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Case Report

Rare Case of Snake Bite With Severe Isolated Hematotoxicity

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ABSTRACT

Snake venoms are complex toxin mixtures. Snake bite may present as hematotoxic, neurotoxic, myotoxic are combination of these features. In India common snake bite presentations are combination of hematotoxicity and neurotoxicity .Viperidae and Crotalidae venoms, which are hematotoxic, are responsible for most of the envenomations around the world. Hematotoxicity (Bleeding) varies from mild to severe form. We are presenting a case of snake bite of severe isolated hematotoxicity with massive upper gastrointestinal bleed leading to hypovolemic shock.

Keywords: *Severe isolated hemotoxicity, hypovolemic shock, disseminated intravascular coagulation(DIC).*

INTRODUCTION

Snake bite is an important and serious medical problem in our country, leading to high mortality especially in rural areas. In India nearly 2, 00,000 persons fall prey to snake bite every year and about 30,000-50,000 people die due to effects of its venom. Mortality and morbidity is often unreliable due to poor reporting system.[1]

Snake venoms are complex mixtures of biologically active proteins, peptides, metal ions and organic compounds, which have evolved to favour the survival of the snake in its particular environment.[2] There are more than 600 known species of venomous snakes About a quarter of all snake species classified into several families: Elapidae, Viperidae, Crotalidae, Hydrophidae, Atractaspididae and Colubridae.[2] Their venoms are classified as hematotoxic if they primarily affect the cardiovascular system, or neurotoxic if they affect the central nervous system (CNS) and muscular system. Here we report an interesting case of pure hematotoxic snake bite presentation.

CASE REPORT

A 19 year old boy presented to the emergency department with history of snake bite over right ankle about 4cm just above medial malleolus at around 1.30 pm in the farm land. Patient was brought at 7.00pm to the emergency department with bleeding manifestations like bleeding gums ,bleeding

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from the bite site with redness of bilateral eyes, with hematemesis. History of headache diffuse in nature, blurred vision since 2 hours . History of pain abdomen diffuse all over the abdomen, blood stained urine present and bleeding from nostrils bilateral present. No symptoms suggestive of Neuroparalysis. Past history- Not significant.

On examination patient is concious, oriented, Afebrile, cold clammy extremites (+) Vitals pulse -140 bpm, Blood pressure -80/50 mmhg, pallor-present, Subconjunctival hemorrhage present (+), no icterus, cyanosis, clubbing, lymphadenopathy. Bleeding from bite site present, right lower limb is swollen, red and local tenderness present. Bleeding from gums present, Ryles tube aspiration around 1 liter of blood is aspirated. Urine out put is normal and mixed with blood (hematuria +).

Cardiovascular system- s_1 s_2 present(+), Respiratory system Bilateral normal vesicular breath sounds (+), Abdomen- soft no organomegally, Nervous system- no ptosis, no other signs of neurological deficits.

Immediately stomach wash was given upper gastrointestinal bleed (+), 15 vials of Anti snake venom was given in the emergency department. IVF was started .

DAY 1

Bleeding from IV cannula site , bleeding from the gums (+), blood in urine hematuria(+), epistaxis bilateral (+), sub conjunctival hemorrhage (+). Lab reports Hb- 17.4 gm/dl, WBC - 22.0×10^3 / μL(↑), RBC -6.11×10^6 /μL platelets 8000cells/cumm (↓). Blood group A negative .Bleeding time - 1 min 40sec ,Clotting time- 4 min 30 sec. Whole blood clotting time >9 min . PT -> 100 sec control-14.0 sec, APTT ->100 sec control-34.0 sec, Peripheral blood smear- normocytic normochromic with neutrophilic leucocytosis with severe

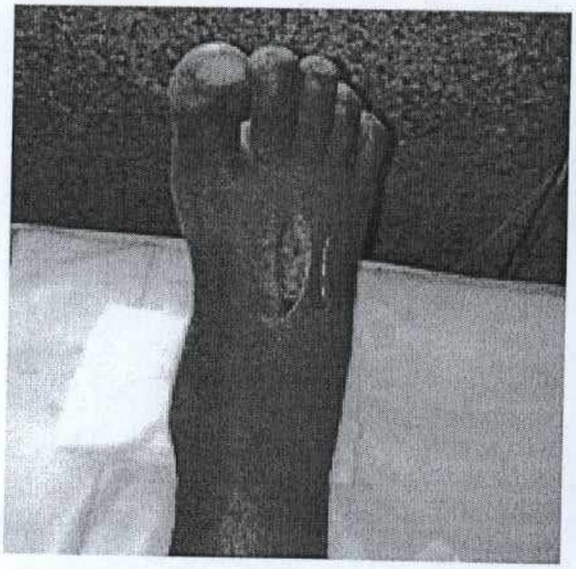

Fig 1: Site of local envenomation

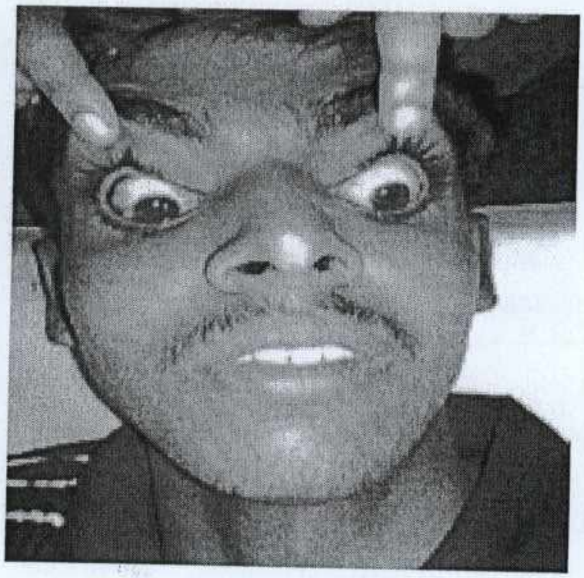

Fig 2: Bilateral Sub-conjunctival haemorrhages

thrombocytopenia. ESR -02 mm/hr. Urine routine - rbc- 4-5, wbc -1-2, casts, crystals nil, Sugar nil, RFT, LFT Within normal limit. ECG Sinus tachycardia, Chest x ray normal. HIV, HBSAG Negative. D-dimer - <0.03

With above clinical findings and investigations diagnosis of Snake bite with systemic envenomation predominantly hematotoxicity with DIC (Disseminated intravascular coagulation).

