

## **FETAL ULTRASOUND FIRST TRIMESTER < 14 WEEKS**

- Patient Prep (recommended):
  - Patients are recommended to drink 32 ounces of water 2 hours prior to exam time. The water should be finished 1 hour prior to exam time. The patient should have a full bladder for exam.
- Survey:
  - Perform a real-time survey of the pelvis with attention to Gestational Sac, Embryo, Yolk Sac, Uterus, Cervix, Ovaries and Adnexa.
  - Use Doppler or color flow to distinguish vessels and on any abnormalities.
  - Doppler or color flow should never be utilized on the embryo except to confirm NO CARDIAC ACTIVITY. The embryo should measure 5mm or greater to utilize Doppler or color flow on it. Only utilize M mode to confirm or exclude cardiac activity if the embryo measures less than 5mm.
- Multiple pregnancies require that a survey is performed for yolk sac number, gestational sac number, fetal size comparison, presence or absence of an interposed membrane, umbilical cords and fetal genitalia (when visualized).
- Each fetus will have the required documentation and measurements provided.
- Image Documentation:
  - Each image must be labeled with the patient's full name, medical record number, accession number, initials of the imaging technologist, organ/area identification and scanning plane.
  - If an image of a structure is not well seen, take an image of the structure and annotate the purpose of the image (i.e. right ovary not well seen).
- For dating purposes:
  - If an EDD (Estimated Date of Delivery) has been determined from a prior ultrasound this is to be used for dating. If the patient has not had a prior ultrasound but the LMP (Last Menstrual Period) is known for sure use this date. If the EDD and LMP is not available dating will be based on the measurements from this ultrasounds.
  - All follow up ultrasounds will use the established EDD from the first ultrasound for dating. This will show growth of fetus between ultrasounds.

## **General Procedure Description**

1. The uterus including the cervix, cul-de-sac, ovaries and adnexa should be examined transabdominally. Representative images of organs in two planes should be obtained in transverse and longitudinal axes.
2. The gestational sac, yolk sack and embryo should be examined, transabdominally.
3. M-mode Doppler of cardiac activity should be documented.
4. The placenta (if present) and sub-chorionic area should be examined in patients with abnormal bleeding.

\* If this information cannot be obtained adequately with the transabdominally scan then a transvaginal scan should be preformed if permissible.

## **Guidelines for Fetal First Trimester Ultrasound**

### **UTERUS**

1. Representative images of the uterus in the longitudinal axis demonstrating midline, right of midline and left of midline. Measurements of the length and depth on the midline scan are to be documented.
2. Representative images of the uterus in the transverse plane demonstration inferior, mid and superior (fundus). Measurement of the width of the uterus at the fundus is to be documented.
3. A longitudinal axis image of the cervix with measurement.
4. Any abnormality of the uterus documented in longitudinal and transverse axis with measurements. A color flow image of abnormality if appropriate.

### **OVARIES:**

1. Two longitudinal axis images of each ovary. Measurements of the length and depth are to be documented.
2. Two transverse axis images of each ovary. Measurement of the width to be documented.
3. A volume measurement of each ovary documented.
4. Color flow image of each ovary documented.
5. Doppler waveforms of each ovary should be recorded to document relevant venous and arterial blood supply as the guidelines below state. \* See Below
6. If an ovary cannot be located, take an image in the area of the ovary and annotate the purpose of the image (i.e. ovary not seen).
7. Document any cysts, follicles or solid masses in the ovaries. Take longitudinal and transverse measurements as necessary. Document color flow and Doppler waveforms as needed. \* See Below

### **ADNEXA:**

1. One longitudinal axis image of each adnexa to be documented.
2. One transverse image of each adnexa to be documented.
3. If pathology is noted, assess the relationship to the ovaries and uterus.

### **CUL-DE-SAC:**

1. One long axis image of the cul-de-sac.
2. One transverse image of the cul-de-sac.
3. Any fluid or abnormality in the cul-de-sac documented.

### **GESTATIONAL SAC:**

1. Representative images of the gestational sac in longitudinal axis.
2. Representative images of the gestational sac in transverse axis.
3. The location of the gestational sac documented.
4. Measurements of the length, depth and width of the gestational sac. These measurements should only be entered into the report page if an embryo is not visualized. A mean sac diameter is obtained if the measurements are entered into the report page.
5. The gestational sac measurements are obtained by measuring inner-to-inner dimensions.
6. Caution should be used stating fluid seen in the endometrium is a gestational sac without the presence of a yolk sac. This fluid could represent a pseudo-gestational sac.
7. If more than one gestational sac is seen, each gestational sac needs to be imaged individually.

### **YOLK SAC:**

1. Representative images of the yolk sac in longitudinal axis.
2. Representative images of the yolk sac in transverse axis.
3. The size (yolk sac diameter) and shape of the yolk sac documented.
4. The yolk sac diameter is obtained by measuring inner-to-inner dimension.
5. If the placenta is seen representative images in the longitudinal and transverse axis documented.

### **EMBRYO:**

1. Representative images of the embryo in longitudinal axis.
2. Representative images of the embryo in transverse axis.
3. A minimum of two embryo (CRL) measurements obtained.
4. The CRL measurement is obtained by measuring from the cephalic to caudal end of the embryo in the longitudinal axis.
5. A biparietal diameter (BPD) maybe obtained.
6. Cardiac activity and fetal heart rate documented with M mode Doppler.
7. A clip store image should be obtained to demonstrate the presence of cardiac activity.
8. Images of the embryo needed to be obtained without a measurement.

### **CARDIAC ACTIVITY**

1. Doppler or color flow should never be utilized on the embryo except to confirm NO CARDIAC ACTIVITY. The embryo should measure 5mm or greater to utilize Doppler or color flow on it. Only utilize M mode to confirm or exclude cardiac activity if the embryo measures less than 5mm.
2. Cine loop (clip store) should be utilized to confirm or exclude cardiac activity.
  - All color Doppler images should be with and without color.
  - All measurement images should be with and without measurement.

08/2018  
Revised 5/2019