



Snake Venom: A Double Edged Sword - Case Study

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Abstract

Snake bite is a public hazard found across the whole world affecting millions of people every year where some of them Lose their lives due to envenomation. Statistics shows 94,000–125,000 per year are due to snake bite. Limb deep vein thrombosis might be rarely caused by snakebite, despite the pro-haemorrhagic general condition produced by the envenomation. A high index of clinical suspicion is needed for early diagnosis and timely management, which can improve survival of these patients. Prognosis of snake bite case mainly depends on site of bite, activity at the time of bite, time gap taken by the patient to present to hospital after snake bite, First aid step taken after the snake bite, a appropriate Clinical examination and monitoring of serial whole Blood Clotting Time (WBCT), D-dimer, serial ECG and timely management of the case with Anti snake venom if the signs of envenomation noticed.

Background

The main clinical presentation of complications in snakebite involves haemotoxic, neurotoxic and myotoxic reaction and in our case, it was the thrombotic event that occurred to complicate the condition.

Snakebite is a significant public health issue that mainly affects lower socio economic class due to their nature of occupation as it may be related to farming where snakes are more common in fields, other manual labourers as their job are mostly outdoor, limited availability of toilets inside house, so they might need to get out of their house to use the toilet even in night time in the rural tropical and subtropical areas.

Since June 2017, it has been recognized by the World Health Organization as a category A—Neglected Tropical Disease. Snakebites cause significant mortality and morbidity, particularly in South Asia.

Literature-based estimates suggest that there are 0.4 to 1.8 million envenomings and 20,000 to 90,000 deaths due to snakebite globally each year

Introduction

Snake bite is an acute life threatening time limiting medical emergency. Deep vein thrombosis (DVT) is one of the rare complications of haematotoxic snake bite occurs when a blood clot (thrombus) forms in one or more of the deep

veins in the body, usually in the legs. Deep vein thrombosis can cause leg pain or swelling.

Case Report

An 18 year Male from Uttar Pradesh, is a manual labourer at construction site at Alappuzha district of Kerala, with no known comorbidities in the past.

- Presented with Alleged history of unknown snake bite from his work site while he was drawing water from well

- Bitten twice over (L) foot, First bite Over 1st metatarsophalangeal Joint & second bite over dorsum of (L) foot

- He alleged that one of his relatives Incised the bite site with shaving blade and tried to squeeze out the venomous blood.

- Then he was taken to casualty at around on the same date with presenting complaints of Pain and swelling over (L) lower limb associated with blood oozing from bite (incision) site. •No hlo bleeding manifestations like bleeding gums, hematuria, respiratory symptoms like dyspoea, decreased urine output, LOC

*. General physical examination: Patient was drowsy and vitals were stable.

Systemic examinations were found to be normal with no relevant positive findings

***Local examination** showed

Extensive swelling (+) over dorsum of (L) foot

Multiple Cut marks (+) over bite site and adjacent areas of (L) foot

Blood oozing from bite site(+).

Investigations revealed Prolonged clotting time; more than 20 minutes

Normal routine blood examination, LFT, RFT, lipid profile, TFT, blood sugar were within normal limits.

Patient was admitted in ICU and treated with Anti Snake Venom 10 vial followed by 10 vial after 6 hours as definitive treatment and other measures including Blood transfusion, antibiotic therapy with Piptaz and Cloxacillin and other supportive measures.

On second day, patient developed Extensive cellulitis with massive swelling and tenderness over left leg and foot. Laboratory investigation showed elevated D-dimer, prolonged prothrombin time and low fibrinogen levels. Emergency Surgery consultation was done as we suspected Deep vein thrombosis for this patient and USG Doppler was taken which showed Deep vein Thrombosis of (L) common iliac and proximal part of external iliac vein noted

Started treatment with Inj Low molecular weight heparin for 5days along with antibiotic therapy (started Linezolid) in view of extensive cellulitis with swelling extended up to (L) knee and started spreading to (L) thigh. His condition got improved slowly. Repeat Doppler was taken showed dissolving of thrombus and recanalization of vessel and he was discharged in stable condition after 10 days of development of DVT.



Discussion

In this patient, initially presented with hemorrhagic manifestation in the form of spontaneous oozing from bite site and later with thrombotic manifestation.

The underlying mechanisms of thrombotic complications is believed to be the imbalance between the procoagulant & anti coagulant systems in the body.

Haematotoxic snake venom causes profound abnormalities in the coagulation System & platelets leading to the syndrome of DIC. This condition is associated with a tendency towards excessive bleeding following the uncontrolled activation of coagulation cascade resulting in a consumption coagulopathy. Thrombotic

complications are probably the result of the initial phase where the coagulation Cascade is activated. Though local reaction to the venom may produce swelling & thrombosis of superficial vein, involvement of deep veins appear more unlikely in this setting. Moreover the fact that DVT of the lower limb has been reported with the bite on the upper limb; may Indicate that systemic envenomation and coagulopathy has a definite role in genesis of DVT rather than being solely a local reaction.

Venom-induced consumption coagulopathy (VICC) is the most common and most important systemic effect of snake envenoming worldwide. True and pit vipers (Family: Viperidae) and Australasian elapids (Family: Elapidae) are known to cause VICC in envenomed humans.

Conclusion

The Mechanism of DVT in snake bite is venom induced consumption coagulopathy; that is snake venom has procoagulant and anticoagulant property. So, over consumption of coagulant factors can lead to multiple vein thrombosis and DIC. In our patient there are history and clinical features suggestive of DIC. Some snake venom contains more procoagulant factors which can induce thrombus formation which can be precipitated by bed rest or immobilisation. All of these causes might have contributed to the development of DVT in our patient.

Reference

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