ABERRANT LIQUOR: POLYHYDRAMNIOS AND OLIGOHYDRAMNIOS

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AMNIOTIC FLUID

Definition: clear or slightly yellowish liquid surrounding the fetus in the amniotic sac, produced by mother in early stages and by fetus late.

Functions: it is important for protection of fetus from trauma and infection, and development of lung and MSS of the fetus.

NORMAL AMNIOTIC FLUID VOLUME ACROSS GESTATION

AFV was observed to increase progressively from 8 weeks of gestation, peak at 30-31 weeks (at over800 mL) ,and decline thereafter .

Early in pregnancy, fetal urine and lung fluid production exceed the fetal volume swallowed, resulting in the gradual increase in AFV.

Late in pregnancy, fetal swallowed volume exceeds fetal fluid production, accounting for the decrease in AFV.

- o During first 10-20 weeks, it increases from 25-400 ml approximately
- o Its volume continues to increase until the 30-31 weeks (peak is 800-1000 ml)
- o The fluid volume then gradually goes down to roughly 400 ml at 42 weeks
- o In post term pregnancies it decrease to very low levels roughly 200 ml

POLYHYDRAMNIOS

Definition: excessive amniotic fluid volume expected for gestational age (AFV >2,000 mL, AFI ≥24 cm, single deepest pocket≥8 cm)

Should be suspected clinically , when uterine size is large for gesational age

Incidence in a general obstetric population range from I-2%

POLYHYDRAMNIOS

Etiology

- Typically, idiopathic (70% of cases)
- Fetal conditions

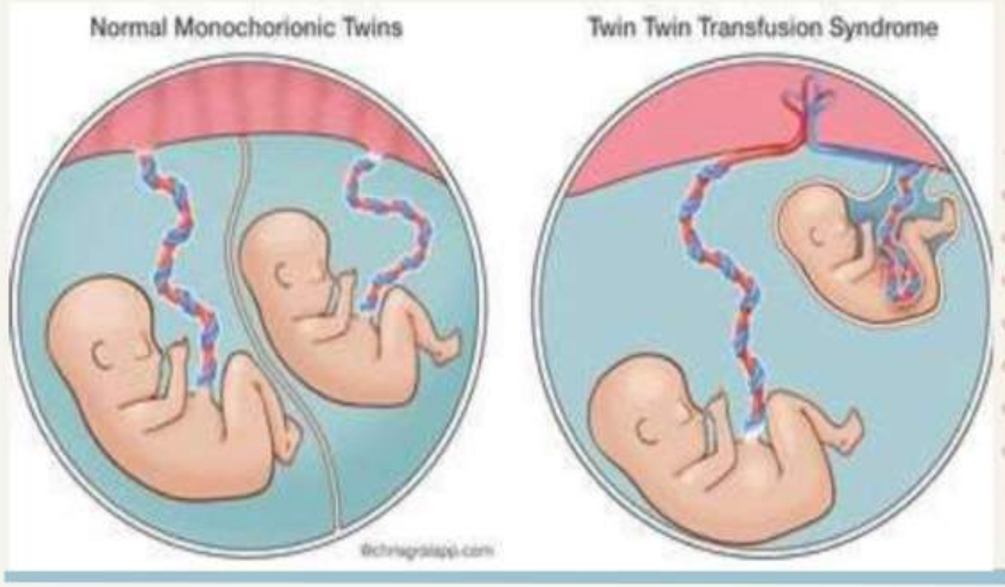
1. Gastrointestinal anomalies (e.g., esophageal atresia, duodenal atresia and stenosis)
2. Swallowing defect (e.g., CNS defects, neuromuscular diseases)
3. Chromosomal Disorders (e.g., Trisomy 18, 21 and also 13)
4. Intrauterine infections (e.g., congenital TORCH infections)
5. Pulmonary: cystic lung malformations
6. Fetal anemia

POLYHYDRAMNIOS

Etiology

Maternal conditions: Maternal diabetes

o Materno-Fetal conditions: Multiple gestation (twin-to-twin transfusion syndrome (Recipient twin)



APPROACH OF POLYHYDRAMNIOS

History

I. Pressure symptoms (Persistent SOB, heart burn, indigestion)

2. Uterine irritability and contractions

3. Abdominal discomfort

4. Lower limb edema

APPROACH OF POLYHYDRAMNIOS

Physical examination

- Large uterine size for gestational age (symphysofundal height) with
- stretched tense abdomen and increased stria gravida.
- Difficulty palpating fetal parts and hearing fetal heart.
- Unstable presentation

