

Obstetric 2

The embryo, The yolk sac, multiple pregnancy

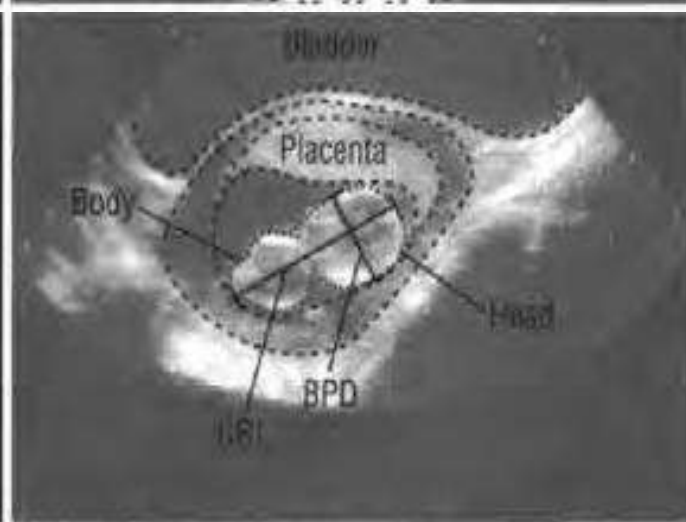
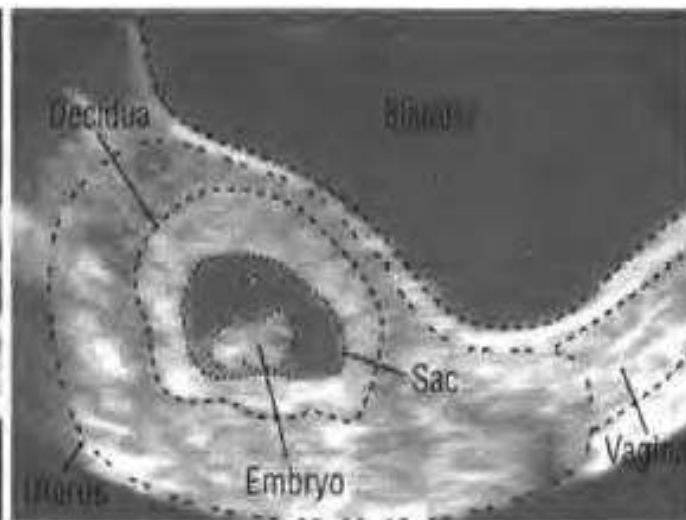
The embryo:

gestational sac can be recognized at **5 weeks** in some patients and at 6 weeks in the majority.

the embryo may does not become visible until the **eighth gestational week**.

After the ninth or tenth week, the fetal head can be distinguished from the body.

After the twelfth week, the skull becomes visible.



Multiple pregnancy

it is possible to diagnose multiple pregnancy is at about 8 weeks and is best seen between 18 and 22 weeks.

Multiple pregnancy can usually be recognized at about 8 weeks, but do not tell the patient until confirmed by a scan after 14 weeks.



Abnormalities in the first three months of pregnancy

1-Small gestational sac:

A small gestational sac is usually due to a **blighted ovum**. On ultrasound examination the gestational sac is found to be smaller than expected for the gestational age, and the fetus cannot be demonstrated.



2- Fetal death (spontaneous abortion)

When there is a fetal or embryonic death, the patient may remain clinically normal and may continue to feel pregnant for days.

There may be a history of bleeding or abdominal cramp

The fetal pole may be visible but no heart action will be demonstrated.



