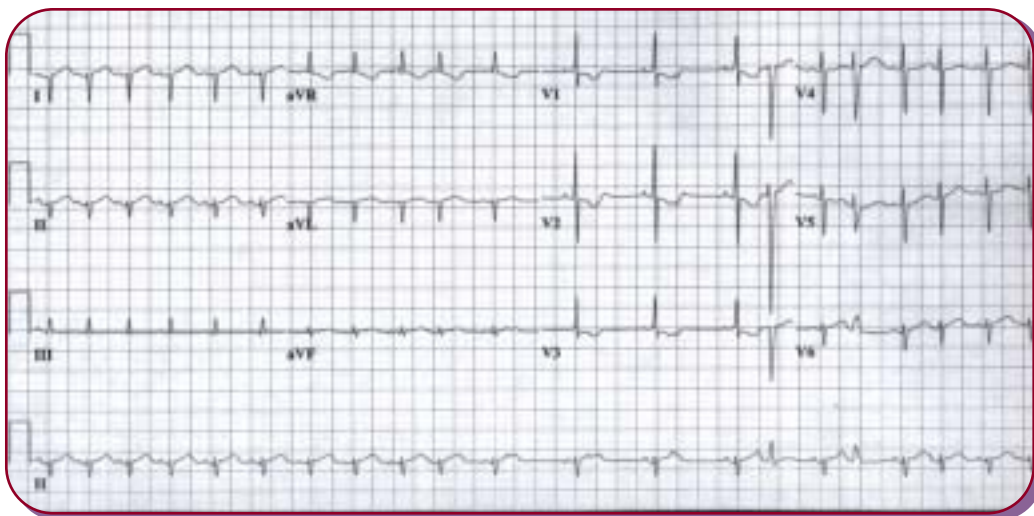


It's A Small, Small World

By Keith J.C. Finnie, MD, FRCPC

This ECG was obtained from an intensive care unit patient from whom no history could be obtained. The staff had noted an irregular cardiac rhythm.

- 1. What rhythm abnormality is shown?*
- 2. What other abnormal ECG findings are seen, and what is the explanation?*



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This Month's ECG Diagnosis

1. The abnormal rhythm is sinus tachycardia, at a rate of approximately 120 beats/minute. Midway through the recording, there is an abrupt, transient reduction in heart rate. Immediately after, there is a short episode of bigeminal rhythm, followed by resumption of the sinus tachycardia.

The reduction in heart rate is due to blocked atrial extrasystoles; the non-conducted P waves are at the end of the ST segment and can be seen easily in leads V₁ through V₃ and in the accompanying lead II rhythm strip. The subsequent bigeminal rhythm occurs because the premature P waves, now falling marginally later in the cardiac cycle, are being conducted. Note the widening of the QRS complex in the two conducted atrial extrasystoles, due to aberrant intraventricular conduction.

During the first few months of life, right ventricular dominance is the rule.

2. The QRS axis in the frontal plane shows marked rightward deviation. In the chest leads, the large R waves in leads V₁ through V₃ and the associated ST segment and T wave changes suggest right ventricular hypertrophy and “strain”, which would account for the right axis deviation. The small size and unusually narrow duration of the QRS complexes in this patient are a clue to the diagnosis.

The patient is a four-day-old infant! During the first few months of life, right ventricular dominance is the rule. As the child ages, the dominant right ventricular forces gradually shrink and the normal adult pattern of left ventricular dominance develops. The atrial extrasystoles are an incidental finding.  *ECG*