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CASE REPORT

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Hypersensitivity following antivenom administration: A case report

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ABSTRACT

Introduction: Allergic reactions are the most common reported adverse events, after administration of antivenom. Antivenom is the treatment of snakebite. In many parts of the world where snakebite is prevalent, adverse reactions to snake antivenom are common. Acute reactions are mostly mild. Within an hour of exposure to antivenom, severe anaphylaxis may develop.

Case Presentation: Here, we illustrate a case of an 18-year-old female patient who had snakebite but after receiving antivenom, it was followed by local site swelling, rashes, and itching all over the body. It advanced to cellulitis and the patient recovered after a few days and was discharged after treatment. The prevention of reactions will depend mainly on improving the quality of antivenom.

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Introduction

Antivenom is the main treatment of snakebite envenoming (de Silva *et al.*, 2016). Immune globulins which are purified from plasma or their fragments are the main content of Anti snake venom sera (Zeng *et al.*, 2017). Adverse reactions to snake antivenom are common where snake bite is prevalent (de Silva *et al.*, 2016). Coagulopathy, neurotoxicity, myotoxicity, hypotension, and tissue necrosis are caused by proteins, toxins, and enzymes that are part of snake venom. Anaphylactic (acute) and delayed hypersensitivity reactions occur (de Silva *et al.*, 2016). Combination of Type-1 hypersensitivity, complement activation, and effect of aggregates of immunoglobulin may be the reason for early reactions. A study suggested antivenom reactions were not complement-mediated and were possibly due to IgG immunoglobulin complexes and impurities in the antivenom. Here is a case report of a patient developing a hypersensitivity reaction due to anti-snake venom.

Case Details

An 18-year-old female was admitted to a tertiary care hospital with the chief complaint of apprehension for 2 hours. The patient had a snake bite early in the morning in a suburb near the city. The patient visited a nearby hospital in about half an hour. Primary treatment was given. Inj. ASV (anti Snake Venom), Inj.TT (Tetanus toxoid), Inj. Pan (Pantoprazole), Inj. Emset (Ondansetron), Inj. Avil

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(Pheniramine Maleate). After that patient was referred to a tertiary care hospital.

After 12 hrs of primary treatment, on admission to the hospital, baseline values were Hemoglobin12.8 g/dL, RBC (Red Blood cell count)- 4.56 million per cubic mm, Hct (Hematocrit) -39.9%, WBC (White blood cell count)- 19.08 kU/L, RDW (Red cell distribution width) 16.1%, platelet count 423 kU/L, neutrophil 95 %, lymphocyte 3 %, Serum creatinine 0.40 mg/dL There was local site swelling and blackening of left toe. The patient had rashes and itching all over the body. There were multiple small reddish raised lesions on the limbs and back, along with lip swelling, periorbital swelling, breathing difficulty, and change in voice. The patient developed an anaphylactic reaction to Inj. ASV. The patient was treated with Inj. Avil 1 amp (2mL/22.75 mg) stat, Inj. Efcorlin (Hydrocortisone) 1 Amp (100 mg) stat, Inj. Adrenaline (1:10) 0.2 mg IV stat. Glycerine Magnesium sulfate dressing was done every 6 hours on the local part.

The patient's swelling worsened; there was further blackening and the patient developed edema of the left great toe and dorsum of the foot. Redness and bluish discoloration along with tenderness were present; joint movement was restricted due to edema, and the surface was warm compared to the opposite foot. The patient was diagnosed with cellulitis. On local examination, arterial pulsation was present bilaterally in both lower limbs.

Treatment given was Inj. Mox Clav (Amoxycillin 1000 mg + Clavulanic acid 200 mg) 1.2 gm IV 8 hourly, Tab Signoflam (Aceclofenac 100 mg+ Paracetamol 325 mg + Serratiopeptidase 15 mg) per oral thrice daily and Thrombophob Ointment for local application. The dressing was done with Silverex AV 20 gm containing silver sulfadiazine (SSD) cream BD. After five days of treatment, the patient was discharged from the hospital after getting recovered from cellulitis.

Discussion

Anaphylaxis is a severe, systemic hypersensitivity reaction that is rapid in onset and is associated with skin and mucosal changes. The most common cause of this disorder is food, drugs, insect stings. All those patients who are treated with antivenom are regarded as reactive and prone to hypersensitivity reactions with the antivenom. After infusion of human immunoglobulin, complement activation and immune complexes were detected even in those patients who remained asymptomatic. Hypersensitivity reactions are triggered by treatment with antivenom.

In one literature publication, Sharma et al presented a case report of six patients who died due to antivenom-related anaphylaxis. Out of these six patients, one patient's chief complaint included dyspnoea and she suffered a respiratory arrest and sinus bradycardia 15 minutes after starting antivenom; despite intubation and oxygen, she had a cardiac arrest and died on the way to the hospital. The remaining patients had sudden cardiac arrest, respiration, gasping, dyspnoea without wheeze, restlessness, sinus bradycardia, hypotension, and falling oxygen saturation which was followed rapidly by death (Sharma *et al*., 2019).

In one retrospective study of 247 patients who received anti-snake venom, fifty percent of patients had severe anaphylaxis along with hypoxia.

In a literature publication, Zeng F.J et al patient was bitten twice on the same site two different times and then developed Ig E hypersensitivity on second time (Zeng *et al*., 2017).

Immediate allergic reactions after fast transfusion of antivenom were seen in a case report (Holstege *et al*., 2002). A case report by Holstege et al showed that the incidence of immediate allergic reactions is lower compared to the earlier reports, and the reactions are mild and easy to control. However, in our case study, the patient developed reddish raised lesions along with lip swelling, periorbital swelling, breathing difficulty, and change in voice; local site swelling and blackened left toe followed by cellulitis. Allergic reactions occur when the patients are infused with antivenom. The prevention of reactions will depend mainly on improving the quality of antivenom. Thus, doctors will have to observe patients receiving antivenom properly (Clark *et al*., 2002).

Conclusions

Hypersensitivity reactions are rare and are dependent on the patient's inherent characteristics which cannot be modified. But we can focus on the quality of the antivenom which could avoid hypersensitivity reactions related to manufacturing practices.

Acknowledgment

Nil

Conflict of Interest

Nil

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