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Atrial infarction in a premature infant

Atrial infarction is rarely diagnosed, usually being recognised only when associated with ventricular infarction. The most common ECG sign of atrial infarction is elevation or depression of the P-Ta segment, reflected by the P-R segment; this pattern, however, is usually mild (<1 mm), and is difficult to observe unless an accurate search is made.

We report the case of a premature infant with respiratory distress syndrome (RDS) and patent ductus arteriosus (PDA), in whom atrial infarction was diagnosed on the basis of a typical ECG pattern.

A female preterm infant, born at 28 weeks with a birth weight of 790 g, was referred to the neonatal intensive care unit at 2 months, after surgical ligation of PDA, performed at another institution. On admission, the baby

weighed 720 g and was mechanically ventilated. The admission ECG showed a pattern of left ventricular hypertrophy (deep S waves in lead V1, tall R waves and negative T waves in lead V6). There was, in addition, a striking P-R segment elevation (up to 2 mm) in leads I, II, III, aVF, V4, and V6 (panel A). The echocardiogram confirmed the left ventricular hypertrophy, and disclosed two hyper-echogenic left atrial masses, one located close to the posterior mitral valve leaflet and the other in correspondence of the atrial roof; these were interpreted as atrial thrombi. Laboratory tests showed raised creatine kinase MB (143 U/l), aspartate aminotransferase (201 U/l), lactic dehydrogenase (3230 U/l), and T-troponin (0.96 ng/ml) values. Seven days later, the P-R interval elevation had disappeared

(panel B), the T waves were less abnormal, the markers of cardiac necrosis had returned to normal, and intracardiac thrombi were markedly reduced in size.

Myocardial ischaemia is a common phenomenon in preterm newborn infants with PDA and RDS: myocardial infarction, as shown by the T-troponin and creatine kinase MB increase, has been reported in these patients. The occurrence of apparently isolated atrial infarction, however, has not been hitherto reported in this clinical setting. In our case, transient P-R segment elevation associated with left atrial thrombi strongly suggested such a diagnosis.

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