APPROACH OF POLYHYDRAMNIOS

Investigation and workup

I- Diabetes screening

2-Serological testing if underlying infectious cause if suspected

3-karyotype: Assessment of structural and chromosomal anomalies if diagnosed less than 30 week's gestation (fetal medicine referral)

4- 4d ultrasound for needed cases

5- Nonstress test, Biophysical profile, Doppler ultrasound.(For assessment)

ANTEPARTUM FETAL MONITORING

- Mild To Moderate Polyhydramnios

-NST and BPP upon diagnosis every I to 2 weeks until 37 weeks. Then weekly from 37 weeks to delivery

- Severe Polyhydramnios

-NST and BPP every week until delivery

COMPLICATIONS

1. In mild cases: General abdominal discomfort and slight dyspnea
2. moderate to severe: Marked respiratory distress and severe abdominal symptoms
3. premature rupture of membranes so preterm labor and Premature birth
4. Placental abruption
5. Umbilical cord prolapse
6. Macrosomia
7. Maternal respiratory compromise
8. Fetal malposition and mal-presentation
9. Cesarean delivery and NICU
10. Still-birth and Perinatal Mortality

Management of polyhydramnios

Amniotic Fluid Disorders | Polyhydramnios

Management in Singleton Pregnancies

Identifiable etiology

- **Guided Management**
  - Antepartum fetal & maternal surveillance
  - Intrapartum management
  - Timing of birth

  → Directed by specific underlying etiology of polyhydramnios

- **Severe Symptomatic Polyhydramnios**
  - Management of maternal symptoms similar to idiopathic polyhydramnios

Management in Singleton Pregnancies

Idiopathic Polyhydramnios - Depends upon

Antepartum Fetal Monitoring

- **Mild to Moderate: Biophysical profile/Nonstress test upon diagnosis (Every 1 - 2 weeks until 37 weeks & weekly thereafter)**
- **Severe: Weekly Biophysical profile/nonstress test from diagnosis to birth**

Society for Maternal-Fetal Medicine Guidelines

- **Antenatal fetal surveillance - Not considered mandatory in mild idiopathic polyhydramnios without other indicators**

Management in Singleton Pregnancies

Additional Issues

- **Without Severe Polyhydramnios**
  - No intervention required
  - No interventions improve pregnancy outcomes
- **With Severe Polyhydramnios**
  - Asymptomatic or Mild Symptoms
    - No intervention for amniotic fluid reduction is indicated
  - Severe Shortness of Breath or Abdominal Discomfort

- Decompression amniocentesis (Amnioreduction) suggested to normalize fluid volume

Amniotic Fluid Disorders

Polyhydramnios

Management in Singleton Pregnancies

Amnioreduction (Decompression Amniocentesis)

- **Procedure:** Performed under ultrasound guidance, with careful fluid removal
- **Complications:** Low rates
  - Preterm labor
  - Prelabour rupture of membranes
  - Abruption
  - Infection
  - Hypoproteinemia

-Not to remove the fluid faster than 1000ml over 20min

-Not tto remove more than 5L at one time

The procedure is terminated when :

the AFI is normalized (15-20cm)

intra amniotic pressure is less than 20mmHg

Management in Singleton Pregnancies

Preterm Labor/Frequent Uterine Contractility

- < 32 Weeks of Gestation
  - Indomethacin for 48 hrs to ↓ contractile activity & potentially delay birth

- ≥ 32 & < 34 Weeks
  - Other tocolytics may be used
  - Indomethacin - Avoided due to potential adverse effects

- ≥ 34 Weeks
  - Tocolytics not used
  - Initial course of betamethasone considered for pregnancies at risk of preterm birth

Management in Singleton Pregnancies

Indomethacin

- **Usage:** Not recommended solely for reducing amniotic fluid
- Used in specific cases (< 32 weeks gestation with preterm labor or uterine irritability)

- **The dose**: according to total AF (ranging from 50 mg/day to 200 mg/day)

Effect	Side effects
Reduce fetal urinary production	Constriction of the ductus arteriosus (risk increases with exposure exceeds 72h and advancing gestational age > 32 w)
Increases fluid movement across fetal membrane	Necrotizing enterocolitis (NEC)
Enhance absorption and decrease fetal lung amniotic production	Periventricular leukomalacia

