# Brugada Syndrome Unmasked in a Wounded Warrior

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## INTRODUCTION

- Brugada syndrome is a rare autosomal dominant genetic cause of ST segment elevation due to a myocardial sodium channelopathy, increasing the risk of malignant ventricular tachyarrhythmias and sudden cardiac death.
- It is defined on electrocardiogram (ECG) as >0.2mV coved-type ST segment elevation in the right precordial leads, and three distinct patterns have been described.
- The pattern can be provoked by fever, increased autonomic tone, and certain medications, and removal of the offending source is recommended to reduce risk of ventricular tachyarrhythmias.

## CASE PRESENTATION

- 23-year-old male, previously healthy, transported to our treatment facility after sustaining polytrauma from a blast injury.
- His injuries required multiple operative interventions requiring prolonged intubation for critical illness, including right humoral amputation, left hip disarticulation, nephrectomy, and multiple segments of bowel resection.
- During this time he was intubated, sedated with propofol, and intermittently febrile. On hospital day three he was found to have acutely elevated ST segments on cardiac telemetry while febrile to 102.1F.
- 12-lead ECG was obtained and demonstrated coved ST elevations in V1-V3 (Figure 1). Cardiology consult was requested with concern for an acute myocardial infarction given the ST segment elevations.
- Initial workup included a bedside echocardiogram (normal LVEF and no wall motion abnormalities) and high sensitivity troponins (elevated but flat).
- With the above information, and after examining the ST segment elevation morphology, the patient was diagnosed with Type 1 Brugada pattern.
- The offending agent, propofol, was stopped, and the patient's fever was treated, with subsequent resolution of ST segment elevation (Figure 2).

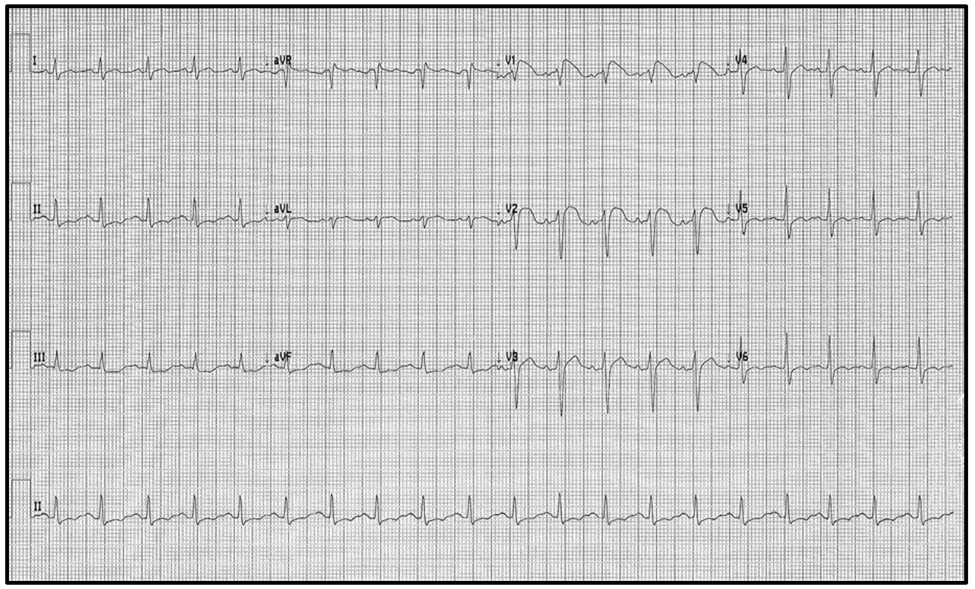


Figure 1: 12-lead ECG demonstrating Type 1 brugada pattern with coved ST-segment elevations in V1 and V2.

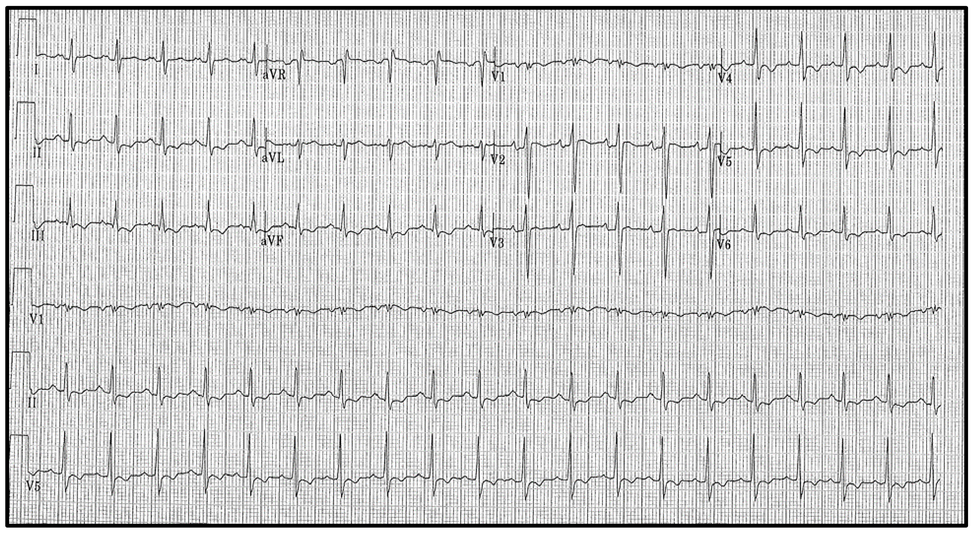


Figure 2: 12-lead ECG demonstrating resolution of brugada pattern after defervescence and removal of the offending agent.

## DISCUSSION

- Although there is a wide differential diagnosis for ST segment elevation, the Brugada pattern is distinguished by coved ST segment morphology demonstrated in this case.
- The 2013 Expert Consensus Statement modified the definition of Brugada syndrome to include those patients with type 1 pattern even in the absence of clinical manifestations.
- Once a diagnosis of Brugada syndrome has been made, effort should be taken to identify provoking factors such as medications and fever. Commonly implicated medications can be found on www.brugadadrugs.org.
- Additionally, patients should be thoroughly questioned for symptoms that could be clinical manifestations of Brugada syndrome such as syncope.
- In our patient's case, after he was weaned off of sedation and extubated, he reported multiple episodes of syncope while exercising in extreme heat a week prior to his blast injury, consistent with cardiac syndrome.

## CONCLUSIONS

- Military service members with brugada syndrome identified on ECG should be questioned thoroughly for the presence of symptoms that could influence risk stratification for sudden cardiac death and lead to ICD placement.
- These patients should be referred to the medical evaluation board as the consequences of malignant ventricular tachyarrhythmias could be catastrophic in this population, particularly in austere environments.

## REFERENCES

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