Chapter 20
Ultrasound of the Normal Fetal Chest, Abdomen, and Pelvis

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Objectives

• Determine fetal lie in relation to maternal anatomy.
• Discuss the difference between anatomic planes, and DICOM and ISOUG anatomic reference terms.
• Explain basic embryology for systems located within the thorax, abdomen, and pelvis.
• Recognize the sonographic appearance of normal chest, abdomen and pelvic anatomy.
• Describe the appearance of pseudoascites of the abdomen.

Maternal Scan Planes

Fetal Scan Planes / Lie

Fetal Presentation

The Thorax

• Bony Structures
  - Clavicles
  - Ribs
  - Scapulae
  - Vertebral bodies
  - Sternum
Chest Biometry
- Thoracic Circumference
- Taken at level of fetal heart
- Rules out pulmonary hypoplasia

Lungs - Embryology
- Begin in forth week
- Stages
  - Embryonic
  - Pseudoglandular
  - Canalicular
  - Terminal saccular
  - Alveolar

Lungs – Sonographic Appearance
- Two lungs surrounding the heart
- Homogeneous echo texture
- Echogenicity dependant on gestational age
- Color flow decreased with underdevelopment
**Diaphragm - Embryology**
- Develops in eighth week
- Fusion of multiple structures

**Diaphragm – Sonographic Appearance**

**Thymus - Embryology**
- Formed by the third pharyngeal pouch
- Descends to posterior sternum

**Thymus – Sonographic Appearance**

**Larynx**
- Anterior to trachea
- Imaged when filled with fluid
- Nontransient fluid raises suspicion for laryngeal atresia or stenosis

**Abdomen – Transverse Plane**
- Spine
- Skin integrity
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- Biometry
  - Stomach
  - Liver
  - Portal system

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- Spine
- Skin integrity
- Biometry
- Renal position/number

Abdomen – Transverse Plane
- Spine
- Skin integrity
- Biometry
- Renal position/number
- Umbilical vessels/bladder

Abdominal – Transverse Plane
- Pseudoascites
  - Hypoechoic muscle layer
- Fat folds

Abdominal – Transverse Plane
- Establish fetal lie
- Determines abdominal situs
- Compare to fetal heart apex
- Apex / stomach on left side