Case 1

Describe the histology of a normal coronary artery. (Be sure to describe all of the layers of the artery in your discussion.)

What are the predominant cell types in each layer?
Case 1

What structure(s) are indicated by the box?
What are the functions of the cells?
Describe how environmental factors can contribute to injury of these cells and the subsequent changes that occur.

Case 1 - On this lower power image (Weigert Elastin Stain), distinguish the artery vs vein. Discuss your rationale. What kind of artery is it?
What other structures are in the image?

Case 2
A 57-year old man has experienced chest pain with exertion for the past year. For example, when he walks up a flight of 10 or more stairs he develops a pain in his chest which subsides within several minutes when he sits down and rests.

What diagnoses are you considering based on the brief history? Which do you favor?

Compare and contrast the gross findings of the relatively normal coronary artery cross section in A and the pathology in B.
Case 2

Identify the key histologic components of the patient’s left anterior descending coronary artery. Compare and contrast the normal artery in A and the pathology in B (H&E low power). Be sure to describe what the stars are highlighting.

A
B

What is your pathologic diagnosis?
Correlate the clinical history with the pathologic findings.
How would you explain this to the patient?

Case 3
Case 3

A 67-year old man presents to the emergency department with 10/10 crushing substernal chest pain. The pain is greatest over his left chest and radiates down his left arm.

Case 3

List at least 4 life-threatening causes of chest pain.

Case 3

Compare and contrast the gross findings of heart A and the patient’s heart B.
Case 3
Describe the gross findings in the cross section of the coronary artery.

Case 3
What is your diagnosis?

Based on the gross findings, when did this event occur? Discuss your rationale
Case 4

A 45-year old woman with diabetes mellitus, type 1 complained of “not feeling well” for several days. She collapses from a cardiac arrest and cannot be resuscitated. An autopsy is performed.

Case 4 – LAD coronary artery 1 month before autopsy

Describe the histologic findings
What are the green and yellow boxes highlighting?

Case 4 – LAD at Autopsy

Compare and contrast the normal histologic findings in A and pathology in B (H&E Low power). What are the circle, box and arrow highlighting?
Case 4 – Left Ventricle at Autopsy

Compare and contrast the microscopic findings in the normal heart in A and the pathology in B (H&E Low and High power).

Case 4

What is your diagnosis?

Based on the histologic findings, when did this event occur? Discuss your rationale.

Case 4

Are the patient’s symptoms typical of this disease process?

Provide a rationale to your answer.
Case 4
Define the term “vulnerable plaque”.
Compare the coronary artery anatomy in case 2 and case 4 (H&E Low power). Which artery depicts the presence of an underlying vulnerable plaque? Why?

Case 2
Case 4

Case 5
A 56-year old man with diabetes mellitus, type 2 is found dead in his apartment. Investigation revealed that he had been to a local emergency department ~1 week prior with “chest pain” but left before being evaluated.
Case 5

Describe the findings in the image.

Case 5 — Section of Myocardium from area indicated by the blue arrow

What is your diagnosis?

Explain the likely pathophysiologic sequence of events that lead to this patient’s death.