3- Incomplete abortion

the uterus will be smaller than expected for gestational age and filled with irregular sac.

or amorphous mass of variable size, shape and echogenicity which represent the retained placenta and blood clots

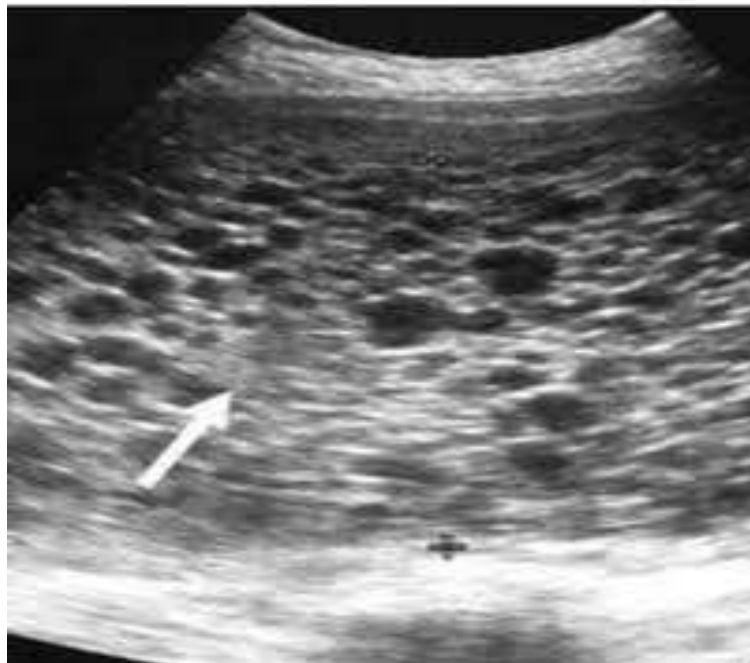


4- Large uterus

The commonest causes of a uterus large uterus are:

a- Hydatidiform mole.

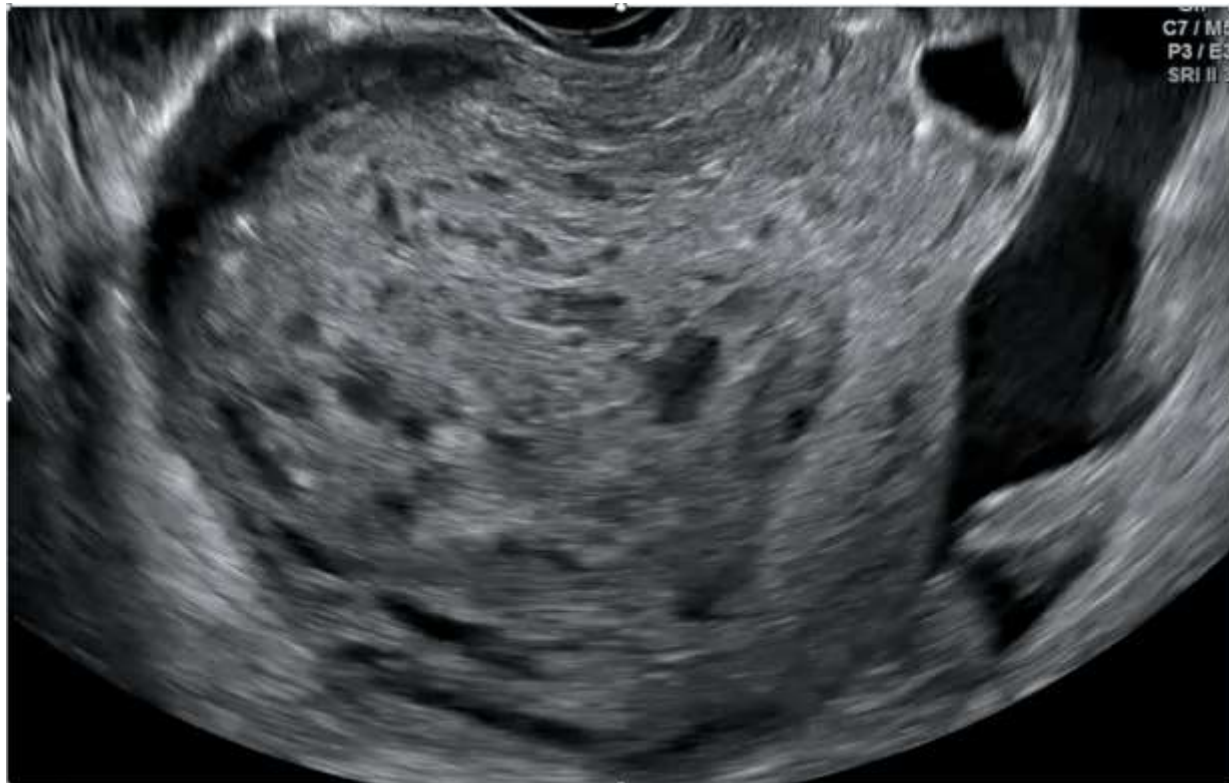
Ultrasound is almost always abnormal and shows a large uterus filled with a mass of uniform echoes seen with cystic spaces(vesicles)