Management in Singleton Pregnancies

Labor Management

- **Monitoring:** Frequent checks for fetal position due to excess amniotic fluid continuous fetal heart rate monitoring
- **Membrane Rupture:** Prophylactic amnioreduction considered during labor to prevent complications

TIMING OF DELIVERY

1. Mild to Moderate polyhydramnios with normal NST and BPP;inducelabor at 39-40 weeks; risk of fetal death appears to increase significantly at term.
2. Severe Polyhydramnios; induce labor at 37 weeks to minimize the risk of umbilical cord prolapse and/or abruption upon rupture of membranes.
3. Severe Polyhydramnios with intolerant maternal symptoms before 37 weeks; amniocentesis as early as 34 weeks and deliver if the fetal lungs are mature.

Oligohydraminos

refers to a low level of amniotic fluid during pregnancy (less than expected for gestational age) when amniotic fluid index less than 5cm & deepest vertical pool less than 2 cm .

It’s thought to affect approximately 5% of term pregnancies .

Etiology

maternal conditions :

-hypertensive disorders
-maternal DM
-uteroplacental insufficiency
-dehydration
-post term pregnancy
-PROM
-PPROM (most common 50%)

Drugs :

-indomethacin
-ACE inhibitors

Fetal conditions:

-renal agenesis
-urinary tract obstruction
-intrauterine infection
-chromosom aberrations
-IUGR
-TTTS

idiopathic :

Diagnosis

- history :

Inquire about symptoms of leaking fluid and feeling damp all the time (often described as new urinary incontinence).

-ph.E :

Measure the symphysis fundal height. (less than expected for gestational age)

Perform a speculum examination when considering PPROM as a cause for oligohydraminos .

- no specific symptoms
- Uterine size is much smaller than the period of amenorrhoea
- Fewer fetal movements
- The uterus "full of fetus" because of scanty liquid,
- Malpresentation (breech)
- Evidences of IUGR of the fetus

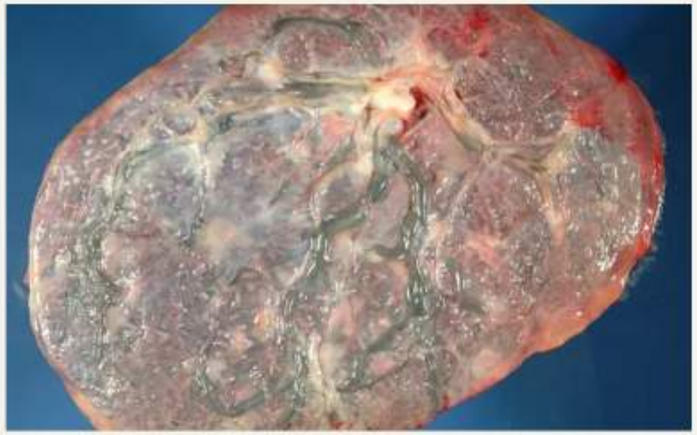
-ultrasound

assess for liquor volume , structural abnormalities, renal agenesis and obstructive uropathy

-Karyotyping (if appropriate) - particularly in cases of early and unexplained oligohydramnios.

