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Understanding The Impact of Venom on Heart and Brain: A Case Study of Acute Myocardial Infarction and Cerebrovascular Accident Post Snakebite

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Abstract: ***A 58 - year - old male developed an acute myocardial infarction immediately after being bitten and two days later he had a cerebrovascular accident. The close clinical and laboratory follow - up of this case suggested that myocardial damage could be attributed to a direct cardiotoxic effect of the venom, while the brain injury that subsequently appeared was probably the result of a disseminated intravascular coagulopathy, possibly in conjunction with vasculitis.***

Keywords: myocardial infarction, cerebrovascular accident, venom, disseminated intravascular coagulation, vasculitis

1. Introduction

Acute myocardial infarction and cerebrovascular accident together caused by snakebite have been reported rarely. This injury was attributed to arterial thrombosis resulting from severe hypotension, or to the direct toxic effect of the venom on the myocardium. In addition, emphasis was given to disseminated intravascular coagulation in cases of snakebite by the Viper, but toxic vasculitis was thought to be the main cause of hemorrhagic complications. Neurological manifestations that constitute the predominant features in cobra bites were found in one - third of the cases with viper bites where bleeding and nephrotoxicity were encountered at higher rates. The case of a 58 - year - old male who sustained successive injuries to the heart and brain after a snake bite is presented, the sequence of these events suggesting that different mechanisms were involved.

2. Case

A 58 year- old male without comorbidities presented to emergency department in a collapsed state with history of unknown injury to left foot while working in the field. On examination, patient unconscious, pulse not palpable, BP not recordable and local examination showed erythema and mild oedema over left foot.

During the course in the hospital, patient was intubated and was started on inotropes.

3. Observation

Routine blood investigations showed DIC picture with mild derangement of RFT. Initial ECG showed ventricular fibrillation for which DC cardioversion done and sinus rhythm restored. Subsequent ECG showed inferior wall STEMI changes. Coronary angiogram showed total occlusion of left circumflex coronary artery and underwent primary percutaneous transluminal coronary angioplasty to left circumflex artery. Profuse oozing of blood from femoral site was noted during the angiogram procedure.10 vials of Anti snake venom given On 2nd day of admission, the patient developed atrial fibrillation which was treated with amiodarone bolus dose and maintenance infusion and later attained normal sinus rhythm. Simultaneously patient developed dysarthria, right sided hemiplegia and right hemianopia. MRI taken showed left PCA and left MCA territory infarct. During the course in the hospital, patient was treated with single antiplatelet and due to risk of haemorrhagic transformation, planned to start anticoagulation later.

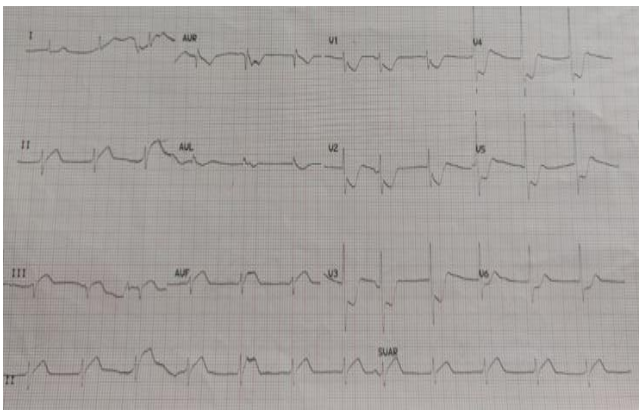

Figure 1: ECG - Inferior Wall STEMI

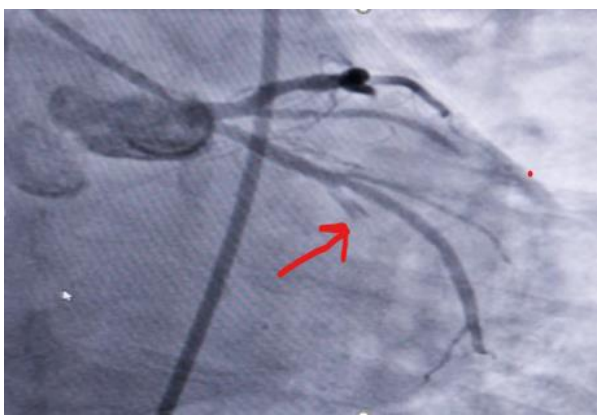

Figure 2: CAG - 100%total occlusion of left circumflex

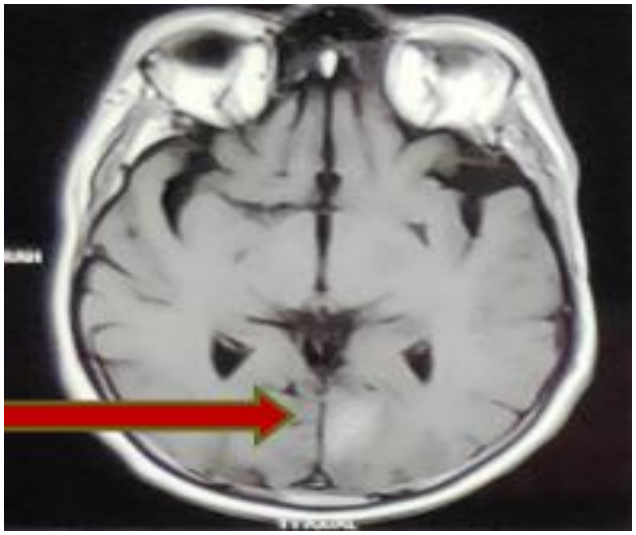

Figure 3: MRI - Left PCA Infarct

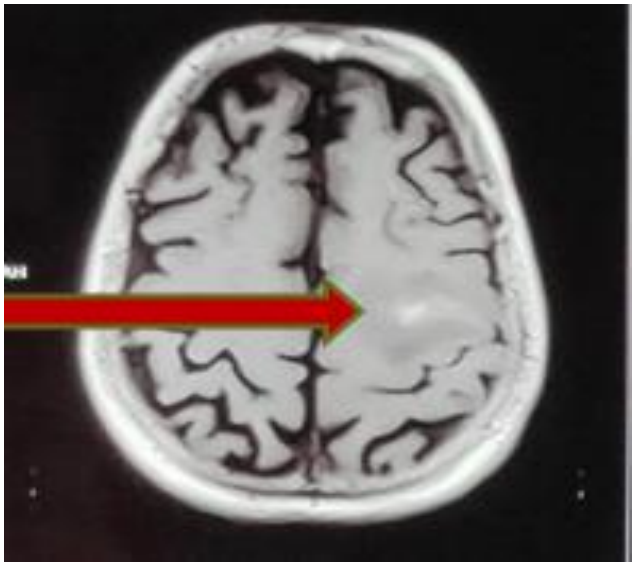

Figure 4: MRI - Left MCA Infarct

4. Clinical Significance

Clinicians should have a high index of suspicion for hypercoagulable states like Myocardial infarction and stroke while evaluating patients with unknown injuries in the setting of shock. On the whole, the time sequence of the clinical and laboratory findings in this case is strongly suggestive of an immediate toxic effect of the venom upon the patient's heart and of subsequent ischemic brain damage probably as a result of cardioembolic stroke due to atrial fibrillation.

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