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Understanding the Impact of Scorpion Bites on Cardiovascular Health in India

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Abstract: ***Scorpion bites are very common in India. Generally, these bites are harmless but occasionally they have serious clinical sequalae. The cause for cardiovascular complications in severe scorpion sting is related to the venom effects on sympathetic nervous system and adrenal secretion of catecholamines as well as the toxic effects of venom on the myocardium.***

Keywords: Scorpion Sting, Pulmonary edema, Myocarditis, Autonomic Storm, Cardiogenic Shock.

1. Case Report

Here We are reporting a 13 year female child with scorpion bite who ended up in cardiac arrest and needed a multi departmental disciplined co-ordinated approach to save her.

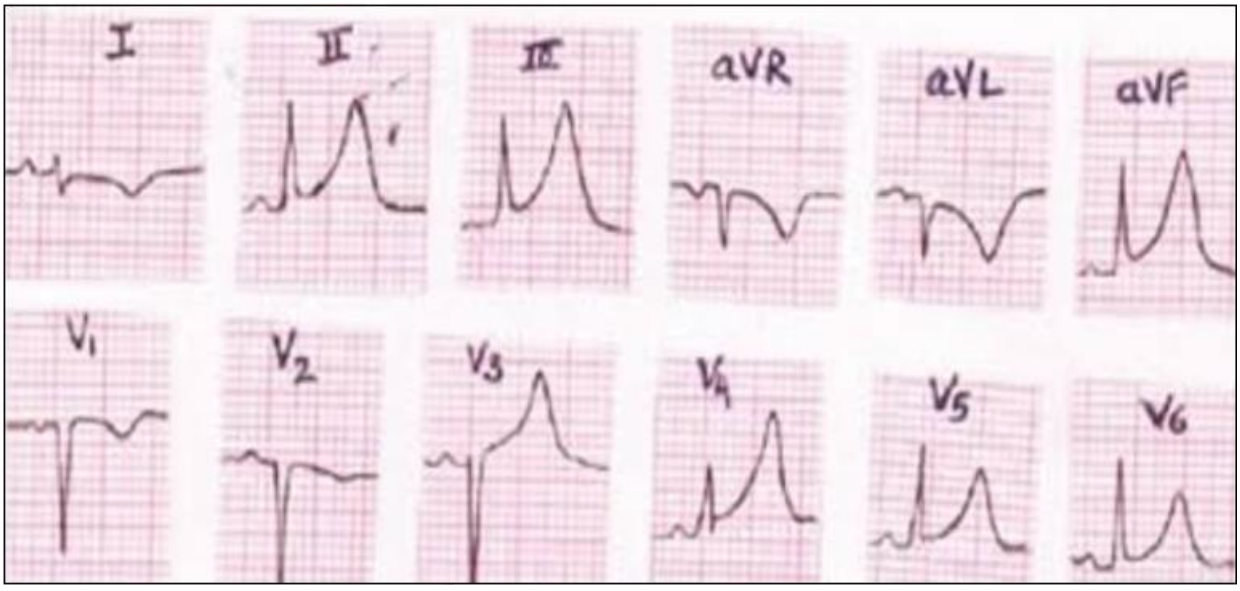
History of Presentation
A 13 yr old girl without any premorbid illness presented to our emergency department on 19/5/2022 around 4pm with history of scorpion bite over right middle finger. She complained of upper abdominal pain, increased salivation, excessive sweating, nausea and one episode of vomiting following the bite.

She also had headache, chest pain, palpitation. She did not have any bleeding
manifestations or bowel / bladder disturbances.

0/E patient drowsy but arousable, diaphoresis was present, her extremities were cold and clammy

VITALS: PR-110/min
BP-90/60mmHg
SPO2- 98% RA
CBG- 124 mg%
RR – 22/min

Initial Management:
Her systemic examination was normal except that she had tenderness over bite site. Patient was treated with injection lignocaine around bite site to reduce pain. Injection TT was given, Tab. Prazosin 2mg every 6th hourly initiated. IVF- NS at 80ml/hour started ECG was taken, routine investigations done.



ECG: Normal standardization
HR-110/min
Normal axis
Peaked T waves in inferior lead, V3-V6

ECHO was done:
Tachycardia during study
Mild Left Ventricular Systolic Dysfunction
Ejection Fraction 48%

Diagnosis- Scorpion Sting with Autonomic Storm and Acute Myocarditis

DAY 2: Patient c/o breathlessness. Her SPO2 was 95% on Room Air. She was dyspneic and tachypneic CVS examination showed S3. Respiratory System showed bilateral crepitations
BP- 90/60 mmhg
PR- 112/min
RR- 28/min

Patient developed acute pulmonary edema. NIV was given along with IV Furosemide
20mg stat and ionotropic support. Patient was intubated in view of impending respiratory failure After 4 hours, patient went for sudden cardiac arrest.

CPR started as per ACLS protocol. Patient was revived and maintained on ventilator support.