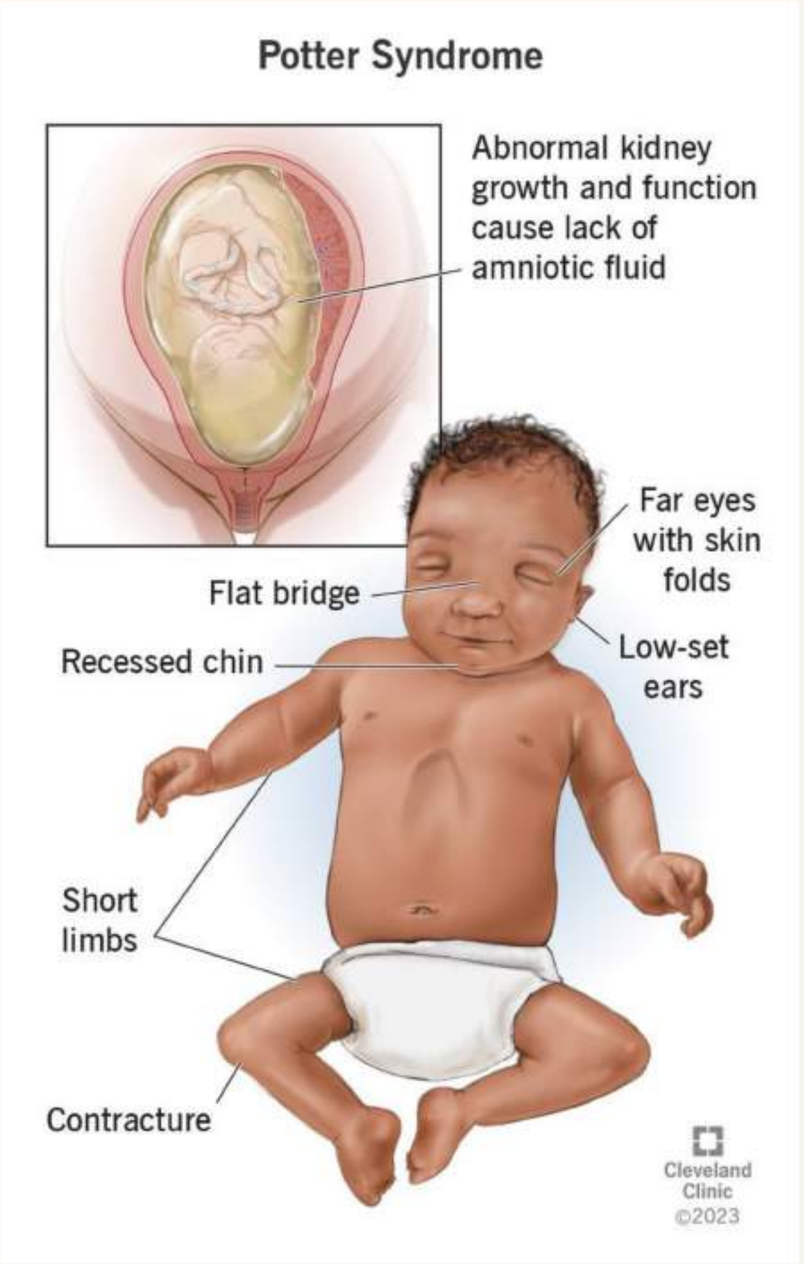
Complications of oligohydramnios

- Fetal death
- Intrauterine growth restriction
- Limb contractures (if oligohydramnios begins early in the pregnancy)
- Delayed or incomplete lung maturation (if oligohydramnios begins early in the pregnancy)
- Inability of the fetus to tolerate labor, leading to the need for cesarean delivery Risk of complications depends on how much amniotic fluid is present and what the cause is.
- cord compression, musculoskeletal abnormalities such as facial distortion and clubfoot, pulmonary hypoplasia and intrauterine growth restriction.
- Amnion nodosum is frequently also present (nodules on the fetal surface of the amnion



Potter sequence

- is a condition caused by oligohydramnios. Affected fetuses develop pulmonary hypoplasia, limb deformities, and characteristic facies. Bilateral agenesis of the fetal kidneys is the most common cause due to the lack of fetal urine.

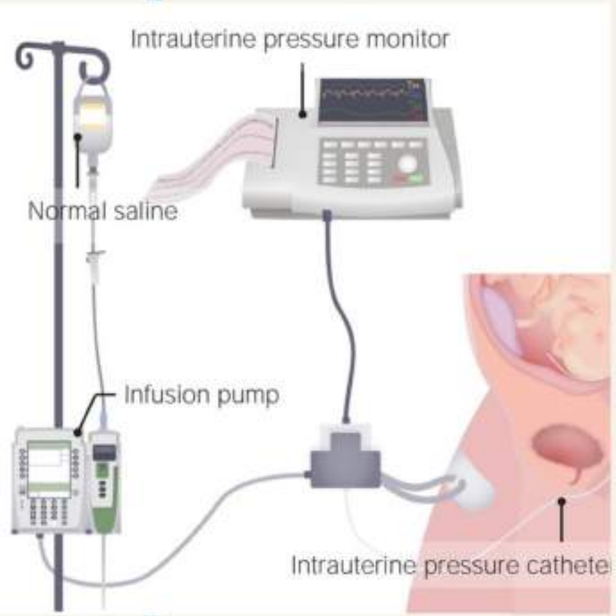


Managment of oligohydramnios

🆘Take history to exclude PROM🆘

Management of oligohydramnios depends entirely on the underlying etiology. In pregnancies that are IUGR, a host of other data should be considered, including the rest of the BPP, umbilical artery Doppler flow, gestational age, and the cause of the IUGR. Labor is usually induced in the case of a pregnancy at term.

