

## Case Report

# Myocarditis And Pulmonary Oedema Following Red Scorpion Envenomation

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### Abstract

Scorpion sting is an important public health problem in countries like India. It may present with mild local pain to severe systemic symptoms which may need I.C.U. care including mechanical ventilation.

Scorpion envenomation presents with increased systemic vascular resistance and hypertension, but in cases of severe envenomation it may present with hypotension and pulmonary oedema. Here we are presenting a case of red scorpion (rare species in Vidarbha Region) sting envenomation presented with hypotension and pulmonary oedema which was treated successfully with conventional treatment of Pulmonary edema, inotropes and prazosin,

**Keywords:** Scorpion sting, Envenomation, Pulmonary edema, Myocarditis

### Introduction

Scorpion sting is common in rural India<sup>1</sup> Mortality due to severe envenomation by scorpion sting appears to be more than deaths due to snake bite. Scorpion envenomation can cause varied range of clinical presentation from local reaction to neurologic, respiratory & cardiovascular collapse. Most of the deaths due to scorpion envenomation are attributed to cardiopulmonary complications like Myocarditis & acute pulmonary oedema<sup>2</sup>. Treatment of these cases is usually empirical. Majority of referred cases of severe envenomation to tertiary care hospital belongs to near by rural areas. Black scorpion (*Palmaneus gravimanus*) is common in vidarbha region than Red scorpion (*mesobuthus tamulus*) Here we report a case of Red scorpion (a rare species *mesobuthus tamulus*) sting envenomation who developed evidence of myocardial injury and pulmonary edema, which was treated successfully.

### Case Report

A 17 year old male resident of Nagbhid district Chandrapur presented with history of a scorpion sting on nape of neck and ring finger of left hand. Species identified was red scorpion (*mesobuthus tamulus*) not commonly found in that locality. Three hours later, the patient became breathlessness associated with 5-6 episode of vomiting followed by profuse sweating commonly known as "skin diarrhea" and he became drowsy.

His clinical examination revealed Pulse rate of

130/min. which was regular. His B.P. was 90/60 mm Hg. Spo<sub>2</sub> at room temp. was 80% Extremities were cold, respiratory rate was 36/min. He had cyanosis Examination of the respiratory system showed bilateral extensive rales. Nothing abnormal was detected on Cardiovascular system exam except tachycardia Apart from altered level of consciousness no focal neuro deficit was present. Abdominal palpation did not reveal any abnormality.

Laboratory investigations showed: BUN 40 mg%, serum creatinine-1.9 mg%, blood sugar-126 mg% serum sodium 137 meq/L, potassium-3.7 meq/L, Serum calcium-9 meq/l, **CPK-MB-71IU/L**, Hb-11.4g/dl, TLC-16000.

ECG taken on admission showed sinus tachycardia. On 2<sup>nd</sup> day ECG depicted Deep symmetrical inversion of T waves in leads I, aVL, V<sub>2</sub>, V<sub>3</sub>, V<sub>4</sub>, V<sub>5</sub> (**Fig.1**) with prolonged

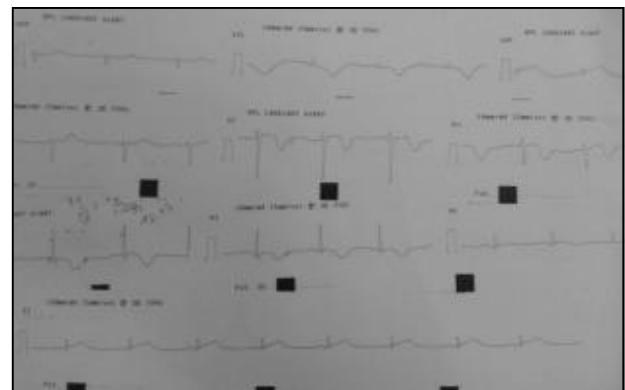


Fig 1-  
ECG showing deep symmetrical T inversion in I, aVL, V<sub>2</sub>-V<sub>6</sub>

QTc (.48sec.) but no RWMA on 2DEcho. X ray chest showed pulmonary edema (**Fig 2**)

Considering history, clinical examination findings & investigation reports diagnosis of Red scorpion sting

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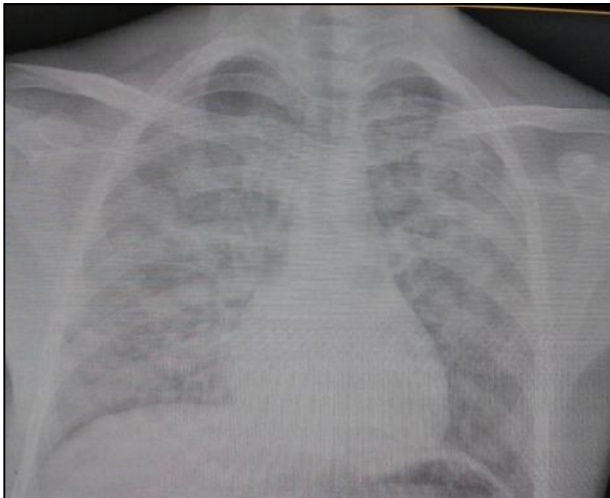


