

Cardiac Morphology Workshop

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Learning Objectives

At the end of this workshop, the participant will be able to:

- Analyze the normal and abnormal heart with a systematic approach
- Illustrate this systematic approach during dissection of a heart

Morphologic Assessment of the Heart: Sequential Segmental Approach

- Cardiac position
- Orientation of the apex
- Visceral and atrial situs
- Great veins and atria
- Atrial septum
- Atrioventricular junction
 - AV valves
 - AV connections/alignment
- Ventricular loop
- Ventricles
- Ventricular septum
- Ventriculoarterial junction
 - Conal/Infundibular anatomy
 - Semilunar valves
 - VA connections/alignment
- Great arteries and arterial trunk relationship
- Pulmonary arteries
- Ductus arteriosus
- Aortic arch
- Aortic arch branches
- Coronary arteries

Adapted from Figure 4.35, *Anesthesia for Congenital Heart Disease*, Third Edition
Edited by Andropoulos DB, Stayer S, Mossad EB, Miller-Hance WC. 2015, John
Wiley and Sons, Inc. p. 82.

Dissection Guide of a Normal Heart

- Orientation of the heart and identification of external structures
 - SVC, IVC, RA
 - RV and PA
 - PV's and LA
 - LV, Ao, and coronary arteries
- Echo clips (subcostal view)
- 3-D specimen

Dissection Guide

- Right Atrial Cut
 - Identify SVC, IVC, pectinate mm, eustachian valve
 - Observe relationship between RA and pulmonary veins
- Echo clips
 - Subcostal vs. bicaval views
 - Secundum vs. sinus venosus ASD's and relationship to pulmonary veins
- 3-D specimens
 - ASD vs. PFO
 - Primum ASD

Dissection Guide

- Right Ventricular Window Cut
 - Identify deep trabeculations of the RV
 - Moderator band
 - TV leaflets
 - TV chordae
- Echo clips
 - RV
 - Tricuspid valve leaflets
 - VSD's
- 3-D specimens
 - VSD's
 - PA-IVS
 - PA with VSD

Dissection Guide

- Extend RV window to incise entire RVOT
 - Identify PV leaflets
 - Relationship of the PA to other structures
- Echo clips
 - RVOT (short and long axis views)
 - Relationship of RVOT to LV and aortic valve
 - Tetralogy of Fallot
- 3-D specimens
 - TOF
 - TGA

Dissection Guide

- Left atrial incision
 - Identify LA
 - Relationship to pulmonary veins
- Echo clips
 - LA and Left atrial appendage
 - Pulmonary veins

Dissection Guide

- Left ventricular window incision
 - Identify mitral valve morphology
 - Chordal attachments
- Echo clips
 - LV short axis view of MV/chordal attachments
 - 2-D mitral valve leaflet anatomy
 - 3-D mitral valve anatomy

Dissection Guide

- Extend LV window incision toward aortic valve
 - Identify course of LVOT
 - Relationship aortic valve and mitral valve
 - Coronary arteries
- Echo clips
 - Relationship between AoV and MV
 - AoV and ventricular septum
- 3-D specimens
 - DORV vs. TOF
 - VSD relationship to AoV