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RESEARCH ARTICLE

“SCORPION STING: WHEN VENOM STRIKES THE HEART”

Dr. Gaurav Kotkar¹ and Dr. B.R. Sinare²

1. Junior Resident, Department of General Medicine DBVP RMC, Loni, Ahmednagar.
2. Professor, Department of General Medicine DBVP RMC, Loni, Ahmednagar.

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Abstract

Scorpion bites are common in India and are usually harmless. However, they can sometimes lead to serious clinical consequences, including death. We present a case of a scorpion bite that resulted in electrocardiographic abnormalities resembling early myocardial infarction. The patient also experienced pulmonary edema and congestive heart failure, along with elevated serum cardiac markers. The cardiovascular manifestations in severe scorpion stings are attributed to the venom's effect on the sympathetic nervous system, the adrenal secretion of catecholamines, and the venom's direct toxic effect on the myocardium. This rare case of a scorpion sting Presenting congestive cardiac failure,pulmonary edema,cardiogenic shock was successfully treated with intensive care, noninvasive ventilation, vasopressors, and prazosin.

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Introduction:-

Nearly 1000 species of scorpions are known worldwide,which 86 species in India MESOBUTHUS TUMULUS (Indian Red Scorpion) is the most lethal among all the poisonous species of scorpion Local symptoms =bite site - severe pain,burning sensation,numbness are most common But systemic complication can also occur.cardiovascular symptoms especially notable by Indian red scorpion.leads to serious clinical outcomes,including acute pulmonary edema,cardiogenic shock,myocardial injury,myocardial infarction and even death Here,we present a case report Indian red scorpion bite leads to acute pulmonary edema,cardiogenic shock,myocardial injury.

Case Presentation

A 15 year old female patient had come with a history of scorpion bite on right great toe . After 6 hours of the bite thepatient developed nausea,vomiting,breathlessnessand profuse sweating. The patient wasadmitted atPravara rural hospital with the same complaints about 8 hours after scorpion bite. The patient had no significant past historyand had no other cardiac risk factor, no history of any congenital heart disease.

Clinically presentation-

On examination the patient had a pulse of 140/min,BP of systolic 70 mmHg,RR of 40/min andsaturation of 70% on room air. Jugular venous pressure was raised. Respiratory examination showed Air Entry bilaterally equal with bilaterallbasal crepitations. CVS examination-showed loud s3 gallop at apex,no murmur,nopericardial rub,no cardiomegaly. CNS examination was within normal limits. Perabdominal examination was within normal limits .

Investigations-

HB 12g/dl,wbc12,300 cells/CMM,platelet 3.03 million/CMM

Corresponding Author:- Dr. Gaurav Ravindra Kotkar

Address:- Dr. Balasaheb Vikhe Patil Rural Medical College, Loni.

Sr.Na 139 mmol/l, Sr.K 5.0 mmol/l, Urea 40 mg/dl, Sr.Creatinine 0.5 md/dl
 LFT=WNL ,INR-1.10 ,
 CPKMB =54 IU/L, TROPONIN I = 3754 ng/l
 ABG =s/o Respiratory Acidosis
 Chest Xray = s/o Pulmonary edema
 ECG sinus tachycardia,ST-T changes
 2D ECHO= EF 55% rest WNL

Treatment

Pt was treating with injection Noradrenaline and injection Dobutamine. Patient was also given injection frusemide and corticosteroids. Patient was taken on Noninvasive BIPAP ventilation. After stabilization of BP prazosin was started.

