

## Radiographic changes commonly observed with cardiopulmonary diseases

Abnormality	LV	LA	Ao	RV	RA	MPA	Pulmonary	Other
Patent ductus arteriosus (PDA)	+ Cardiac silhouette elongated	+	+ descending aorta on DV	0	0	+/0	+/0 artery +/0 vein	Left heart failure Possible compression left main bronchus
Subaortic stenosis (SAS)	+/0 Not as large as volume overload	0	+ ascending aorta	0	0	0	0 artery 0 vein	
Pulmonic stenosis (PS)	0	0	0	+/0 Not as large as volume overload	0	+	0 artery 0 vein	
Ventricular septal defect (VSD)	+	+	0	+/0	0	0	+/0 artery +/0 vein	Left heart failure Possible compression left main bronchus
Atrial septal defect (ASD)	0	0	0	+	+	0	+/0 artery +/0 vein	
Tetralogy of Fallot (TOF)	0	0	0	+/0	0	+/-	0/- artery 0/- vein	
Mitral regurgitation (MR)	+	+ Most prominent bulge	0	0	0	0	0 artery +/0 vein	Left heart failure Possible compression left main bronchus
Tricuspid regurgitation (TR)	0/-	0	0	+	+	0	0 artery 0 vein	Right heart failure
Dilated Cardiomyopathy (DCM)	+	+	0	+/0	+/0	0	0 artery +/0 vein	Left heart failure Possible compression left main bronchus Right heart failure
Hypertrophic Cardiomyopathy (HCM)	+/0	+	0	0	0	0	0 artery +/0 vein	Left heart failure Possible compression left main bronchus
Unclassified Cardiomyopathy (UCM)	+/0	+	0	0	+/0	0	0 artery +/0 vein	Left heart failure Possible compression left main bronchus Right heart failure
Heartworm disease (HWDz)	0	0	0	+/0	+/0	+/0	+ artery 0 vein	Right heart failure Pulmonary infiltrates (interstitial, alveolar)
Chronic Bronchitis (CB)	0	0	0	+/0	0	+/0	+/0 artery	Mineralized airways Peribronchiolar Infiltrates Bronchopneumonia
Pneumonia	0	0	0	0	0	0	0 artery 0 vein	Interstitial and/or alveolar infiltrates air bronchograms
Interstitial Lung Disease	0	0	0	0	0	0	0 artery 0 vein	Diffuse to nodular interstitial pattern Various sized nodules suggests neoplasia
Peritoneo-pericardio-diaphragmatic Hernia (PPDH)	No bulge	No bulge	0	No bulge	No bulge	0	0 artery 0 vein	Right heart failure Enlarged round cardiac silhouette Organs missing from cranial abdomen Gas pattern in cardiac silhouette
Pericardial Effusion (PE)	No bulge	No bulge	0	No bulge	No bulge	0	0 artery 0 vein	Right heart failure Enlarged round cardiac silhouette

+ = enlarged

0 = normal

- = reduced in size

**Left heart failure** = pulmonary edema (interstitial, alveolar), enlarged pulmonary veins, air bronchograms

**Right heart failure** = enlarged caudal vena cava, enlarged liver and spleen, pleural effusion, ascites

**Bronchopneumonia** = peribronchilar infiltrates, lung lobe consolidation (especially middle lobes), air bronchograms

Pulmonary artery bulge with PS is more common than an aortic bulge with SAS.

Volume overload results in significantly larger ventricles than pressure overload.

- **Pressure overload** – SAS, PS, pulmonary hypertension, systemic hypertension
- **Volume overload** – DCM, MR, TR, PDA, ASD, VSD