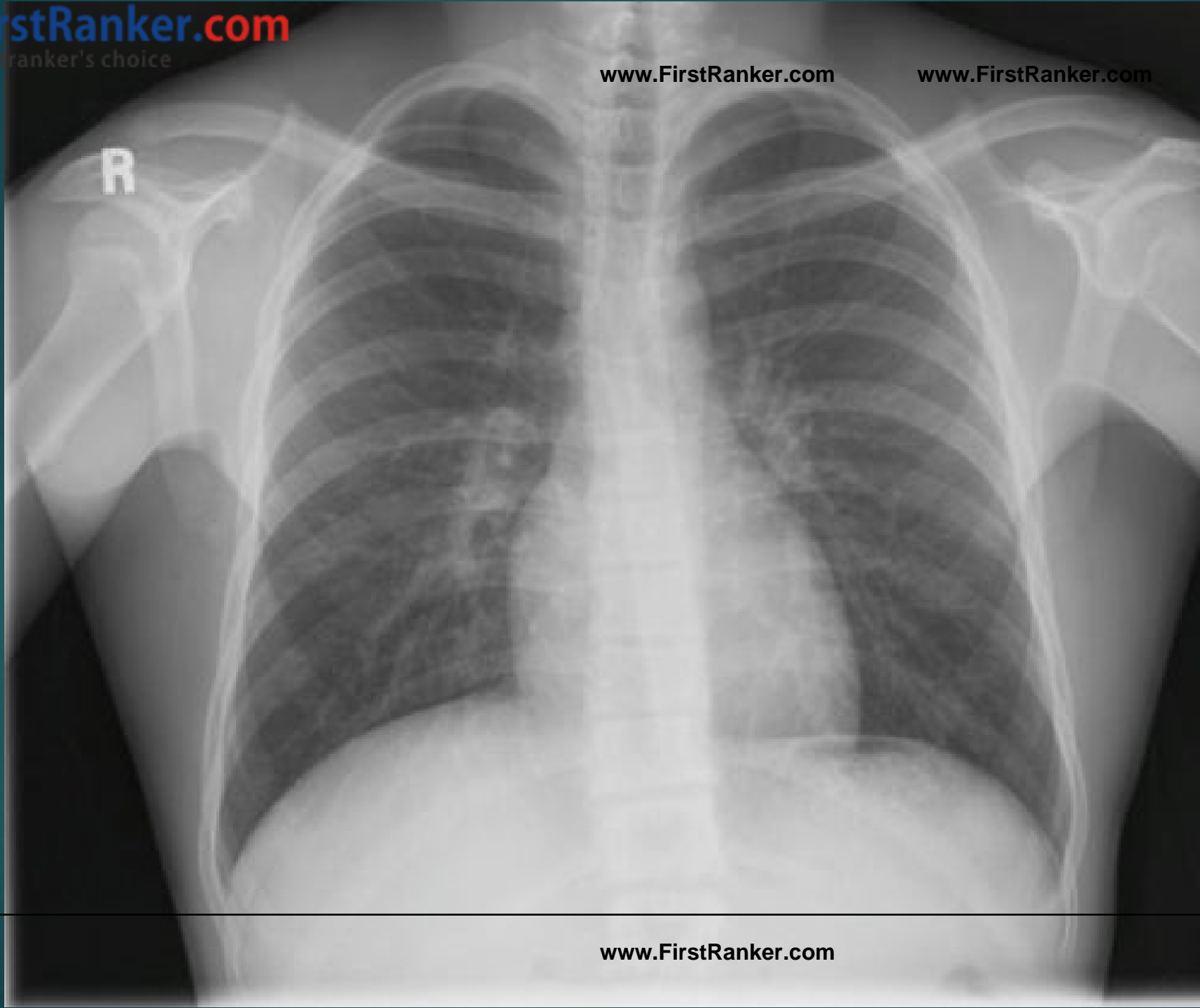