ECHO- Regional Wall Motion Abnormality of Anterior wall of left ventricle
EF 42%
MODERATE Left ventricular systolic dysfunction
NO TR/CLOT/VEGETATIONS

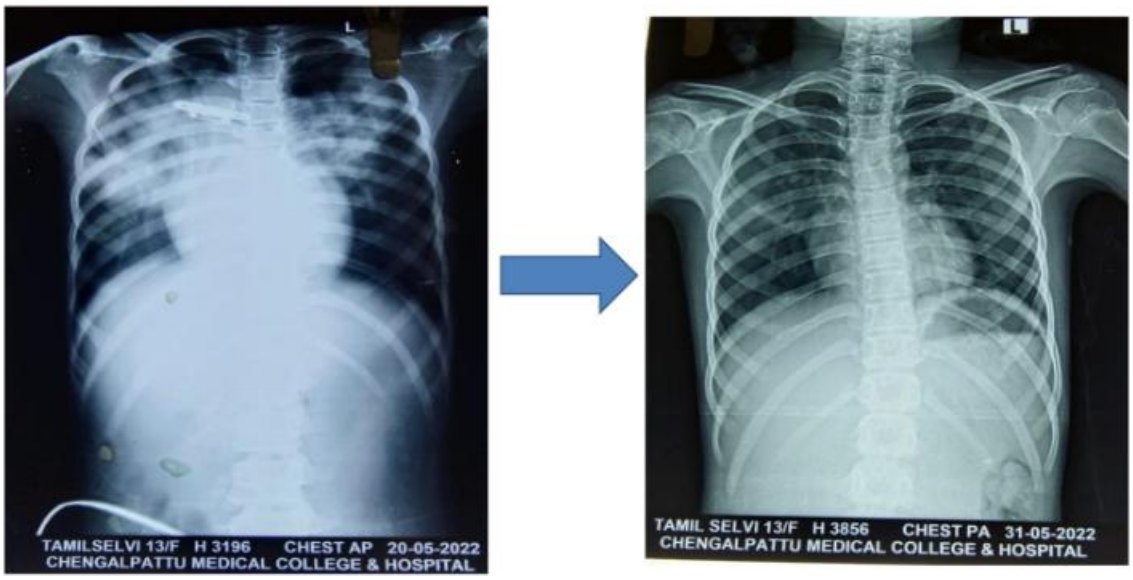
Diagnosis- SCORPION STING WITH AUTONOMIC STORM, ACUTE MYOCARDITIS, ACUTE PULMONARY EDEMA, CARDIOGENIC SHOCK, POST CARDIAC ARREST STATUS.

DAY 4: Supportive treatment given

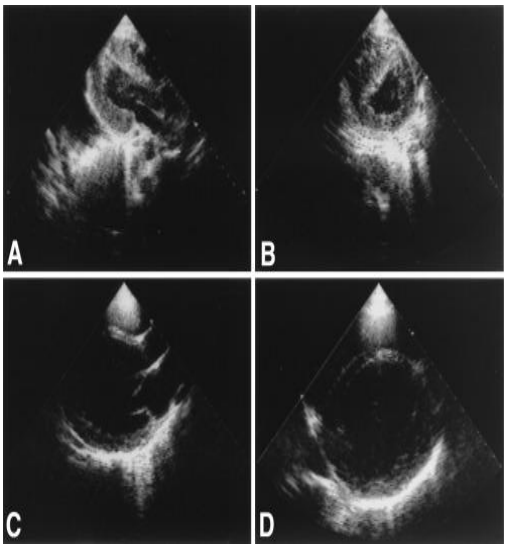
DAY 7: Patient gradually improved and was extubated and weaned from ventilator on Day-7.

DAY 10: Vitals stable, SPO2 97% in room air, no specific complaints.

Patient was successfully treated and discharged by early hospitalization and combined team work by our hospital including paediatricians, intensivists, cardiologist and support team.



Bed side CXR-bilateral upper and midzone CXR – resolution of opacities+ heterogenous opacities



ECHO done- EF 60% , Normal LV function

2. Discussion

The venomic effects of scorpion sting is much worser than a snake bite, but only a small quantity of venom is injected. In spite of rapid developments in its management, the fatality remains high in rural areas due to lack of medical facilities.

Scorpion venom is a combination of neurotoxin, hemolysin, agglutinin, leucocytolysins, coagulins, lecithin, hemocytolysin, tryptophan and histamine. The main target of the neurotoxin is the voltage gated sodium channels and the potassium channels.

Mesobuthus tumulus, the Indian red scorpion venom is the most notorious in producing complications and death.

Clinical manifestations may be local and/or systemic.

Local manifestations may be intense pain, heat, swelling and regional lymphadenopathy.

Systemic manifestations are due to early parasympathetic activity, including vomiting, intense sweating, hyperlacrimation, abdominal distension and in extreme cases, hypotension and bradycardia.,Prolonged release of catecholamines causes Restlessness, Piloerection Marked tachycardia Mydriasis Hypertension Myocarditis Cardiac failure resulting in pulmonary edema.

3. Conclusion

Scorpion sting can have potent toxic effects. Hence, ECG, echocardiograpy and cardiac markers must be included in the management of all scorpion sting cases and careful vitals monitoring must be done for all patients to prevent dreadful, cardiac catastrophic events.

Our case is a clear cut example of how a scorpion sting can lead to a life threatening condition and how careful monitoring and proper treatment according to guidelines, involving multi departmental care and supportive treatment can potentially reverse a near death situation and offer a new lease of life.

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