Lab 3
Heart Sounds, Valve Problems and Blood Flow
Heart Sound

Lub-dup, lub-dup, lub-dup

• Lub – lower pitch
• Dup – higher pitch
• Normal heart sounds - Animated Normal
  S1 S2
Aortic valve sounds heard in 2nd intercostal space at right sternal margin

Pulmonary valve sounds heard in 2nd intercostal space at left sternal margin

Mitral valve sounds heard over heart apex (in 5th intercostal space) in line with middle of clavicle

Tricuspid valve sounds typically heard in right sternal margin of 5th intercostal space
Figure 18.5e – Heart Valves

Superior vena cava
Right pulmonary artery
Pulmonary trunk
Right atrium
Right pulmonary veins
Fossa ovalis
Pectinate muscles
Tricuspid valve
Right ventricle
Chordae tendineae
Trabeculae carneae
Inferior vena cava

Aorta
Left pulmonary artery
Left atrium
Left pulmonary veins
Mitral (bicuspid) valve
Aortic valve
Pulmonary valve
Left ventricle
Papillary muscle
Interventricular septum
Epicardium
Myocardium
Endocardium

Frontal section
Valve Prolapse

1. Mitral valve
2. Normal open mitral valve
3. Normal closed mitral valve
4. Prolapsed mitral valve; one leaflet does not close properly
Malfunctioning mitral valve allows backflow of blood into the left atrium, causing progressive enlargement.
Valvular Stenosis
Valvular Stenosis

Heart Sounds S3 S4 Murmurs
Figure 18.5b Blood Supply to the Myocardium

- Brachiocephalic trunk
- Superior vena cava
- Right pulmonary artery
- Ascending aorta
- Pulmonary trunk
- Right pulmonary veins
- Right atrium
  - Right coronary artery (in coronary sulcus)
  - Anterior cardiac vein
  - Right ventricle
  - Right marginal artery
  - Small cardiac vein
  - Inferior vena cava
- Left common carotid artery
- Left subclavian artery
- Aortic arch
- Ligamentum arteriosum
- Left pulmonary artery
- Left pulmonary veins
- Auricle of left atrium
- Circumflex artery
- Left coronary artery (in coronary sulcus)
- Left ventricle
  - Great cardiac vein
  - Anterior interventricular artery (in anterior interventricular sulcus)
  - Apex

(b) Anterior view
Figure 18.5d Blood Supply to the Myocardium

- Aorta
- Left pulmonary artery
- Left pulmonary veins
- Auricle of left atrium
- Left atrium
- Great cardiac vein
- Posterior vein of left ventricle
- Left ventricle
- Apex

- Superior vena cava
- Right pulmonary artery
- Right pulmonary veins
- Right atrium
- Inferior vena cava
- Coronary sinus
- Right coronary artery (in coronary sulcus)
- Posterior interventricular artery (in posterior interventricular sulcus)
- Middle cardiac vein
- Right ventricle

(d) Posterior surface view
Figure 18.10 Coronary circulation.

(a) The major coronary arteries

(b) The major cardiac veins
Video on Atherosclerosis

MDufilho

Figure UN 19.1
Consequences and Prevention

- Ischemia
- Hypoxia
- Myocardial Infarction
- Prevention of Atherosclerosis
- Anastomoses
- Pop's Angioplasty and Stent Installation...
Coronary Bypass Surgery

Coronary bypass
When arteries that serve the heart (coronary arteries) become blocked, the flow of oxygen-rich blood to heart muscle is impaired. A heart attack can result. Bypass surgery uses arteries or veins diverted or taken from other locations to bypass obstructions and improve blood supply to heart muscle beyond the blockages. Often, several arteries at a time must be bypassed.

Internal thoracic (mammary) artery diverted to coronary artery beyond blockage

Leg vein grafted from the aorta to coronary artery beyond blockage

Blockages