AMNIOINFUSION



Amnioinfusion refers to the instillation of fluid into the amniotic cavity.

If there is meconium or frequent variable decelerations in the FHR, an amnioinfusion may be performed to increase the AFI. Traditionally, amnioinfusion has been performed to dilute any meconium present in the amniotic fluid, and therefore decrease the risk of meconium aspiration syndrome.

MANAGEMENT OF ISOLATED OLIGOHYDRAMNIOS AT TERM

- **Borderline; AFI above 50mm but below 5th percentile:**

  o USS for EFW, LV, Umbilical artery Doppler every 2 weeks if stable.

  o Ask patient to report any change in fetal movements. CTG indicated if altered movements.

- **DVP <2cm or AFI < 50mm:**

  o Induction of labour should be consider.

MANAGEMENT OF PRETERM OLIGOHYDRAMNIOS

Borderline:

o 2 Weekly scans for EFW, LV and Umbilical artery Dopplers until LV normalises or until decision to induce at term.
o The woman should be advised to report any concerns regarding fetal movement.

DVP <2cm or AFI < 50mm:

o Consider other causes e.g. PPROM and manage appropriately.
o Seek senior/consultant advice, especially in anhydramnios.
o For conservative management scan weekly for LV and Doppler, with EFW every 2 weeks.
o CTG twice a week advised, or if the patient reports altered fetal movements.
o Steroids are recommended for fetal lung maturity if delivery is planned or anticipated within one week and gestation less than 36 weeks.

DRUGS MODIFCATION

For mothers who are not aware about the drugs that causes oligohydramnios have to be counseled and change the drug into safer one.

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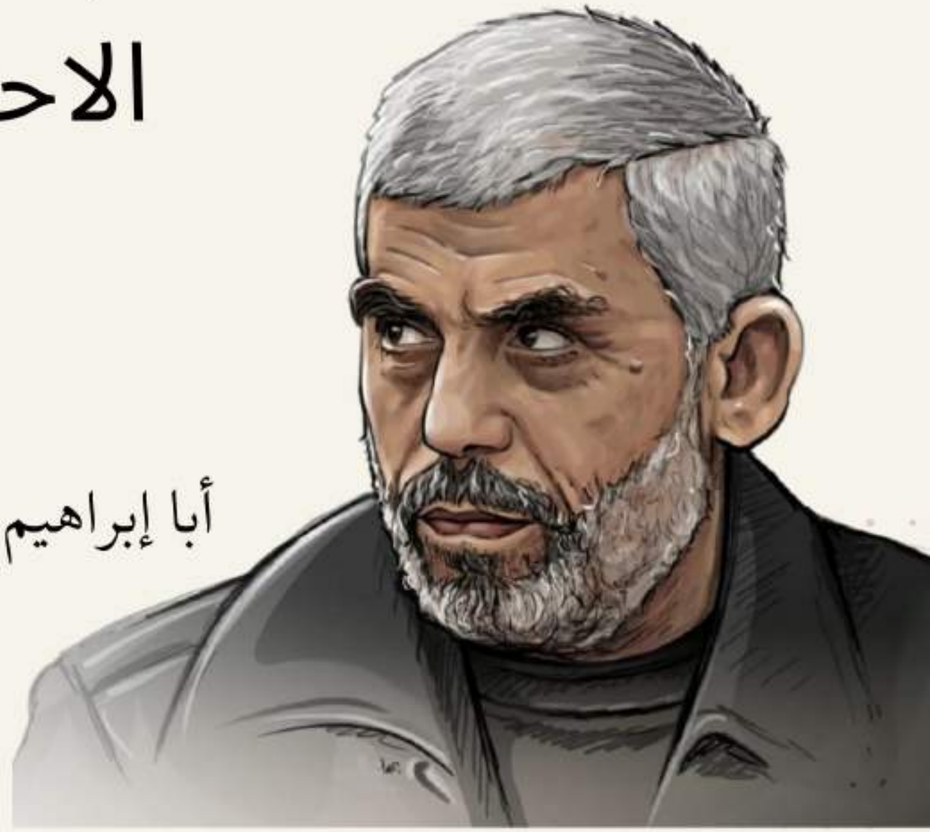
الاحتلال **هي أن يغتالني**



أبا إبراهيم