

Anatomy of the Chest on Images

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Images for Anatomy

Air in lungs and airways
Blood in vessels

Correlation with clinical medicine

Plain Film Densities

- Air
- Soft tissues including fat and blood
 - Calcium
- Contrast and metals

CT Densities

- Air
- Fat
- Clear fluids and transudates
- Soft tissue including blood
 - Calcium
- Metal and Contrast material

Intravenous Contrast makes blood appear
as metal

CT for Anatomy of the Chest

- Cross sections
 - eliminate overlap
- More densities
 - more structures visible

Lungs

- Vessels - pulmonary arteries and veins
 - symmetric
 - branch, taper and diverge
- Fissures
 - visible as watersheds
(gaps between vessel groups)

Trachea and Main Bronchi

Carina - just below aortic arch

Right bronchus

Divides in mediastinum

Upper lobe - highest bronchus

Intermedius to middle and lower lobes

Left bronchus

Divides in hilum

Esophagus

Posterior to trachea and heart

Pathway of Blood

in the Chest

- Systemic veins
- Right heart
- Pulmonary arteries
- Pulmonary veins
- Left heart
- Aorta and systemic arteries

Systemic veins

Anterior to arteries and trachea

Right margin of mediastinum

SVC formed at level of aortic arch by brachiocephalic veins

Azygous System

- Arch of azygous
 - enters posterior SVC
 - above right main bronchus
 - around right side of trachea
- Azygous vein
 - right and posterior to esophagus
 - anterior to spine
- Hemiazygous – left

Right Atrium

- Entire right heart border
- IVC enters inferior aspect
- SVC enters superior aspect

Valves

- Visible on MRI

- no signal from moving blood
- motion frozen

Right Ventricle

- Most anterior chamber
- Not bordered by lung in any direction
- Pulmonary trunk emerges from top and remains anterior

Pulmonary Arteries

- Main
 - origin ANTERIOR from RV
 - passes under aortic arch
- Left
 - passes OVER left main bronchus
 - highest branch of system
- Right
 - straight lateral from origin

Pulmonary Veins

- Confluence inferior and posterior to origin of arteries
- Empty into left atrium

Left Atrium

- Most posterior chamber
- Pulmonary veins enter both sides and top
- Minimal contact with lungs, so not clearly bordered on plain films

Left Ventricle

- Entire left heart border

- Aorta emerges from right upper border

Great Systemic Arteries

Superior branches of aortic arch

- Brachiocephalic
- Left common carotid
- Left subclavian

Cardiac Chambers

Blood flow always
left
and
anterior