**Physical exam fellow problem set 4/28/20 SPCTPD pre test**

Case I: 6 y/o asymptomatic female with normal growth and vital signs presents to you. Exam is normal except for heart exam. She has a RV heave, normal S1 with a split fixed S2. There is a soft 2/6 SEM at the ULSB that radiates to the back. She has a RV heave

1. RV heave is a) Right ventricular impulse felt at the LLSB b) may be due to RV pressure overload c) may be due to RV volume overload d) may be from an ASD e) all of the above
2. S2: A) is the closure of aortic and pulmonary valves b) closure of aortic valve occurs because the conduction system (left bundle) conducts to the aortic valve before the pulmonary valve c) A2 occurs before P2 b/c the hangout period in the systemic circulation is less so closes the aortic valve before the pulmonary valve d) is the most important part of the exam e) all of the above
3. The differential diagnosis (DDX) of a systolic ejection murmur at the ULSB is a) ASD b) Pulmonary stenosis (PS) c) flow murmur d) sub pulmonary stenosis e) all of above
4. The most likely diagnosis is a) ASD b) PS c) flow murmur d) subPS e) AS

Case II: You a 2 month newborn male in your office for the first time. Birth weight is 3 kg and child weighs 3.1 kg today. Mother reports he takes 45 minutes to feed from a bottle and sweats. His P is 170, RR 80, BP 80/55 in all extremities. His pulse ox is 100%. On cardiac exam, his PMI is in the 5th intercostal space in the anterior axillary line. S1 is normal. S2 is not able to be heard due to the loud 3/6 holosystolic murmur at the LLSB that does not radiate.

5. The normal PMI for a 2 month is a) 4th left intercostal space in midclavicular line b) 4th left intercostal space in anterior axillary line c) 5th left intercostal space in midclavicular line d) 5th left intercostal space in anterior axillary line e) all of above

6. Is 3.1 kg a normal weight for this age? T or F

7. An abnormal feeding time for a newborn is a) <10 minutes b) <20 minutes c) <30 minutes d) >30-45 minutes d) <5 minutes

8. A normal RR rate for a newborn is a) 10 b) 20 c) 30 d) 40 e) 40-60 bpm

9. A normal awake HR for a 2 month is a) 40 b) 60 c) 80 d) 100 e) 120-180 bpm

10. Causes of a pansystolic murmur are a) VSD or ventricular septal defect b) TR or tricuspid regurgitation c) MR or mitral regurgitation d) AV valve regurgitation e) all of above

11. The clinical scenario described is a) CHF b) shock c) hypercyanotic spell d) Normal e) none of above

12. The most likely diagnosis is a) VSD b) TR c) MR d) AV valve regurgitation e) none of choices

Case III: You see a 3 y/o male in your office. Past medical history is normal. Child is asymptomatic. Vital signs and growth are normal. Pulses and pulse ox are normal. On exam, lungs are clear. S1 is normal. S2 varies with respiration. The PMI is normal. There is a 2/6 SEM at the apex that is louder supine. It radiates to the RUSB, ECG and CXR are normal.

13. The ddx of this murmur is a) Stills murmur b) subaortic stenosis or SAS c) Hypertrophic CMP or HCM d) mitral regurgitation or MR e) all of above

14. The most likely dx is a) Stills murmur b) SAS c) HCM d) MR e) none of above

Case IV: You are on the NICU rotation. There is a 1000 gm 28 week old male that is 1 week old. He is unable to wean off ventilator. Vital signs are normal except for a BP of 50/20 mm Hg(mean 30) in all extremities. Pulses are bounding. He is still 1000 gms. On exam, lungs are clear. PMI is normal. S1 is normal S2 is masked by murmur. There is a 2/6 continuous murmur at LUSB that radiates to the axilla and back.