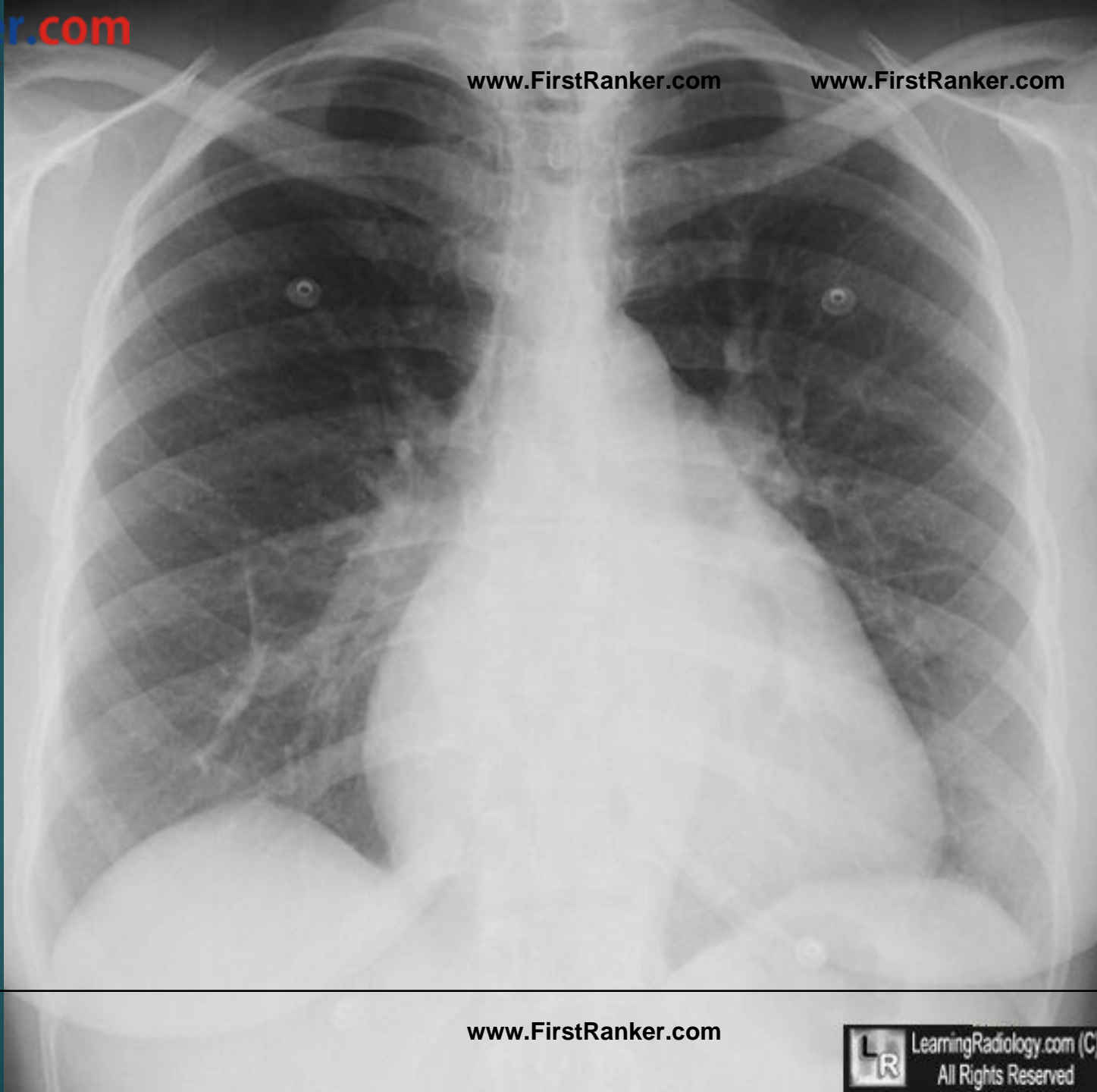


