Teaching series

Electrocardiographic abnormality in aircrew- II

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Case Report

A 50 yrs old commercial aircrew with no known diseases reported for his renewal medical evaluation. The individual was asymptomatic. A routine ECG was done & showed abnormality and hence a CXR-PA was done to confirm the diagnosis.

1. What does the ECG & CXR-PA view show?
2. What is the diagnosis?
3. What is situs inversum with dextrocardia?
4. What are the other complications anticipated in this individual?
Answer:

1. The conventional 12 lead ECG done shows :-
   (a) P wave inverted in lead I with a right axis deviation of the P wave.
   (b) T waves in the inferior leads are inverted.
   (c) Regression of R waves from V1 to V6.

   The CXR-PA shows :-
   (a) Cardiac apex is pointing towards the right i.e. dextrocardia
   (b) The aortic arch and the gastric gas shadow are located on the right suggesting situs inversus

2. Dextrocardia with situs inversus.

3. Situs describes the position of the cardiac atria and viscera. Situs solitus is the normal position, and situs inversus is the mirror image of situs solitus. Cardiac situs is determined by the atrial location. In situs inversus, the morphologic right atrium is on the left and the morphologic left atrium is on the right. The normal pulmonary anatomy as well as the remaining abdominal viscera is also reversed. The prevalence of situs inversus in USA is about 0.01% of the population.

   Situs inversus can be further classified into situs inversus with dextrocardia or with levocardia depending upon the direction in which the cardiac apex points. The first reported case of dextrocardia was by Fabricus in 1606. Levocardia & dextrocardia indicate only the direction of the cardiac apex and not the orientation of the cardiac chamber.

   Situs inversus occurs commonly only with dextrocardia. A 3-5% incidence of congenital heart disease is observed in situs inversus with dextrocardia, usually with transposition of great vessels being the commonest.

4. The complication associated with this condition are
   (a) Kartagener syndrome
   (b) Heterotaxy
   (c) Left isomerism (i.e. Ivemark syndrome)
   (d) Right isomerism (i.e. Asplenia syndrome)
   (e) Situs solitus
   (f) Transposition of great vessels