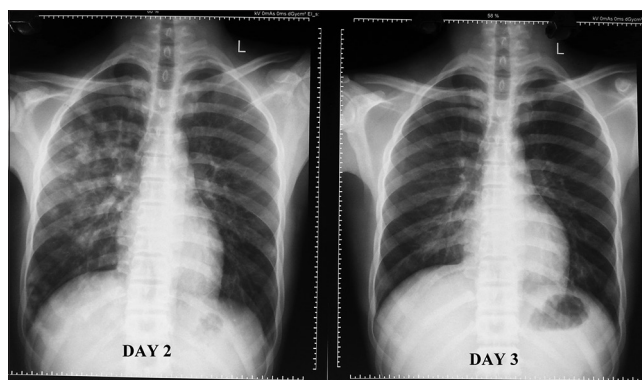


## Unilateral pulmonary oedema: Rare manifestation of scorpion sting

Sir,

Scorpion envenomation is an important public health hazard in tropical and sub-tropical regions of India.<sup>[1]</sup> Pulmonary oedema is a common cardiorespiratory manifestation of scorpion envenomation. Bilateral pulmonary oedema is common whereas unilateral oedema is unusual.<sup>[2]</sup> Previously reported cases of unilateral pulmonary oedema occurred within few hours of scorpion sting.<sup>[2]</sup> This case report presents development of unilateral pulmonary oedema more than 24 h after scorpion sting.

An 18-year-old male presented to casualty with scorpion sting over the dorsum of the left foot while working in his field about 4 h ago. He had pain and burning sensation at the sting site, excessive sweating, chills and increased salivation. On examination, his extremities were cold, pulse rate 120 bpm, and blood pressure 140/90 mm Hg with normal systemic evaluation. He was admitted to the intensive care unit and treated with 2% lignocaine infiltration around the sting site and tablet prazosin (1 mg, repeated after 3 h and later sixth hourly). He improved symptomatically, extremities became warm but he continued to have tachycardia and on next day, he developed breathlessness, hypotension (systolic blood pressure [SBP] was 70 mm Hg) and unilateral rales on the right side of the chest while the tachycardia persisted. The patient also had an episode of haemoptysis (about 40 mL). The patient received oxygen at 6 L/min through Hudson's mask. Tablet prazosin was continued as tachycardia persisted. Chest X-ray showed evidence of unilateral pulmonary oedema restricted to right side [Figure 1]. Echocardiography showed mild mitral regurgitation with no systolic or diastolic dysfunction. Dobutamine infusion was started at 250 µg/min (5 µg/kg/min) in view of hypotension. Blood pressure was monitored every 10–15 min and dobutamine dose was increased by 1 µg/kg/min. Desired blood pressure (SBP >90 mm Hg) was achieved at a dose of 600 µg/min. Over next 24 h, breathlessness and tachycardia reduced while the blood pressure stabilised with inotropes. Dobutamine infusion was gradually tapered and stopped on 3<sup>rd</sup> day. The patient improved symptomatically, tachycardia resolved, and tablet prazosin was stopped.



**Figure 1:** Chest X-ray on the left side showing right sided unilateral pulmonary oedema and X-ray on right side of the image showing resolution of pulmonary oedema after 24 h

Repeat chest X-ray showed resolution of pulmonary oedema [Figure 1], electrocardiography was normal and Doppler echocardiography was normal without any structural abnormality. Patient was discharged home after observation for another 48 h.

In India, out of 86 species of scorpions, two types, namely the small red *Mesobuthus tamulus* and the large black *Palamneusgravimanus* are important. *Mesobuthus tamulus* is the most lethal amongst all poisonous species of scorpions in India and is common in western Maharashtra, Saurashtra (Gujarat), Kerala, Andhra Pradesh, Tamil Nadu and Karnataka states.<sup>[3]</sup>

Scorpions venom consists of several basic proteins, neurotoxins, nucleotides, amino acids, oligopeptides, cardiotoxins, nephrotoxin, haemolytic toxins, phosphodiesterase, phospholipase A, hyaluronidase.<sup>[1]</sup> These toxins are responsible for intense and persistent depolarisation of autonomic nerves with massive release of endogenous catecholamines, an 'autonomic storm'.<sup>[1]</sup>

Of 888 scorpion sting cases studied during 19 years at Primary Health Centres in Maharashtra, India, 167 (19%) had pulmonary oedema.<sup>[4]</sup> The mechanism of acute pulmonary oedema induced by scorpion venom is not completely understood.<sup>[2]</sup> It may occur due to both cardiogenic and non-cardiogenic causes.<sup>[5,6]</sup> The occurrence of unilateral pulmonary oedema in our patient could be due to the above reasons or mitral regurgitation as evidenced by Doppler echocardiography.<sup>[6]</sup> What was striking was that the pulmonary oedema was unilateral and it developed more than 24 h after the scorpion sting despite the use of prazosin (the physiological and pharmacological antidote for scorpion sting) early in the course. Patient also had hypotension, tachycardia, and warm extremities. Though warm extremities could

be due to prazosin therapy, the possibility of warm shock cannot be ruled out especially when the patient had breathlessness, tachycardia, and hypotension.<sup>[1]</sup> Pulmonary oedema, in scorpion envenomation, may develop early with severe hypertension or may develop after 36 h of sting with hypotension and tachycardia.<sup>[1]</sup>

Not only does this case report emphasise the occurrence of unilateral pulmonary oedema in scorpion sting it also emphasises that pulmonary oedema can occur more than 24 h after sting and that close monitoring of patients of scorpion sting is required beyond 24 h of sting as well.

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