A 54-year-old man who was admitted to the hospital with acute cholecystitis developed fever (40°C) and tachycardia. His medical history was significant for hypertension. An ECG revealed sinus tachycardia, incomplete right bundle-branch block, and downsloping (also known as coved-type) ST-segment elevation in leads V₁ and V₂ (Figure 1) with T-wave inversion, consistent with a type I Brugada pattern. His cardiac biomarkers were normal, and these ECG changes resolved completely after resolution of the fever with antipyretic agents. The ECGs performed before (Figure 2) and after (Figures 3 and 4) the onset of fever induced the Brugada pattern showed incomplete right bundle-branch block without any Brugada-type changes. Because there was no personal or family history of presyncope, syncope, or sudden cardiac arrest, he was managed conservatively. This patient has done well 2 years after discharge.

The Brugada ECG pattern is characterized by right bundle-branch block and an elevation at the J point that is >2 mm, with a slowly descending ST-segment in conjunction with flat or negative T waves in leads V₁, V₂, and sometimes V₃.¹ These ECG changes are often dynamic and can be unmasked by fever, sodium channel blockers, tricyclic antidepressants, cocaine, and electrolyte abnormalities.² Brugada syndrome is diagnosed when these ECG changes are associated with a personal history of syncope, inducible polymorphic ventricular tachycardia, or ventricular fibrillation or a family history of sudden cardiac death.

Approximately 25% of cases of Brugada syndrome are caused by mutations in the cardiac sodium channel gene SCN5A. The mutated sodium channels result in temperature-dependent ionic changes that cause characteristic Brugada ECG patterns during fever.²

**Figure 1.** ECG showing type 1 Brugada pattern (arrows). Patient’s temperature was 40°C.

**Figure 2.** ECG performed 6 hours before the onset of fever induced the Brugada pattern, showing incomplete right bundle-branch block without a Brugada pattern. Patient was normothermic.

**Figure 3.** ECG performed immediately after resolution of fever with antipyretic agents, showing incomplete right bundle-branch block with complete resolution of Brugada pattern.
Disclosures

None.

References


Figure 4. ECG performed at 2-year follow-up, showing incomplete right bundle-branch block without Brugada pattern. Patient was normothermic at this time.
Brugada-Type Electrocardiographic Changes Induced by Fever
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