b- Choriocarcinoma

choriocarcinoma may be indistinguishable from a hydatidiform mole by ultrasound.

The pattern of choriocarcinoma may be mixed with both solid and fluid echoes with areas of necrosis and hemorrhage



c- myoma

In the first trimester a large, irregular uterus is usually due to uterine myomas.

Estimation of fetal size and age (fetal biometry)

1- Crown-rump length measurement (CRL)

The crown-rump length is the most reliable parameter for estimating gestational age up to the **eleventh week**.

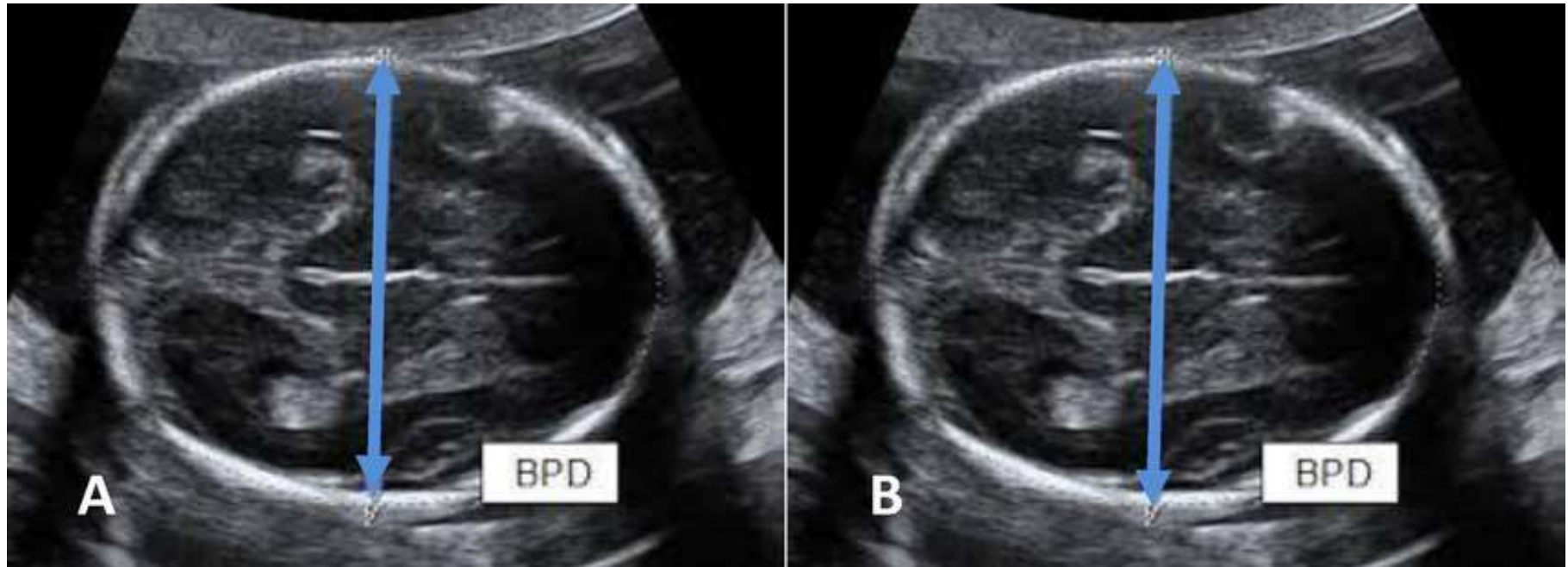
the longest length of the embryo should be found and a measurement made from the head (the cephalic pole) to the outer edge of the rump. The yolk sac should not be included.