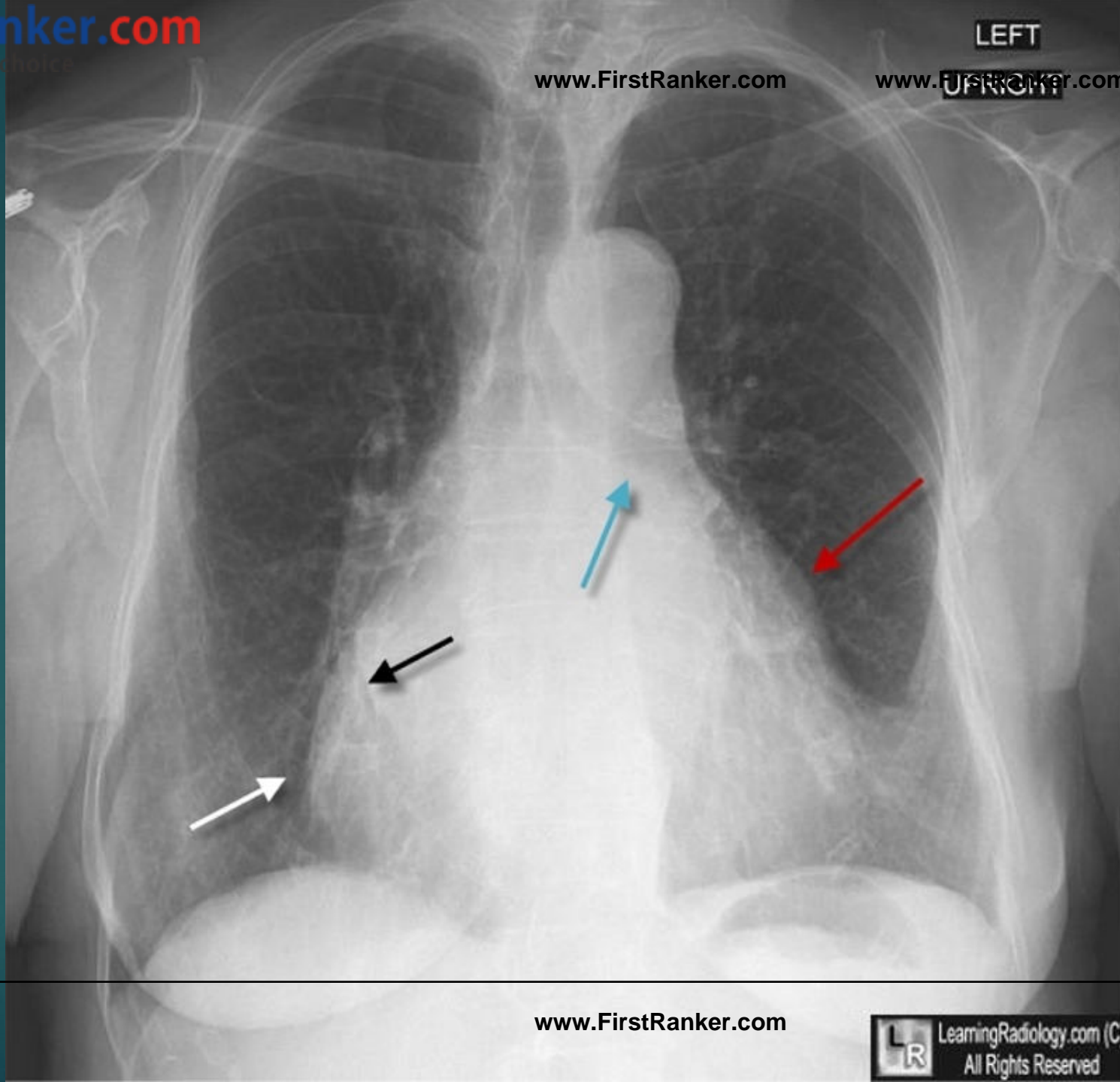
Cardiac x rays



Mitral stenosis

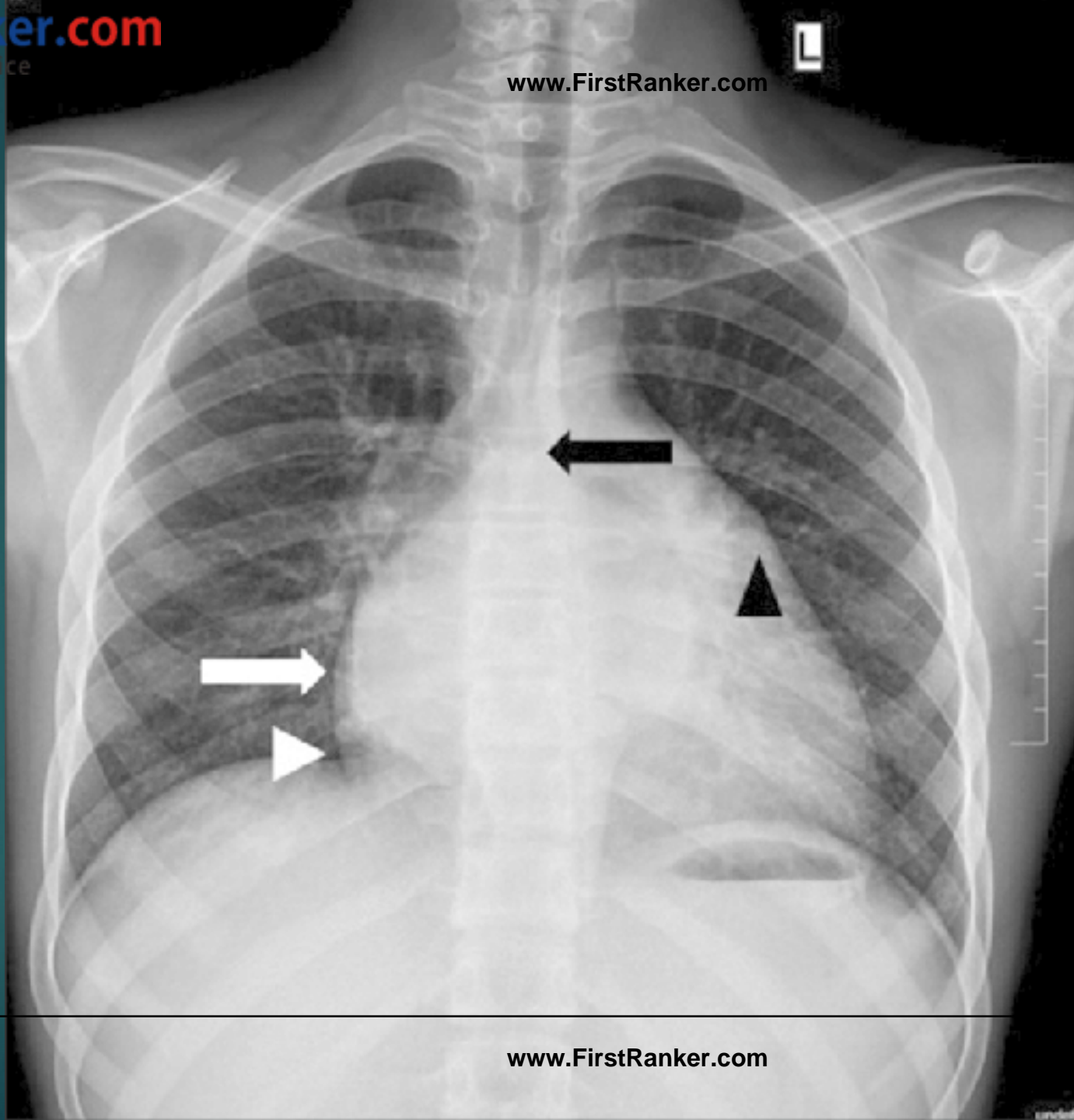


- ▶ X-Ray Findings of MS
 - ▶ o Cardiac Findings
 - ▶ § Usually normal or slightly enlarged cardio-thoracic ratio
 - ▶ § Straightening of left heart border
 - ▶ § Convexity of left heart border 2° to enlarged atrial appendage--only in rheumatic heart disease
 - ▶ § Small aortic knob from decreased cardiac output
 - ▶ § Double density of left atrial enlargement
 - ▶ § Rarely, right atrial enlargement from tricuspid insufficiency
 - ▶



- ▶ X-Ray Findings of MS-Pulmonary Findings
 - ▶ ○ Cephalization
 - ▶ ○ Elevation of left mainstem bronchus (especially if 90° to trachea)
 - ▶ ○ With severe, chronic disease enlargement of the main pulmonary artery from pulmonary arterial hypertension

Mitral regurgitation



- ▶ convexity or straightening of the left atrial appendage along the left heart border below the main pulmonary artery due to left atrial enlargement;
- ▶ double density projecting over the right heart, reflecting superimposition of enlarged left atrium over the right heart
- ▶ elevation of the left main bronchus and splaying of the carina by enlarged left atrium
- ▶ left ventricular enlargement
- ▶ cephalization of flow due to pulmonary venous hypertension

