Isolated Amniotic Fluid Disorders

Goals

- Prenatal diagnosis of fetal structural or chromosomal abnormalities
- Diagnose and manage maternal disease
- Decrease perinatal morbidity and mortality

Definition

- Isolated amniotic fluid disorders are defined as abnormal amniotic fluid volumes in a pregnancy with no other associated medical co-morbidities (i.e. diabetes, hypertension, other), IUGR or other known etiology for the amniotic fluid aberration.

Diagnosis

For **singleton** pregnancies:

Gestational age **< 24** weeks:

- Oligohydramnios deepest vertical pocket (DVP) < 2cm
- Polyhydramnios DVP > 8cm

Gestational age **≥ 24** weeks:

AFI – calculated by dividing the uterus into four quadrants and measuring the deepest vertical pocket (free of fetal parts and umbilical cord) in each quadrant and adding the four measurements.

< 5 cm	oligohydramnios
5-8 cm	borderline
8-24 cm	normal
≥ 24 cm	Polyhydramnios 24.0- 29.9 mild 30.0- 34.9 moderate ≥ 35.0 severe

For **multifetal** pregnancy, amniotic fluid volumes are measured by DVP.

- DVP < 2cm - oligohydramnios
- DVP ≥ 8cm - polyhydramnios

Management of Isolated Oligohydramnios (AFI < 5cm- for singleton pregnancy)

- Obtain history of leaking fluid, exam as indicated, consider evaluation for preeclampsia, consider amniocentesis to rule out PPROM
- Perform BPP with NST at the time of diagnosis
- Ultrasound evaluation of fetal kidneys, bladder and estimated fetal weight
  - Consider amnioinfusion for improved visualization
- Maternal hydration – 2 liters PO or IV as clinically appropriate

> 24 weeks - < 37 weeks

- Inpatient management
- Daily NST
- Twice weekly BPP

≥ 37 weeks

- Delivery recommended if AFI persistently < 5 cm for more than 24-48 hours despite IV or PO fluid hydration.
- Consider delivery if AFI < 8 cm for more than 24-48 hours despite outpatient fluid hydration.
- Delivery recommended if DVP < 2 cm.
- DVP ≥ 2cm, daily NST, twice weekly BPP acceptable.
- If the patient is not delivered and oligohydramnios persists, but is stable with a DVP ≥ 2 cm, consult MFM regarding management.

≥ 39 weeks

- Delivery with AFI <5cm

Delivery is not indicated for **resolved isolated oligohydramnios prior to 39 weeks.

Management of Isolated Borderline Amniotic Fluid Volume

- Obtain history of leaking fluid, exam as indicated
- BPP with NST at the time of diagnosis
- Ultrasound evaluation of fetal kidneys, bladder and estimated fetal weight
- Maternal hydration as outpatient
- Repeat AFI within 1 week
  - Normal AFI, no further testing indicated
  - Oligohydramnios, follow as outlined above
  - Borderline, repeat AFI within 1 week
    - If borderline amniotic fluid volume is stable for ≥ 2 weeks, no further AFI assessment needed
- **Gestational age ≥ 37 weeks**: consider delivery if AFI < 8 cm for more than 24-48 hours despite outpatient fluid hydration.

Polyhydramnios

Diagnostic work-up of polyhydramnios:

- Screening for gestational diabetes. Consider repeat glucose screen if over one month since prior screening.
- Detailed fetal anatomical evaluation assessing for presence of other anomalies including cardiac and CNS anomalies, fetal hydrops, signs of aneuploidy, impaired fetal swallowing, congenital infection.
- Idiopathic polyhydramnios is a diagnosis of exclusion.

Management of Isolated Polyhydramnios

- Obtain history regarding diabetes, Rh immunization, family history of myotonic dystrophy, inborn errors of metabolism, maternal discomfort
  - Genetic counseling if history positive for genetic disorders
- Consider maternal serum screening for syphilis for at risk patients
- Consider aneuploidy screening, if not already performed.
- Ultrasound evaluation of structural anomalies
  SMFM Consult Series "Currently, there are no data to support diagnostic amniocentesis for apparently isolated polyhydramnios, although amniocentesis with chromosomal microarray analysis should be made available to all pregnant women."
- Consider amniocentesis for microarray:
  - AFI > 30cm with unexplained polyhydramnios (eg not Diabetes)
  - Structural anomaly
  - Concerning first or second trimester aneuploidy screen
  - IUGR
  - Gestational age < 24 weeks
- If amniocentesis performed
  - Microarray
  - Myotonic dystrophy if positive family history or fetal hypotonia on US
  - Inborn errors of metabolism (Gaucher disease, gangliosidoses, mucopolysaccharidoses, etc.) if positive family history or high risk ethnicity (Ashkenazi Jews, Amish, consanguinity)

Treatment of polyhydramnios

- Consider amnioreduction when severe polyhydramnios leads to maternal respiratory compromise, severe discomfort or both as per SMFM Consult series recommendation (2018).
- Indomethacin should not be used for sole indication of treatment of polyhydramnios.