2-Biparietal diameter

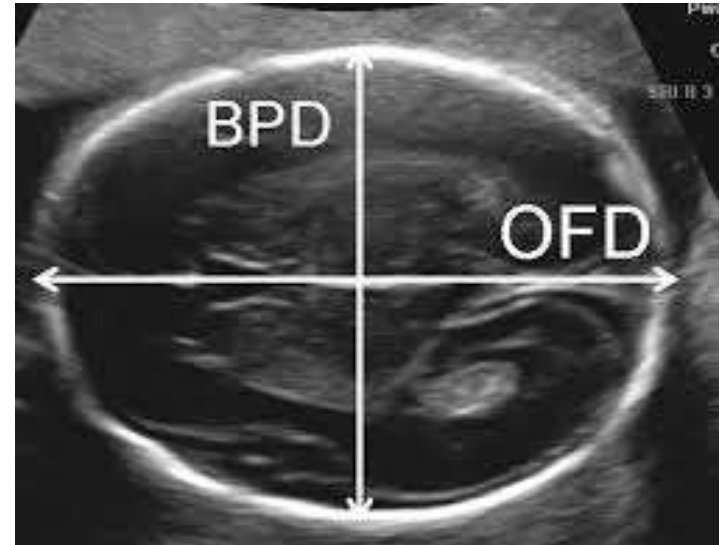
- * This is the most reliable method of estimating gestational age between the 12th and the 26th weeks.**
- * It must be considered together with other measurements, such as femoral length or abdominal circumference.**
- * The biparietal diameter (BPD) is the distance between the parietal eminences on either side of the skull and is, therefore, the widest diameter of the skull from side to side.**
- * the transverse section will be recognized when the shape of the fetal skull is ovoid and the falx cerebri is interrupted by the cavum septi pellucidi and the thalami.**

measurements made from the outer table of the proximal skull
(the part nearest to the transducer) to the inner table of the
distal skull



3- Fronto-occipital diameter

The fronto-occipital diameter is measured along the longest axis of the skull at the level of the biparietal diameter (BPD), from outer edge to outer edge.



Cephalic index

$\text{cephalic index} = \text{biparietal diameter} \div \text{fronto occipital diameter} \times 100$

Normal range = 70-86

4- Head circumference

If the cephalic index is outside this range (less than 70 or greater than 86), the measured BPD should not be used.

Instead, the head circumference can be used.

Head circumference = Biparietal diameter + Fronto-occipital diameter \times 1.57

5- Abdominal circumference

Abdominal circumference = (Antero-posterior diameter + Transverse diameter) \times 1.57

If the abdominal circumference is less than the fifth percentile, it is small. If it is greater than the 95th percentile, it is large

6-Fetal long bone measurements

- * When measuring bone length, **it is necessary to reduce the gain**. It is usually easy to see fetal long bones from 13 weeks .
- * The femur is the easiest bone to recognize and measure
- * Measurements are made from one end of the bone to the other end



Using the biparietal diameter alone, about 60% of growth-retarded fetuses will be detected. Using the abdominal circumference as well as other measurements, the sensitivity increases to 70-80%.

Ultrasound can demonstrate the fetal head by the eighth week of gestation, but intracranial anatomy becomes visible only after 12 weeks.

the cavum septi pellucidi and the thalami these are seen only after the thirteenth week

Fetal spine

The fetal spine can usually be identified by the **12th week** but can be clearly seen from the **15th week** of gestation.

In the second trimester (12-24 weeks), the vertebral bodies have three separate ossification centers:

the central one will form the **anterior mass of the vertebra** and the two posterior centers will form **the laminae**

These are seen as two strongly echogenic lines.

longitudinal scans are needed **to exclude defects or meningocele**

