Diagnostic of Dextrocardia

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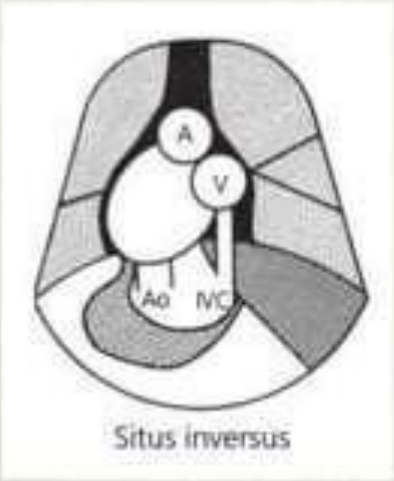
Definition

- The cardiac apex is located in the right side of the chest
- Three anatomic variations associated with dextrocardia are presented here
  - Situs inversus totalis (mirror image dextrocardia)
  - Dextroversion with situs solitus
  - Dextroposition of the heart

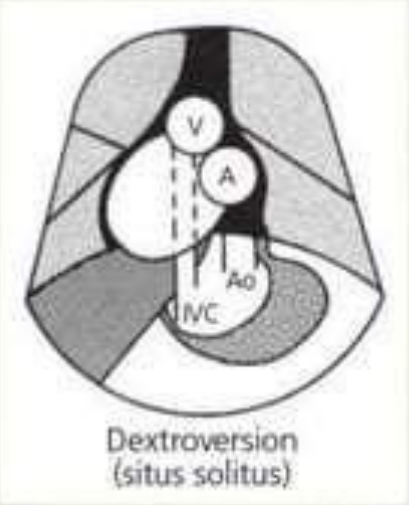
Situs inversus totalis (mirror image dextrocardia)



Situs inversus

- The inferior vena cava, the major lobe of the liver, and the anatomic right atrium are located on the left side of the body and the stomach, anatomic left atrium and aorta (at the diaphragm) on the right side
- This has also been termed mirror image dextrocardia because the anatomic relationships are exactly the reverse of normal
- Other anatomic findings include the presence of two lobes in the right lung, of three lobes in the left lung, and of the appendix in the left lower quadrant.
- Situs inversus is probably associated with an increased incidence of cardiac anomalies, but the type and distribution of the anomalies parallel those of patients with situs solitus.

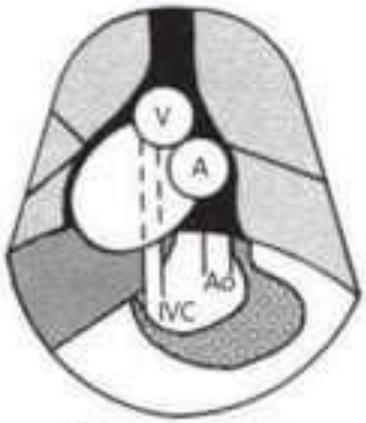
Dextroversion with situs solitus



Dextroversion
(situs solitus)

- The atria are anchored by the venae cavae, but the ventricles can rotate on the long axis of the heart and lie in the midline or right chest
- In dextroversion, the heart may show one of two anatomic forms. In one, the ventricles and great arteries are normally related; and ventricular septal defect and pulmonary stenosis are common. In the other form, corrected transposition of the great arteries and inversion of the ventricles are present
- These patients show the type of cardiac anomalies commonly found with corrected transposition of the great arteries

Dextroposition of the heart



Dextroposition
(situs solitus)

- Cardiac displacement towards the right is caused by extrinsic factors, such as hypoplasia of the right lung
- In many patients with dextroposition of the heart, cardiac anomalies coexist.
- The anomalies are often associated with a left-to-right shunt; the patients often develop pulmonary vascular disease
- A common cause of dextroposition in the neonate with a structurally normal heart is left-sided congenital diaphragmatic hernia, in which distended gut in the left side of the chest forces the heart and mediastinal structures towards the

Diagnostic

- INSPECTION AND PALPATION OF THE PRECORDIUM
- CARDIAC AUSCULTATION
- THORAX X-RAY
- ECHOCARDIOGRAPHIC

INSPECTION AND PALPATION OF THE PRECORDIUM

- The cardiac apex is usually produced by the LV, it is sometimes produced by an enlarged RV that displaces the LV laterally and posteriorly
- Occasionally, the cardiac position is abnormal as a result of dextroposition, dextroversion, dextrocardia, or other changes in intrathoracic structures
- The normal apex (apical) impulse usually is located within 10 cm of the sternal midline, at or within the left midclavicular line in the fifth intercostal space, when the patient is supine

Situs Ambiguus

- Failure of normal lateralization results in abnormal bilateral symmetry of normally asymmetric viscera and duplication of either right- or left-sided structures
- These conditions present with indeterminate situs or situs ambiguus and are often referred to as isomerism or heterotaxy syndromes.
- The broad spectrum of abnormalities can be complex and includes right and left isomerism.
- This is often associated with asplenia (Ivermark syndrome) and polysplenia, respectively. There may be levocardia, dextrocardia or mesocardia.

RELATION OF CARDIAC POSITION TO CHD

Visceroatrial Situs	Frequency of Association with CHD (%)
Situs solitus	
With levocardia	<1
With dextrocardia	95
Situs inversus	
With dextrocardia	3–5
With levocardia	100
Situs ambiguus	
With left isomerism (polysplenia)	90
With right isomerism (asplenia)	99–100

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