Role of antenatal testing in setting of *isolated* polyhydramnios
Antenatal testing may be clinically indicated for a myriad of maternal and fetal complications, see Antenatal Fetal Surveillance for details. The following recommendations pertain solely to isolated polyhydramnios without associated maternal diabetes, fetal anomaly, etc.

- Mild polyhydramnios (24.0- 29.9 cm)- Antenatal fetal surveillance not required.
- There are no clear recommendations regarding efficacy of testing in the setting of moderate or severe polyhydramnios. Recommend initiation of antenatal testing twice weekly when moderate or severe polyhydramnios.

Timing of Delivery in Isolated Polyhydramios

- Mild polyhydramnios- labor should be allowed to occur spontaneously at term and if planned, should not occur less than 39 0/7 weeks in the absence of other indications (SMFM Consult Series).
- Consider delivery for polyhydramnios at 39 weeks. Moderate or severe polyhydramnios consider delivery beyond 37 0/7 weeks.
- In presence of severe isolated polyhydramnios, recommend delivery at a tertiary care center (SMFM Consult Series).

Special scenario: **History of isolated polyhydramnios, subsequently resolved:**
If the amniotic fluid volume has been normal on two or more consecutive occasions, and the patient has recently had a negative diabetes screen, it is reasonable to discontinue antenatal testing if other indications for testing are not present.

Twins with amniotic fluid disturbances – refer to MFM.

References:

1. American College of Obstetricians and Gynecologists. ACOG Committee practice bulletin number 101: Ultrasonography in pregnancy. Obstet Gynecol. 2009 Feb;113(2 Pt 1):451-61.
2. Ohana O, Holcberg G, Sergienko R, Sheiner E. Risk factors for intrauterine fetal death (1988-2009). J Matern Fetal Neonatal Med. 2011 Feb 11.
3. Casey BM, McIntire DD, Bloom SL, Lucas MJ, Santos R, Twickler DM, Ramus RM, Leveno KJ. Pregnancy outcomes after antepartum diagnosis of oligohydramnios at or beyond 34 weeks' gestation. Am J Obstet Gynecol. 2000 Apr;182(4):909-12.
4. Manning FA, Bondaji N, Harman CR, Casiro O, Menticoglou S, Morrison I, Berck DJ. Fetal assessment based on fetal biophysical profile scoring. VIII. The incidence of cerebral palsy in tested and untested perinates. Am J Obstet Gynecol. 1998 Apr;178(4):696-706.
5. Magann EF, Chauhan SP, Doherty DA, Lutgendorf MA, Magann MI, Morrison JC. A review of idiopathic hydramnios and pregnancy outcomes. Obstet Gynecol Surv. 2007 Dec;62(12):795-802. Review.
6. Biggio JR Jr, Wenstrom KD, Dubard MB, Cliver SP. Hydramnios prediction of adverse perinatal outcome. Obstet Gynecol. 1999 Nov;94(5 Pt 1):773-7.
7. Bundgaard A, Andersen BR, Rode L, Lebech M, Tabor A. Prevalence of polyhydramnios at a Danish hospital--a population-based study. Acta Obstet Gynecol Scand. 2007;86(12):1427-31. Epub 2007 Aug 29.
8. American College of Obstetricians and Gynecologists. ACOG Committee practice bulletin number 9: Antepartum Fetal Surveillance. Obstet Gynecol. Clinical management guidelines for obstetrician-gynecologists. *Int J Gynaecol Obstet.* 2000;68:175–85.
9. Magann E, Chauhan S. (2007). Sonographic assessment of amniotic fluid: oligohydramnios and polyhydramnios. In V. Berghella *Maternal-Fetal Evidence Based Guidelines* (352-9). London, England: Informa.
10. Society for Maternal-Fetal Medicine (SMFM), Dashe JS[1], Pressman EK[1], Hibbard JU[1]. SMFM Consult Series #46: Evaluation and management of polyhydramnios. Am J Obstet Gynecol. 2018 Oct;219(4):B2-B8. doi: 10.1016/j.ajog.2018.07.016. Epub 2018 Jul 23.