Difference in Heart Size

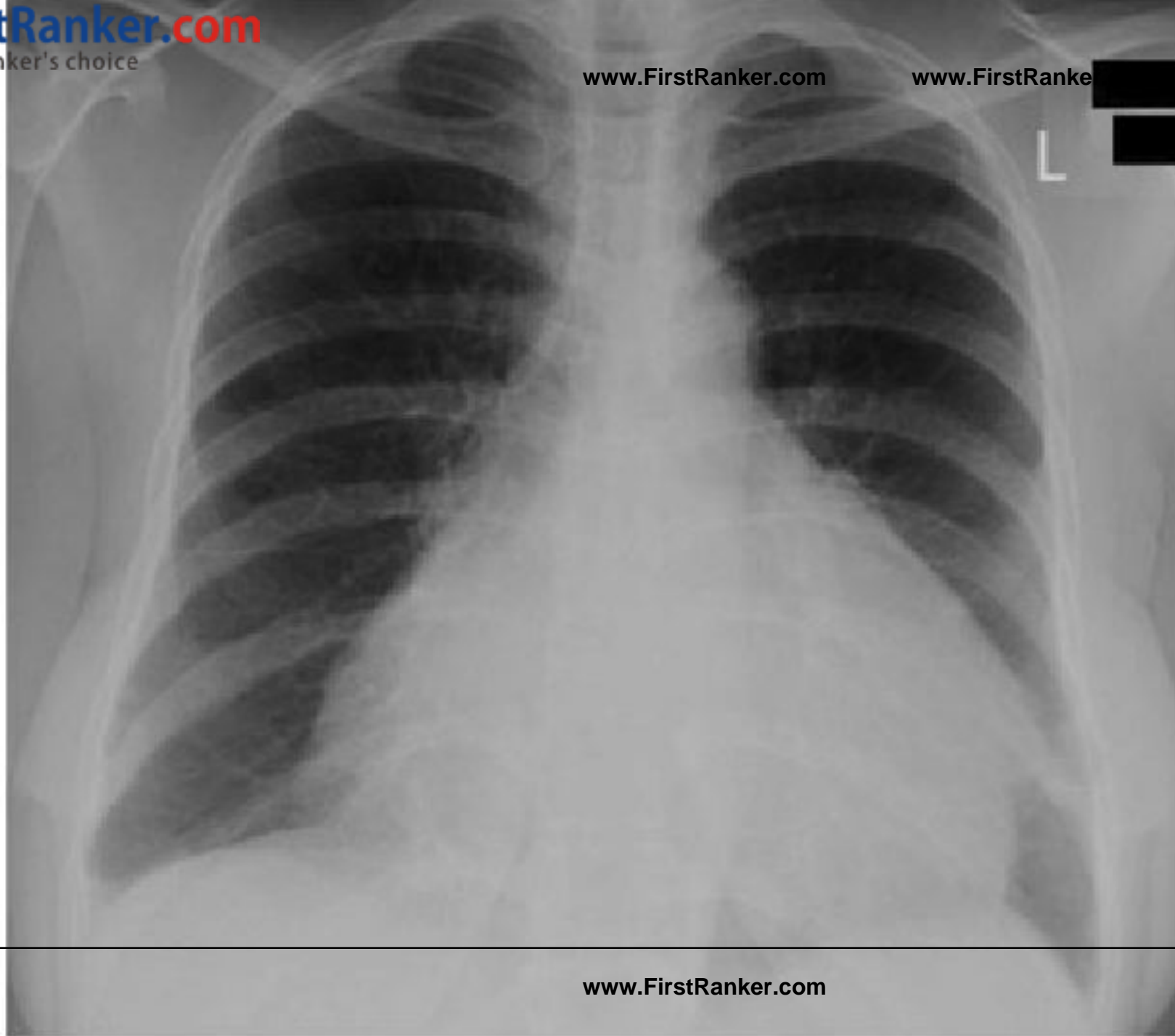


Mitral Stenosis



Mitral Regurgitation

Pericardial effusion



Small pericardial effusions are often occult on plain film. Greater than 200 mL of pericardial fluid is usually required to become radiographically visible.

