction with this increasing with gestation.

Delivery should be considered at around term due to late fetal demise although there are no quality data to guide management of idiopathic polyhydramnios and care should be individualised. Induction of labour is
done as clinically indicated using prostaglandins and/or oxytocin. Controlled amniotomy should be performed to avoid cord prolapse and gradual amnioreduction may reduce the risk of abruption due to sudden, severe uterine decompression. Continuous fetal monitoring with CTG is recommended in all cases as they are associated with increased risk of abnormalities.

REFERENCES

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3964358/

https://www.uptodate.com/contents/polyhydramnios

https://fetalmedicine.org/education/fetal-
abnormalities/amniotic.../polyhydramnios

https://www.rcog.org.uk/en/guidelines-research.../polyhydramnios-query-
bank/