ANSWERS: CHAPTER 22

MATCHING

IMAGE LABELING
1. umbilical arteries
2. umbilical cord
3. umbilical vein
4. ascending aorta
5. ductus arteriosus
6. superior vena cava
7. lung
8. heart
9. inferior vena cava
10. liver
11. descending aorta
12. kidney
13. cut and ligated umbilical cord
14. atrial opening
15. aorta, very small
16. patent ductus arteriosus
17. left ventricle, underdeveloped
18. inferior vena cava
19. right atrium
20. pulmonary trunk
21. foramen ovale
22. superior vena cava
23. aortic arch
24. ductus arteriosus
25. left atrium
26. ventricular septal defect
27. atrial septal defect
28. patent ductus arteriosus
29. tricuspid atresia
30. atrialized right ventricle
31. right atrium
32. aorta
33. pulmonary artery
34. left atrium
35. left ventricle
36. functional right ventricle
37. inferior vena cava
38. right atrium
39. pulmonary trunk
40. foramen ovale
41. superior vena cava
42. aortic arch
43. ductus arteriosus
44. left atrium
45. ventricular septal defect
46. persistent truncus arteriosus
47. aorta
48. pulmonary artery

MULTIPLE CHOICE

FILL-IN-THE-BLANK
1a. 3  
1b. 5  
2a. left  
2b. 45  
2c. left  
3. dextroposition  
4. four-chamber  
5. M-mode  
6. pulmonary artery  
7a. aortic  
7b. candy cane  
8. bradycardia  
9. ventricular septal defect (VSD)  
10a. ductus arteriosus  
10b. foramen ovale  
10c. ductus venosus  
11. spatiotemporal image correlation (STIC)  
12a. thickened  
12b. outlet  
13a. coarctation  
13b. no flow  
14. parallel  
15. AVSD  
16. four-chamber  
17. cardiogenic cords  
18. sinus node  
19. nonimmune  
20a. right  
20b. left

SHORT ANSWER
1. M-mode imaging is performed by placing the cursor through one of the atria and one of the ventricles while in a four-chamber view. Alternatively, the short axis view may be used, with the cursor placed between the left atrium and the aorta.

2. The key findings of right atrial enlargement with apical displacement of the tricuspid valve are apparent on either apical or subcostal four-chamber views, and the degree of tricuspid regurgitation is easily measured with pulsed Doppler.

3. Both TGA and DORV will display a parallel aorta and pulmonary artery.

4. The foraminal flap should be seen opening into the left atrium.
5. The aortic arch can be visualized by angling the transducer from the left shoulder to the right hemithorax while in a longitudinal view of the fetus. Distinction between the aortic arch and the more caudal ductal arch is possible by identification of the head and neck vessels (brachiocephalic, left common carotid, and left subclavian artery), which arise from the superior aspect of the aorta.

**IMAGE EVALUATION/PATHOLOGY**

1. The image displays a four-chamber view demonstrating a large VSD (arrowhead).

2. This image demonstrates a four-chamber heart with asymmetrical chamber sizes. The diagnosis is hypoplastic left heart. Note the heart is positioned correctly in the fetal chest, the right ventricle forms the apex, and the moderator band is seen in the enlarged right ventricle.

3. The sonogram demonstrates the left ventricular outflow tract exiting the LV (left ventricle). The small echogenic structure visualized within the LVOT is the aortic valve (AoV). RV is the right ventricle, and LA is the left atria.

4. The fetus is in a prone position. The view is longitudinal. Long arrow points to aortic arch, short thick arrow points to brachiocephalic artery, dashed arrow points to left common carotid artery, open arrow points to left subclavian artery, and curved arrow points to the descending aorta.

5. The image reflects truncus arteriosus. The aorta and pulmonary artery failed to divide into separate vessels. A VSD and single valve are present. Associated cardiac anomalies include both valvular insufficiency or stenosis, absent ductus arteriosus (50% to 75%), and right-sided aortic arch (30%).

**CASE STUDY**

1. This IM (inversion mode) image clearly defines the right ventricle with the pulmonary artery exiting and crossing over the aorta in a normal fashion. This patient opted away from amniocentesis. The fetus appeared decidedly normal sonographically.

2. Duplex M-mode recording show evidence of supraventricular tachycardia. The M-line is traversing the left ventricle and right atrium.