15. A normal pulse pressure is systolic minus diastolic pressure which should be greater than diastolic. T or F

16. What is ddx of continuous murmurs at the LUSB: a) PDA b) venous hum c) coronary artery fistula d) all of above

17. The most likely diagnosis is a) PDA b) venous hum c) coronary artery fistula d) None of above

Case IV: A 6 y/o female patient comes to see you from a foreign country. You have no past history. Vital signs are P 80 RR 20 BP 90/60. Pulses are normal. The pulse ox is 100%. There is no clubbing. Growth is normal. On exam, there is a midline scar on the chest. Lungs are clear. PMI is in the 4th LICS in the midclavicular line. S1 is normal S2 is single. You hear a sawing 2/6 SEM at LUSB radiating to back and 2/6 DM at the LLSB.

18. Murmurs are systolic because a) there is a pressure gradient between two chambers eg VSD b) There is a leak between two chambers eg MR c) There is relative stenosis across an outflow tract due to increased flow eg ASD d) all of above

19. S1 a) is closure of MV and TV b) MV occurs before TV c) helps signal the start of systole d) Is not usually pathologic e) all of above

20. Causes of a single S2 are) aortic atresia (AA) b) Pulmonary atresia (PA) c) Pulmonary artery hypertension (PAH) and loud S2 d) transannular patch in RVOT d) all of above

21. DDX of SEM at LUSB is a) ASD b) PS c) flow murmur d) subPS e)all af above.

22. DDx of a diastolic murmur is a) aortic regurgitation (AR) b) pulmonary regurgitation (PR) c) tricuspid stenosis (TS) d) mitral stenosis (MS) e) all of above

23. The most likely diagnosis is a) PS/PR s/p TOF surgery b) AS/AR s/p AV surgery c) PDA d) VSD e) truncus arteriosus

Case V: You are seeing a 16 y/o male in office. Child is asymptomatic. VS and growth are normal. There is a 3/6 SEM at apex that is louder standing. It radiates to the RUSB. He wants to play in his high school basketball game tonight in 1 hour.

24: The DDx of his SEM is a) supravalvar AS b) aortic stenosis from a bicuspid aortic valve (BCAV) c) supravalvar aortic stenosis d) hypertrophic CMP e) all of above

25. The NEXT best step is a) restrict from game tonight b) refer to pediatric cardiologist c) obtain genetic testing d) obtain an ecg e) obtain an echo

Case VI: You see a 16 y/o athletic male for fainting during exercise. Vital signs are normal. Orthostatic vital signs are normal. Exam is normal except for cardiac exam. On cardiac exam, the PMI is the 5th LICS midclavicular line. S1 is followed by an extra sound. S2 is split and varies with respirations. There is a 2/6 harsh SEM (systolic ejection murmur) at the RUSB radiating to the neck. There is a 2/6 high pitched diastolic descrescendo murmur at the LUSB radiating to the apex.

26. How can you explain an extra sound after S1? A) MV click due to MVP b) from mitral regurgitation c) There is an ejection click due to a bicuspid aortic valve c) tricuspid valve atresia d) Mitral atresia e) A and C

27. T or F Murmurs radiate to low pressure chambers

28. The DDx of his SEM in the URSB is a) supravalvar AS b) aortic stenosis from a bicuspid aortic valve (BCAV) c) subvalvar aortic stenosis d) hypertrophic CMP e) all of above

29. The DDx of his DM in the RUSB radiating to the apex is a) aortic regurgitation b) pulmonary regurgitation c) mitral stenosis d) tricuspid valve stenosis e) VSD with Qp/Qs 2:1

30. The most likely diagnosis is a) Valvar aortic stenosis (due to a BCAV) with aortic stenosis and aortic regurgitation b) hypertrophic CMP c) Valvar pulmonary stenosis with pulmonary regurgitation d) s/p TOF repair with pulmonary stenosis/regurgitation e) all of above

31. Tor F You should restrict from exercise.

**Sources** Herrington article A Primer on Cardiac Auscultation. 1980. Heartsounds.unc.edu/learn.html