Case Study – Cardiovascular

Chief Complaint: 74-year-old woman with shortness of breath and swelling.

History: Lisa Roberton, a 74-year-old woman with a history of rheumatic fever while in her twenties, presented to her physician with complaints of increasing shortness of breath ("dyspnea") upon exertion. She also noted that the typical swelling she's had in her ankles for years has started to get worse over the past two months, making it especially difficult to get her shoes on toward the end of the day. In the past week, she's had a decreased appetite, some nausea and vomiting, and tenderness in the right upper quadrant of the abdomen.

On physical examination, Lisa’s jugular veins were noticeably distended. Auscultation of the heart revealed a systolic murmur in the pulmonary valve. In addition, she had an extra, "S3" heart sound. A chest X-ray reveals a cardiac silhouette that is normal in diameter and the lungs appear free from edema.

Questions: BRIEFLY answer each of these questions using the book, lecture notes, and the internet. Your answers should be no more than one page long total.

1. What is causing her "S3" heart sound?
2. You examine Lisa's abdomen and find that she has an enlarged liver ("hepatomegaly") and a moderate degree of ascites (fluid in the peritoneal cavity). Explain these findings.
3. Examination of her ankles reveals significant "pitting edema" (edema that responds to touch by leaving behind a “pit” on the skin). Explain this finding.
4. She is advised to wear support stockings. Why would this help her? In terms of the factors involved in capillary exchange, which part of the equation do the support hose affect?
5. Which term more accurately describes the stress placed upon Lisa's heart -- increased preload or increased afterload?
6. What is the general term describing Lisa's condition?
7. Which side of Lisa’s Heart is affected? (Hint: look at the valve findings, the systemic symptoms and the negative findings on the heart X-ray).
8. How might Lisa's body compensate for the above condition?
9. Lisa is started on a medication called digoxin. Why was she given this medication, and how does it work?
10. Two weeks after starting digoxin, Lisa returns to the physician's office for a follow-up visit and is still suffering some of the same symptoms. Her physician prescribes a diuretic called furosemide (or "Lasix"). Why was she given this medication, and how does it work?
11. How are Lisa’s symptoms different than if the other side of her heart was affected? Often, if the problem originates on the other side of the heart, it eventually leads to symptoms just like Lisa’s. Explain.