Chapter 22
Fetal Echocardiography

Marium Holland and Joan M. Mastrobattista

Objectives

• Summarize the embryonic development of the heart.
• Explain the differences in fetal and neonatal circulation.
• Describe the sonographic techniques for the basic fetal echocardiographic examination.
• List the five views used in the systematic examination of the fetal heart.
• Describe uses of a 3D data set in imaging the fetal heart.
• Determine the presence of an arrhythmia from an M-mode tracing.

Embryology

Fetal Heart

Fetal Heart
Sonographic Evaluation

- Four chamber heart the minimum views
- Other views
  - LVOT
  - RVOT
  - Great vessel
  - Aortic arch
  - Ductal arch
  - Great vessels

Basic Protocol for 2D Fetal Echo imaging
Adenomatoid Malformation

LVOT of the Fetal Heart

Hypoechoic Diaphragm

Right Ventricular Outflow Tract

Fetal Aortic Arch

Ductal Arch
Premature Atrial Beat

Fetus with supraventricular Tachycardia.

Congenital Heart Defects

A Four-Chamber View

Interventricular Septal Defect

Atrial Septal Defect
Endocardial Cushion Defect

Hypoplastic Left Heart

Hypoplastic Left Heart

Right Ventricular Hypoplasia (Pulmonary Atresia)

• Extremely uncommon
• Usually results from pulmonary atresia
• Tripartite anomaly classification
  • inlet, tricuspid valve
  • apical trabecular portion, tricuspid papillary muscle & region
  • infundibulum (conus), pulmonary valve

Diagnosed by small right ventricle
• Patent tricuspid valve
• Small pulmonary artery with absence of blood flow
• Frequently includes left atrial/left ventricular enlargement

Significant right to left shunt
• Lack of right ventricular & outflow tract development