

RESEARCH ARTICLE

AN UNUSUAL PRESENTATION OF SNAKEBITE: BILATERAL VITREOUS HEMORRHAGE

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Manuscript Info

Abstract

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..... A 27 years old female with history of snakebite on her left leg one month back, presented with complaints of painless, sudden, loss of vision of both eyes which developed 4-5 days after the snakebite. Patient was on treatment for complicated large ulcer over the site of snakebite i.e. left leg and received blood transfusion twice to combat severe anemia due to probable hemotoxic type of snake venom added with blood loss from the ulcer. On ocular examination, visual acuity of right eve was hand movement close to face with accurate projection of rays and left eye visual acuity was perception of light with inaccurate projection of rays. Slit lamp bio-microscopic examination and dilated fundus ophthalmoscopic evaluation revealed vitreous hemorrhage in both eyes which was confirmed in ocular USG B-scan. Patient was advised bed rest, vitamin-C tablets, oral steroids and elective vitrectomy. Subsequently over a period of 6 months, both eyes vitreous hemorrhage reduced to form minimal coagulated clumps and fibrous vitreous materials. Patient's vision also improved, in right eye 6/12 and in left eye 6/24.

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Introduction:-

Snakebite is a common medical emergency, particularly in rural and farming areas. Poisonous snakes can be neurotoxic or hemotoxic. Neurotoxins are found in elapids and hemotoxins are found in viperids¹. Snake venom is a complex mixture of proteins, enzymes and various other substances with toxic and lethal properties which sometimes causes multi-systemic involvement. Ocular complications in a case of snakebite are not very common^{2,3}, but they do occur and need emergency medical attention. Direct exposure to venom⁴ of a poisonous snake can cause injury to lids, conjunctiva or cornea. In this case report, we are presenting a rarely reported ocular complication of snakebite i.e. bilateral vitreous hemorrhage.

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Case Report:

A 27 years old female presented with history of snakebite over her left leg one month with chief complaints of bilateral loss of vision following snakebite.

Patient was apparently alright one month back when she was working in a farm and bitten by a snake over her left leg. She couldn't identify the type of snake, but experienced burning pain and bleeding from the site of bite. Then she was brought to a nearby hospital and treated for about a week. Then she was referred to higher centre for further management of complicated ulcer over her left leg, severe anemia and loss of vision. Initially she was admitted in Surgical dept. for management of the ulcer with wound debridement and regular aseptic dressing. Patient also received blood transfusions to combat severe anemia, after which her hemoglobin level improved. The probable

cause of severe anemia could be hemotoxic nature of snake venom added with blood loss from the ulcer. Once, general condition of the patient improved, she was transferred to Eye dept for management of her ocular complaints (loss of vision in both eyes).

On ocular examination vision in right eye was hand movement close to face with accurate projection of rays and left eye vision was only light perception with inaccurate projection of rays. Left eye exotropia was present. Bilateral pupillary reaction was sluggish. Intraocular pressure of both eyes taken by automated non-contact tonometer was within normal range.

On slit lamp biomicroscopy- bilateral lids, lacrimal apparatus, conjunctiva, sclera, cornea and anterior chamber was normal. Bilateral iris showed atrophic patches, right eye pupil was 3-4 mm dilated and slowly reacting to light, left eye pupil 4-5 mm dilated with ill sustained reaction, bilateral lens was clear. Anisocoria could be due to cranial nerve involvement. Vitreous was hazy and suggestive of vitreous hemorrhage. On slit lamp and ophthalmoscopy examination, bilateral fundus glow was absent and suggested of bilateral vitreous hemorrhage. Further investigations were done, Visual Evoked Potential study showed absence of P100 waveform in recordings of both the eyes. USG B sacn of right eye (Figure -1) revealed choroidal detachment with minimal subchoroidal hemorrhage with vitreous hemorrhage, degeneration and detachment. USG B scan left eye (Figure -2) revealed choroidal detachment with vitreous hemorrhage, degeneration and detachment. MRI brain and orbit revealed altered signal intensity collections seen in bilateral posterior chamber and subretinal regions of concern for bilateral vitreous and subretinal hemorrhage.



Figure 1:- Right eye USG showing vitreous hemorrhage.



Figure 2:- Left eye USG showing vitreous hemorrhage.

Hematological examination suggested normal renal function but liver function was deranged (protein-5gm/dl, albumin-2.5gm/dl, globulin-2.5gm/dl), hemoglobin level was severely affected (5.9 gm/dl) which gradually improved (8.6gm/dl) after blood transfusions. WBC count was raised over 10,000mm suggestive of inflammatory response. Sickling test was done and found negative. Blood pressure and random blood sugar level was normal.

Based on above examinations and investigations, we came to the conclusion that it was a case of bilateral vitreous hemorrhage following snakebite probably of hemotoxic type.

Patient was advised strict bed rest, tablet Vitamin-C 500mg twice daily. Intravenous antibiotic was started to combat complicated ulcer over her left leg. Subsequently, ulcer started healing and Hemoglobin level raised to 8.6 gm/dl. We also added oral steroid (tablet Prednisolone 40mg) which was tapered over a period of 6 weeks. At 3 months of treatment, patient's vision started improving (OD- 3/60, OS- 2/60) and at 6 months follows up, both eyes vitreous hemorrhage reduced in the form of minimal coagulated fibrous clumps. Patient's vision also improved significantly, in right eye 6/12 and in left eye 6/24. Now, patient is planned for Vitrectomy to remove coagulated blood clots and fibrous vitreous materials, after which patient's visual acuity may further improve.

Discussion:-

Snake venom is a complex mixture of several proteins, enzymes, toxic polypeptides and inorganic components⁵. Combined action of various toxins has more dangerous effect than that of their individual effects. In general, venoms are described as either neurotoxic or hemotoxic. Vipers and many cobra species are hemotoxic and cause hemolysis, the destruction of red blood cells or induce blood coagulation. A common group of hemotoxins are snake venom metalloproteinases⁶. The tropical rattle snake Crotalus durissus produces a coagulant, Convulxin which leads to acute fibrinolysis, severe reduction of platelet level and damage to vascular endothelium. The proteolytic enzymes present in viper venom are hyaluronidase and collagenase, may induce disruption of veins and can cause retinal hemorrhage and vitreous hemorrhage⁷.

Vitreous hemorrhage in this case could have been due to the following factors:

- 1. The hemotoxic venom affects blood coagulation and blood vessels resulting in hemorrhages at various sites.
- 2. Hemopoietic disorders like anemia, thrombocytopenia, and coagulation disorders occurring as a result of snake bite may give rise to retinal hemorrhage and subsequent vitreous hemorrhage.

Duke Elder mentions "In cases of subarachnoid Hemorrhage the rupture of a subhyaloid hemorrhage may result in a considerable infiltration of the vitreous" among the causes of vitreous hemorrhage⁸.

Conflicts of interest:

The authors have none to declare.

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