

Delayed Hypersensitivity Reaction to Anti-Snake Venom (Serum Sickness)

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ABSTRACT

1 INTRODUCTION

Serum sickness is a delayed reaction to receiving anti-venom and can occur after several days or weeks after treatment , clinical presentation varies from fever, chills, rash muscles aches to severe neurological or renal complications.

2 CASE PRESENTATION

36 years old male Egyptian without any premorbid illness came with macular, purpuric rash on extremities , anterior chest , axilla and back. Rash was red, macular, without any blisters, with generalized swelling of the extremities. Patient has rapid breathing with hypoxia, tachycardia, and 1 episode of fever. He did not pass urine since last 10 hours. No history of painful rash or oozing, or any specific dermatomal involvement.

Past history- patient has recent history of snake bite (krait) for which polyvalent anti snake venom was given 9 days back.

On examination patient look sick, rapid breathing, conscious, oriented, mild rise in body temperature. PR- 110/min, BP- 104/60mm Hg, RR- 20/min, Saturation- 92 % on room air. Extremities are warm with minimal edema, , no cyanosis, lymphadenopathy.

CVS- S1S2 normal, Chest- AEBE, clear, Abdomen- soft, mild hepatomegaly. CNS- no neuro-deficit.

3 INVESTIGATIONS

CBC- Hb 13.6 gm %, WBC- 13.09 , neutrophilic predominance. Platelet- 178×10^9 /UL, venous blood gas normal, D Dimer 4538.84 ng/ml, Na +132 mmol/l K+ 4.30



Figure 1. Shows Macular Red Rash on Axilla

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Figure 2. Pripheral Edema with Macular Rash

mmol/l , Total CK- 311 U/L, LDH- 264 , LFT normal, Hs Trop I- normal, PT- 14.8, INR- 1.18, PTT- 30.9, Albumin- 3.9 g/dl, UA- 7.2 mg/dl, Glucose- 173 mg/dl, peripheral smear – leukocytosis with absolute monocytosis, absolute neutrophilia, erythrocytosis, ECG shows sinus tachycardia, CXR- minimal hilar opacity. Urine examination- minimal RBCS, no cast, no pus cells, no proteins. HIV, HCV, HBsAg- negative. 2 D echo- LVEF-75 %, no regional wall motion abnormality, normal RA/ RV, USG abdomen- mild hepatomegaly. Maintained cortico medullary differentiation in both kidneys with normal size.

4 DIFFERENTIAL DIAGNOSIS

Patient was diagnosed with delayed hypersensitivity reaction (serum sickness) as recent history of snake bite, with no other associated urticarial rash as he do not have similar history in the past or family history of urticarial.

5 TREATMENT

Patient was started on iv Hydrocortisone with antihistaminic, iv fluids and antacids with excellent clinical response and complete reversal of the symptoms.

6 DISCUSSION

Our patient has complaints of generalized macular, purpuric rash with myalgia, body ache, fever spike, with mild swelling of the extremities and the face. He had decreased urine output with impaired renal function, hypoxia. He had recent past history of snake bite (krait which was identified by the nearby person) on the left hand for which he was being admitted and was given polyvalent anti-snake venom, also the hospital stay was prolonged because of localized left hand odema with suspected compartment syndrome.

After the proper history taking and the needed investigations which shows raised CPK, raised LDH, leukocytosis, , deranged renal function, gives the correlation of ASV and the delayed reaction related to the same.

Serum sickness is a type III hypersensitivity reaction that occurs due to the deposition of excessive circulating immune complexes in patients treated with foreign proteins or haptens [1]. The currently available anti-venom contains 3 types of antibodies which are IgG , F (ab')₂ , and Fab fragments and none of them are better than other [2], further more due to variation of venoms in biochemical , pharmacological and immunological properties it is still hard to make better choice of antibodies. Some studies show that it may be feasible to reduce the adverse reaction using ant-venom prepared with highly immunogenic venom that produce neutralizing and protective antibodies after immunizing animals [3]. The incidence of serum sickness can be expected to be greater

than 50% in cases receiving 32-39 vials of anti-venin and might reach 100% at doses of 40 or more vials.

Our patient presented with typical signs and symptoms of serum sickness such as rash, fever, malaise and itching which after 10 days of the first exposure to the responsible agents. The lab results were also s/o inflammation. Administration of anti-venom treatment is the most plausible reasons to explain the occurrence of serum sickness in this patient.

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