Discussion:-

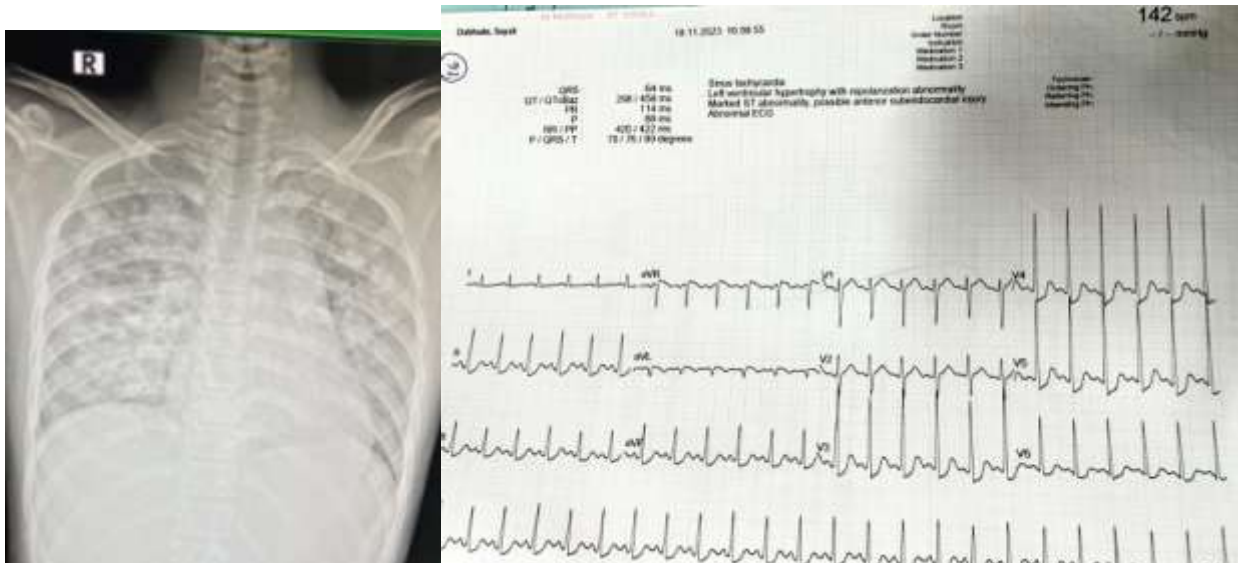
Scorpion venom is cocktail of low molecular weight proteins ,neurotoxins ,cardiotoxin, nephrotoxins, hemolysins, nucleotides, aminoacids, oligopeptides, phosphodiesterase, phospholipases, hyaluronidase, acetylcholinesterase, histamine, and protein that inhibit multiple enzymes including Proteases, Angiotensinase, succinate dehydrogenase, ribonuclease and 5-nucleotidase. Multiple toxins are present in venom which are capable of producing potent synergistic effects. Myocardial injury due to scorpion bite is due to venom induced raised levels of Renin, aldosterone, catecholamines, and coronary spasm

Myocardial damage by coronary spasm=

Release of vasoactive, inflammatory and thrombogenic peptides which act on coronary vessels and induce coronary artery vasospasm, platelet aggravation and thrombosis **Cardiotoxic Effect:-** Myocarditis is caused by reduction of Na-K-ATPase and adrenergic myocarditis by releasing adrenaline & noradrenaline from neurons, ganglia, adrenals and increasing myocardial oxygen demand by direct inotropic and chronotropic effect

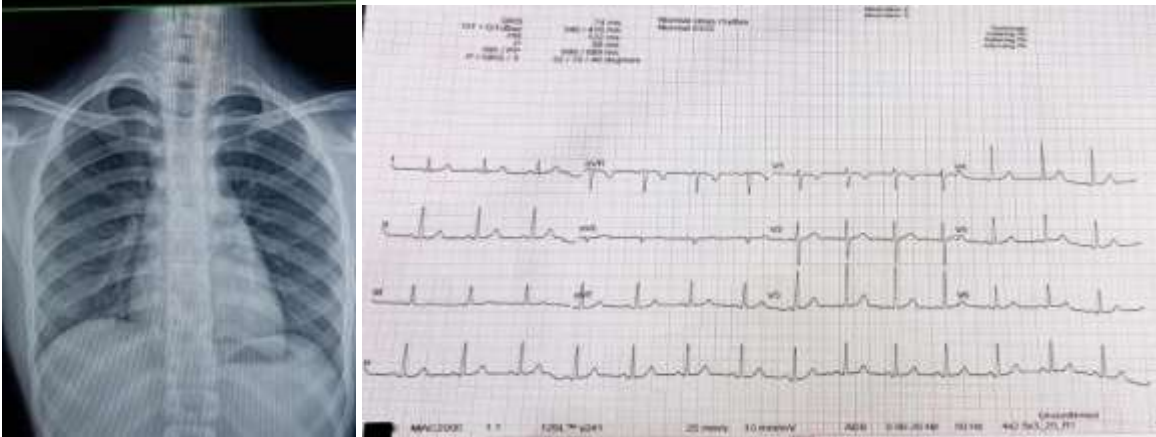
Pickup points:-

- 1) scorpion venom potent cardiotoxic effect its RARE but life threatening
- 2) any age group can develop cardiac complication
- 3) Early detection of cardiac manifestation by cardiac markers & ECG helps in early diagnosis of acute cardiac complication



ON Admission X-ray of the patient showed bilateral infiltrates suggested of pulmonary edema

ON Admission Electrocardiogram (ECG) of the patient showed secondary ST- T changes and tachycardia



ON DISCHARGE X-ray of the patient on day 8th showed no infiltrates

ON Discharge ECG of the patient on day 8th showing Normal sinus Rhythm



Indian Red Scorpion (Mesobuthus Tumulus).

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