# Brugada Syndrome

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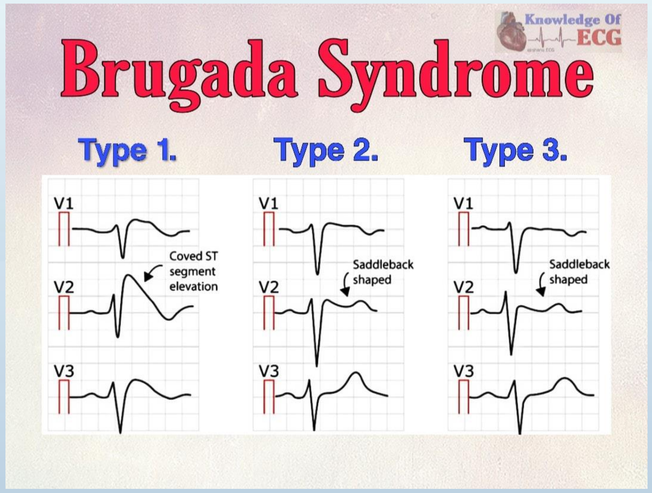
## INTRODUCTION

Brugada syndrome is a genetic disorder characterized by abnormal ECG findings and increased risk of sudden cardiac death due to ventricular arrhythmias. This syndrome poses a significant challenge in diagnosis and management due to the variable clinical presentation and fatal outcomes. There are 3 types of Brugada pattern. Type 1 is 2mm coved ST segment or J point elevation followed by a negative T wave. Type 2 is ST elevation of at least 1mm or 2 mm elevation of J point followed by positive or biphasic T wave, considered saddleback. Type 3 is either covered or saddleback with >1 mm ST segment elevation.[1,2] This case aims to provide an overview of Brugada syndrome.




## CASE DESCRIPTION

A 16-year-old girl presented with intermittent chest pain for one year. The pain is sharp, 7 out of 10, located mid chest and radiates below her breasts bilaterally. Pain occurs at rest but is worse with exertion. She denies palpitations, shortness of breath, headaches, weakness, or reflux. She occasionally has dizziness along with chest pain. Her physical exam was unremarkable for murmurs or irregular rhythm. She has been seeing cardiology and had multiple EKGs that were normal until her most recent visit at the cardiologist, which showed a right bundle branch block and ST elevation in V1. Patient was then referred to an electrophysiologist who thought she possibly has a mild type 3 Brugada pattern. He recommended a Holter monitor, Brugada precautions, and yearly follow-up with EKG.

## DISCUSSION

There are three criteria used to diagnose Brugada syndrome: family history, ventricular arrhythmias, and symptoms of arrhythmias (syncope, seizures). The definitive diagnosis is made if someone has type 1 Brugada pattern on EKG and at least one clinical symptom. Having type 2 or 3 pattern on EKG with at least one clinical criterion is suggestive of Brugada.[1,2]

The patient has a strong family history of Brugada syndrome in her father. He was diagnosed at 31 years old based on his EKG findings. He had a cardiac arrest at age 33 and had an ICD placed for secondary prevention. The patient's sister was screened and found to have Brugada pattern on her EKG. Genetic testing was not done on the patient, but her sister's genetic testing was negative. Her two other siblings were encouraged to get screened. She was not diagnosed with Brugada pattern but was placed on Brugada precautions of avoiding hyperthermic activities to heat stroke/exhaustion, treating fevers, avoiding triggering medications, and keeping electrolytes in balance.

## CONCLUSION

Brugada syndrome is an inherited cardiac disorder marked by an ST segment elevation in the right precordial leads. There is a heightened risk of sudden cardiac death due to mutations in the SCN5A gene, which governs the cardiac sodium channel. Although typically inherited in an autosomal dominant fashion, sporadic occurrence can also arise. The pathophysiology of Brugada syndrome involves disruption in the cardiac ion channels leading to an imbalance in the inward and outward currents during an action potential, predisposing individuals to ventricular arrhythmias. Treatment encompasses antiarrhythmic drugs like quinidine, which block sodium channels and reduce arrhythmia risks, along with lifestyle modifications to avoid triggering events. Screening is recommended every 1-2 years in first-degree relatives.

## REFERENCES

Antzelevitch C, Brugada P, Borggrefe M, et al.. Brugada syndrome: report of the second consensus conference: endorsed by the Heart Rhythm Society and the European Heart Rhythm Association. *Circulation* 2005;111:659–70. 10.1161/01.CIR.0000152479.54298.51

Bernardo MH, Tiyyagura SR. A Case of Type I and II Brugada Phenocopy Unmasked in a Patient with Normal Baseline Electrocardiogram (ECG). *Am J Case Rep* 2018;19:21–4. 10.12659/AJCR.906464

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