4 units of fresh frozen plasma, 4 units of platelets concentrates, Inj .Vit K IV was given, 2 units of whole blood transfused .15 vials Anti snake venom (ASV) was given on Day 1.

DAY 2

Bleeding continued from the bite site, sub conjunctival hemorrhage (+) hematuria (+) ,bleeding gums(+) 10 vials Inj ASV TID given . BT, 2' 60", CT - 6' 46" prolonged 2 units of whole blood, 6 packed cells, 6 platelet concentrates was continued.

DAY 3

Bleeding from bite site continued, sub conjunctival hemorrhage was present but reduced compared to day 1. 2 units whole blood , 4 units platelets was transfused. 5 vials Inj ASV TID was given. On day 3 bleeding diathesis stopped.

Totally the patient had received 60 vials of ASV, 6 units whole blood , 5 packed cells ,18 platelets . 3rd day Repeat Hb-12.2 gm/dl ,WBC-$12.5 \times 10^3 \mu L$,RBC -$4.28 \times 10^6 \mu L$, Platelets -$159 \times 10^3 \mu L$ Normocytic normochromic blood picture with mild neutrophilic leucocytosis.

This patient was managed successfully with ASV ,blood transfusion and other supportive measures. Timely administration of ASV and other supportive measures patients with snake bite with severe hematotoxicity was managed successfully.

DISCUSSION

There are basically three different kinds of snake venom.

Hematotoxins causes bleeding manifestations and DIC. Neurotoxins are responsible for neurological manifestations and respiratory paralysis.

Hematotoxins are toxins that causes hemolysis, disrupt blood clotting, and/or causes tissue damage. The term *hematotoxin* is to some degree a misnomer since toxins that damage the blood also damage other tissues. Injury from a hematotoxic agent is often very painful and can cause permanent damage. Loss of an affected limb is possible even with prompt treatment [1]. Hematotoxins are frequently employed by venomous animals, including pit vipers. Animal venoms contain enzymes and other proteins that are hematotoxic or neurotoxic or occasionally both (as in the Mojave Rattlesnake, the Japanese mamushi, and similar species) [1]. In addition to killing the prey, part of the function of a hematotoxic venom for some animals is to aid digestion. The venom breaks down protein in the region of the bite, making prey easier to digest [1]. The process by which a hematotoxin causes death is much slower than that of a neurotoxin. Snakes which envenomate a prey animal may have to track the prey as it flees. Typically, a mammalian prey item will stop fleeing not because of death, but due to shock caused by the venomous bite. Dependent upon species, size, location of bite and the amount of venom injected, symptoms in humans such as nausea, disorientation, and headache may be delayed for several hours.

It is known that hematotoxins in snake venom consisted of procoagulants, anticoagulants, fibrinolysins, platelet factors and vessel wall factors and up to 70% of the protein content of Russell's viper venom is a mixture of isoenzymes of phospholipase A2 . The possible clinical effects of these enzymes include hemolysis, rhabdomyolysis, pre-synaptic neurotoxicity, vasodilatation and shock [2].

Hematotoxins are used in diagnostic studies of the coagulation system. Lupus anticoagulans is detected by changes in the dilute Russell's viper venom time (DRVVT), which is a laboratory assay based on, as its name indicates, venom of the Russell's viper. All venoms contain a complex cocktail of proteins and enzymes. When someone is bitten by a snake with hemotoxic venom, the venom typically acts to lower blood pressure and encourage blood clotting. Many cytotoxic venoms can also spread through the body, increasing muscle permeability so that the venom can penetrate quickly. Every venomous snake species has a unique type of venom. Perhaps it is more accurate to say that their enzyme *mixtures* are all slightly different. In our case the patient was bitten by the poisonous snake probably Viper and had severe hematotoxic manifestations without any neurotoxic or cytotoxic manifestations and successfully managed with Anti snake venom and supportive treatment.

A prospective study was conducted in Anuradhapura Sri Lanka-epidemiology and clinical picture of Russell viper bite -In this study only 11% of the patients had pure hematotoxicity [4]. The purpose of presenting this case 1.Isolated hematotoxic without neurological manifestations is very rare 2. The supportive management is as important as giving anti snake venom as we did in this case.

CONCLUSION

Snake bites constitute a significant medical emergency in rural areas where agricultural workers are more vulnerable, especially during rainy season.

Ready availability and appropriate use of anti snake venom, blood components, institution of mechanical ventilation are required to reduce the mortality. Most patients can be successfully managed in secondary care hospitals with good outcome. Complications and causes of death were identified and possible remedies were suggested such as early administration of polyvalent antisnakevenom, close monitoring of vital parameters and supportive measures ,providing intensive care management in severe cases.

Farmers should be educated to practice practically feasible simple preventive measures. primary care professionals need to be educated for the referral of such needy patients to Teritary care centers at earliest .

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