A patient is diagnosed with ischemia (i.e., lack of blood flow) in a left lobar pulmonary vein. The attending physician determines that the ischemia is due to a vasospastic episode. Constriction of this left lobar pulmonary vein is controlled by ____________.

A. Efferent fibers from the phrenic nerve.
B. Post-ganglionic fibers from T1-T4 sympathetic trunks
C. Post-ganglionic fibers from the vagus n.
D. Afferent fibers from the phrenic nerve
E. Sympathetic fibers from the vagus n.

Heart

• Surface anatomy and heart sounds
  -Dry lecture
  -Gray’s 169, 203-205

• Heart
  -Gray’s pp. 153-181
  -Gray’s dissector pp. 84-101
Subdivisions of the Mediastinum

The Heart
The Heart

Pericardium

Pericardium
1. Fibrous pericardium (external sac)
2. Serous pericardium (internal sac)
   (parietal layer – lines the inner surface of the fibrous)
   (visceral layer [epicardium] – adheres to the heart)

Syllabus p. 41
A patient is diagnosed with cardiac tamponade. Pericardiocentesis is needed to drain fluid from the pericardial cavity to relieve pressure on the heart. To remove fluid a wide bore needle is inserted through the ________ intercostal space near the ____________ and passed superoposteriorly.

A. 5th or 6th, infrasternal angle  
B. 5th or 6th, mid-axillary line  
C. 2nd, sternal angle  
D. 2nd, jugular notch  
E. 5th or 6th, mid-vertebral line
Cardiac Tamponade

Walls of the Heart

Heart Layers
General Features of the Heart

Arterial Supply of the Heart

Syllabus p. 42
**Arterial Supply of the Heart**

![Coronary angiogram showing right coronary artery (RCA) and coronary (95 percent tumors in its intrapar (arrow).](image1)

**Venous Drainage of the Heart**

![Venous drainage of the heart with anterior veins, small cardiac vein, and great cardiac vein.](image2)
Heart Valves (Diastole)

Ventricular Filling

MV and TC valves close

Heart Valves (Systole)

Ventricular Contraction

Semilunar valves close

Syllabus p. 45
**Sympathetic Innervation of the Heart**

Cardiac nerves from sympathetic trunk

- Right recurrent laryngeal nerve
- Right vagus nerve
- Vagal cardiac branches
- Deep cardiac plexus

**Parasympathetic Innervation of the Heart**

Cardiac nerves from sympathetic trunk

- Right vagus nerve
- Left vagus nerve
- Vagal cardiac branches
- Arch of aorta
- Superficial cardiac plexus
- Superior vena cava
- Pulmonary trunk

Syllabus p. 46
Referred Pain

Innervation of the Heart

- **Sympathetic Innervation**
  - Increases heart rate and force of contraction
  - Dilates coronary arteries

- **Parasympathetic Fibers**
  - Decreases heart rate and force of contraction
  - Constricts coronary arteries
Conduction System of the Heart

Blood Flow to and from the Heart
An aneurysm in the aortic arch compresses the left vagus nerve and alters its activity. Stimulation of parasympathetic vagus nerves _________.

A. Increases heart rate
B. Dilates coronary arteries
C. Constricts coronary arteries
D. Increases the force of the heartbeat
E. Constricts pulmonary arteries

A thrombus develops in the right atrium of a patient and eventually lodges itself in the sinuatrial nodal branch artery. Identify the course of the thrombus from the right atrium to the sinuatrial nodal branch artery.

A. Right atrium, tricuspid valve, right ventricle, aortic valve, right coronary artery, sinuatrial nodal branch artery
B. Right atrium, mitral valve, right ventricle, aortic valve, right coronary artery, sinuatrial nodal branch artery.
C. Right atrium, tricuspid valve, right ventricle, aortic valve, left coronary artery, sinuatrial nodal branch artery.
D. Right atrium, mitral valve, right ventricle, aortic valve, left coronary artery, sinuatrial nodal branch artery.
E. Right atrium, tricuspid valve, right ventricle, aortic valve, right coronary artery, right marginal branch, sinuatrial nodal branch artery.
Subdivisions of the Mediastinum
Pericardial Parts

- Visceral Pericardium
- Serous Pericardium
- Fibrous Pericardium

Heart in situ; Anterior View
Vessels and Nerves of the Pericardium
Cardiac Tamponade

Walls of the Heart
General Features of the Heart

Arterial Supply of the Heart
Venous Drainage of the Heart

- Great Cardiac Vein
- Coronary Sinus
- Posterior Left Ventricular Vein
- Small Cardiac Vein
- Middle Cardiac Vein

Cardiac Veins; Posterior Vein
Blood Flow to and from the Heart

Tricuspid Valve and Right Ventricle
Left Atrium and Ventricle

Heart Valves (Cardiac Cycle)
Referred Pain

Conduction System of the Heart
Blood Flow to and from the Heart

Syllabus p. 49