Scorpion bite, a sting to the heart!

Sir,

We read the article “Scorpion bite, a sting to heart” by Agrawal et al. with great interest. The author reported a case of 14-year-old male patient with scorpion bite on the right toe. We want to highlight certain issues regarding diagnosis and management of this patient.

Cardiotoxic effects due to scorpion bite are not rare complications as demonstrated by Kumar et al. that almost more than one-third of these patients have one or more cardiovascular effects. Prazosin and anti-scorpion venom (SAV) should be the primary line of treatment, as alpha receptors stimulation by the toxin results in hypertension, tachycardia, myocardial dysfunction, pulmonary edema, and cool extremities. However, it has been seen that the late administration of SAV may be effective as the antivenom creates a concentration gradient between plasma and target tissue. The venom binds to antivenom gets excreted, and the toxin in the tissues moves down the concentration gradient into the blood and gets bound by the antivenom. Therefore, even if the venom is not immediately neutralized by antibodies, its removal from the tissue may cause relief in symptoms.

Electrocardiography (ECG) is the most important and easily available tool. No victim with systemic involvement shows normal ECG. RST segment and T waves are most frequently affected. Early myocardial infarction-like pattern, atrial arrhythmias, nonsustained ventricular tachycardia and varied conduction defect due to injury to the conducting system are seen. Conduction defect restore to normal within 1 week, T wave inversion persist for a few weeks. At times, despite good clinical status of the victim, ECG showed mark abnormalities.

Echocardiography is a useful tool for evaluating the various parameters of cardiac function. Echo shows poor global myocardial contractility within 12-15 h of sting, with low ejection fraction, decreased left ventricular performance, and abnormal diastolic filling for 5 days to 4 weeks. Diminished or hypokinetic left ventricular global movement with decrease systolic function was seen in the scintigraphic study. There is a good correlation between clinical improvement and return to normal left ventricular function.

Karnad from India studied haemodynamic pattern in eight scorpion sting cases of Mesobuthus tamulus sting. He recorded severe vasoconstriction and hypertension in mild envenoming while predominant left ventricular dysfunction with normal systemic vascular resistance causing pulmonary edema or severe hypotension in severe envenomation. These patients are benefitted by the early use of inotropes and vasodilators, which reduce the afterload on the heart. These physiologic principles make dobutamine and milrinone as vasoactive drugs of choice instead of Noradrenaline as used by authors in the index case.

Amiodarone a neuromodulator improves the survival by reduction of serum nor-epinephrine level in four children with scorpion sting who had severe left ventricular dysfunction with raised troponin and serum norepinephrine.

Early hospitalization after sting, and administration of SAV are the key factors in reducing the myocardial dysfunction, and hence related morbidity and mortality.

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Conflicts of interest
There are no conflicts of interest.
**An aberrantly positioned central venous catheter: A presage of an underlying anatomical anomaly**

**Sir,**

The left subclavian vein was cannulated uneventfully using bony landmark technique in a 52-year-old male for hyperalimentation and administration of inotropes and intravascular fluids in Intensive Care Unit (ICU). He was a postoperative case of cancer of the sigmoid colon and had undergone a hemicolectomy. He was admitted in view of massive intraoperative blood loss leading to hemodynamic instability and long duration of surgery. His stay was further complicated by development of septic shock. Postinsertion chest radiograph revealed the position of the catheter in the left para mediastinal location [Figure 1]. This raised suspicion of a left-sided superior vena cava (SVC). Cross-sectional imaging with computed tomography (CT), magnetic resonance, or a saline contrast echocardiography was the options available to confirm the diagnosis. A bedside CT (contrast-enhanced) of the thorax is not available in our ICU and decision to shift the patient to radiology was deferred in view of hemodynamic instability of the patient and requirement of high dose of inotropes. Bedside transthoracic echocardiography was performed which showed a structurally normal heart with a dilated coronary sinus. The tip of the central venous catheter, however, could not be observed with confidence. Agitated saline was infused via the central venous catheter and this was followed by opacification of the coronary sinus and the right atrium. Persistent left-sided SVC (PLSVC) draining to right atrium via coronary sinus was confirmed. Malpositioning into tributaries of left brachiocephalic vein (left internal thoracic vein, left superior intercostal vein) and left pericardiophrenic vein was unlikely as the pressure tracing was consistent with central venous placement (a,c, x, v, y waves could be identified). Placement in left subclavian artery and descending thoracic aorta was ruled out as pressures ranged from 5-8cm of H2O and results of blood gas analysis were consistent with venous placement.

The incidence of PLSVC is 0.3–0.5% in healthy individuals and 1.3–4.5% in patients with coexisting cardiac defects. [1,2] About 82% of PLSVC coexist with a right SVC and so this anomaly is often missed when central venous catheters are inserted on the right side. Venous drainage of PLSVC is into right atrium in majority of cases but could be in the left atrium also [Table 1]. Left-sided jugular venous distention and an abnormal and exaggerated jugular venous waveform on left-sided catheterizations due to direct transmission of left atrial envenomation. Heart 1998;79:485-9. 7. Santiago JJ, Davila CA, Davila DF, Donis JH, Villarroel V. Antiadrenergic rescue therapy with amiodarone in children with severe left ventricular dysfunction secondary to scorpion envenomation. Arq Bras Cardiol 2010;94:18-23.

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**References**