Fig 2  
X ray Chest showing pulmonary edema on admission

(mesobuthus tamulus) envenomation complicating as acute myocarditis with pulmonary edema with peripheral circulatory failure was entertained. Patient was managed with O<sub>2</sub> inhalation, inotropes, prazosin and diuretics. He improved gradually over period of 3 days. His pulmonary edema resolved, (**Fig 3**) Blood pressure maintained without inotropic support. QTc returned to normal. & ECG changes reverted back to normal. He went home with uneventful follow up of 2 months.

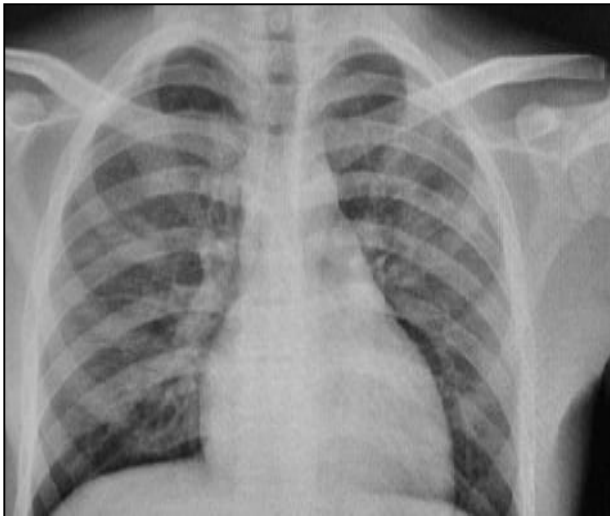


Fig 3  
X ray Chest showing resolution of pulmonary edema post treatment

### Discussion

Scorpion venom contains a neurotoxin, haemolysins, agglutinins, haemorrhagins, leucocytolysins, coagulins, ferments, lecithin and cholesterolin<sup>4</sup>

The venom produces both local as well as systemic reactions. Local reactions consist of itching, edema and ecchymoses with burning pain.<sup>5</sup> The systemic

manifestations comprise by transient parasympathetic (vomiting, profuse sweating, rosy salivation bradycardia, ventricular pre mature contraction, priapism in male, hypotension) and prolonged sympathetic (cold extremities, hypertension, tachycardia, pulmonary edema and shock) stimulation<sup>3</sup>

The scorpion venom stimulates the peripheral sympathetic nerve endings and release of catecholamines from the adrenal medulla (directly as well as through parasympathetic stimulation)<sup>6</sup> Thus the venom is a powerful arrhythmogenic agent. These actions of the venom are inhibited by atropine, propranolol and prazosin.<sup>7</sup> Pulmonary edema and cardiac damage are due to several factors.<sup>7</sup>

A neurovegetative effect of the increased circulating pressor amines on the pulmonary capillary permeability could also be partly responsible for pulmonary edema<sup>8</sup> There are a few cases of myocardial ischemia due to scorpion sting reported in the literature<sup>8</sup>

The ECG changes are nonspecific but may sometimes suggest myocardial infarction.<sup>8</sup> Raised CPKMB. is probably due to a direct toxic effect of the scorpion venom on the myocardium or secondary to venom-induced catecholamine release from the adrenals or sympathetic nerve endings. In the present case increased CPKMB, Prolonged QTc & T wave changes in ECG (Reverted after treatment) were favouring Myocarditis (myocardial damage) Several types of arrhythmias (both tachy and brady types) have been reported<sup>8</sup> Arrhythmias were not seen in the present case.

Successful management of scorpion bite has been reported with local treatment including local anesthesia, ice pack<sup>8</sup> specific antivenin<sup>8</sup> lytic cocktail to treat hypotension,<sup>7</sup> atropine and prazosin.<sup>8</sup> Supportive therapy consists of conventional management of left ventricular failure and pulmonary edema. The present case did not receive antivenin. He improved with Prazosin, Inotropes & conventional management of pulmonary edema.

### Conclusion

The patient reported here in had evidence of acute myocarditis with pulmonary edema & Hypotension due to scorpion sting envenomation. The Indian Red scorpion (Mesobuthus) is one of the most toxic envenomation in animal kingdom. Treatment of these patients has been essentially empirical or based on observations from animal studies. Conventional & timely management results into excellent outcome.

### Acknowledgement

We are thankful to the Dean, Government Medical College, Nagpur, for his kind permission to publish

hospital data.

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