

## Introduction

Electrocardiographic (ECG) changes can be commonly found in patients with intracranial bleed. Among the most common changes are ST depression (24%), left ventricular hypertrophy (20%), corrected QT interval (QTc) prolongation (19%), and T wave inversion (19%). We report a case of subarachnoid bleed with ST elevation in ECG.

## Case Description

An 80-year-old lady was brought in by ambulance as she was found unresponsive by her son. She has underlying hypertension but defaulted treatment for many years. On arrival, her BP 262/116mmHg, PR 91, spO2 100% under room air. On examination, she had abnormal flexion response to pain. She was normoglycemic. ECG shows sinus tachycardia with extensive ST elevation over anterolateral aspect and prolonged QTc. Patient was intubated for airway protection and sent for computed tomography (CT) scan of the brain to rule out intracranial haemorrhage. CT imaging shows massive subarachnoid bleed.

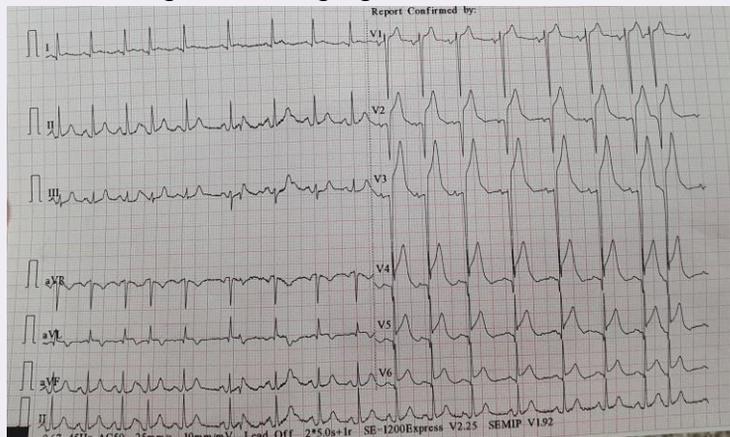


Figure 1: ECG showing sinus tachycardia with extensive ST elevation over anterolateral aspect

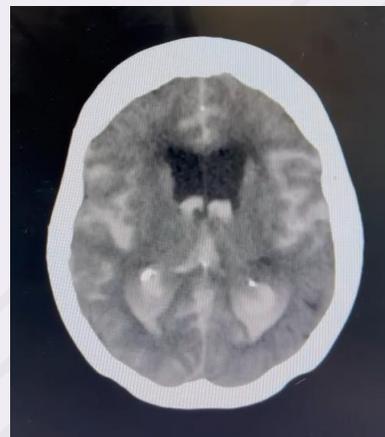


Figure 2: CT Brain showing extensive subarachnoid bleed with intraventricular extension

## Discussion

A phenomenon known as neurogenic stress cardiomyopathy (NSC) is used to describe patients with intracranial pathology that has either ECG changes, left ventricular regional wall motion abnormality, raised troponin or increased NT-proBNP(1). Stress on the nervous system can have an effect on the heart functionally and structurally. Generally, it is postulated that the myocardial dysfunction or injury is caused by the stress of catecholamine excess secondary to acute brain injury. This phenomenon is associated with increased risk of mortality and heart failure. The most common ECG alterations are repolarization abnormalities although sometimes arrhythmia such as atrioventricular block, atrial flutter, and ventricular arrhythmia can occur. More extensive studies are needed to observe the relation between these ECG changes and patient's prognosis.

## Conclusion

Special attention should be given to patients that present atypically with ECG changes. ECG changes can have many causes apart from cardiac-related problem. Being aware of this would direct us to proper care and treatment for the patient.

[1] Neurogenic Stress Cardiomyopathy: What Do We Need to Know. Ann Card Anaesth. 2018 Jul-Sep;21(3):228-234. doi: [10.4103/aca.ACA\\_176\\_17](https://doi.org/10.4103/aca.ACA_176_17).