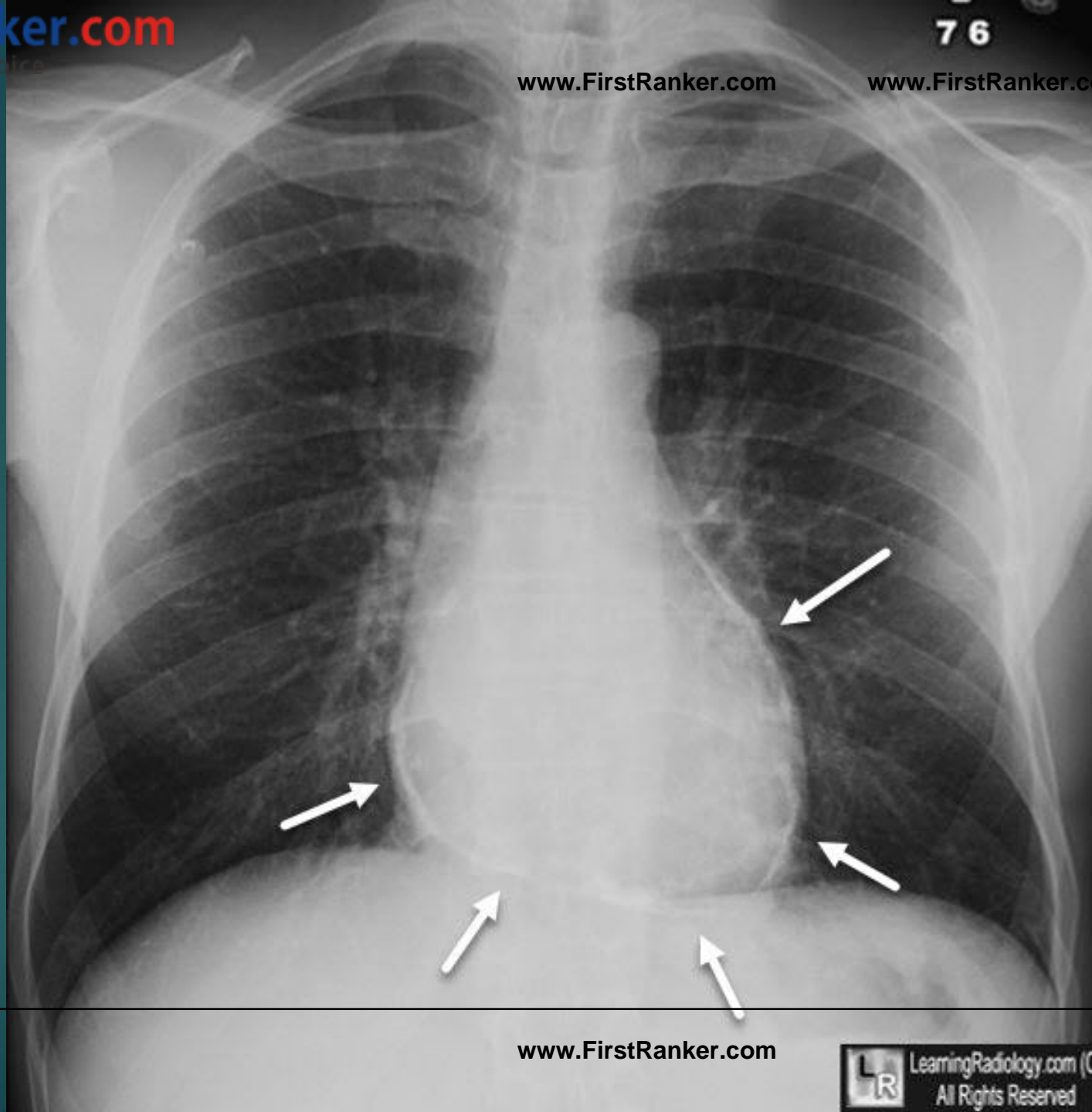
Radiographic signs include:

- ▶ there can be globular enlargement of the cardiac shadow giving a water bottle configuration
- ▶ lateral CXR may show a vertical opaque line (pericardial fluid) separating a vertical lucent line directly behind the sternum (pericardial fat) anteriorly from a similar lucent vertical lucent line (epicardial fat) posteriorly; this is known as the Oreo cookie sign ⁵
- ▶ widening of the subcarinal angle without other evidence of left atrial enlargement may be an indirect clue ²
- ▶ a differential density sign at cardiac borders has been suggested ⁹, but its specificity is limited
- ▶ serially enlarging cardiothoracic ratio
- ▶ hemodynamic compromise may manifest with signs of cardiogenic pulmonary edema



Pericardial calcification





- ▶ Calcification in the pericardium is most likely inflammatory in nature
 - ▶ Can be seen with a variety of infections, trauma, and neoplasms
- ▶ Calcification most commonly occurs along the inferior diaphragmatic surface of the pericardium surrounding the ventricles
 - ▶ Thin, egg-shell like calcification is more often associated with viral infection or uremia
 - ▶ Calcification from old TB is often thick, confluent, and irregular in appearance, especially when compared with myocardial calcification



- ▶ Calcification is seen in 1/3-1/2 of patients with constrictive pericarditis Its presence does not imply constriction
- ▶ Pericardial calcification must be differentiated from coronary artery calcification, valvular calcification, calcified myocardial infarct or ventricular aneurysm, left atrial calcification, or calcification outside the heart
- ▶ This can usually be accomplished by the locations of these calcifications on multiple views, or the radiographic appearance of the calcium