

Snake Bite Experience at Pakistan Institute of Medical Sciences

Pages with reference to book, From 308 To 310

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Abstract

We reviewed 40 cases of snake bite seen from January, 1996 to December, 1996, Most of the cases survived uneventfully but many developed complications which were either haematologic, (23 patients) or neurological (5 patients). Appropriate treatment was offered in every case. Polyvalent antsnake venom was administered to 30 patients (75%). Premedication used was steroids and anti-histamines to prevent anaphylactic reactions. Antifibrinolytic therapy (tranexamic acid) was given to every bleeding patient. The species of offending snake could be recognized in one patient while in all others, it was not possible due to night time incidence and poor description by the patient (JPMA 48:308,1998).

Introduction

In our country exact incidence of snake bite is not known but in rainy summers we come across many cases of snake bites and more so if some natural disaster such as flood is superimposed on it. Snake bite is a worldwide problem sparing only few areas of the world. South East Asian and African countries are most affected.

As no guidelines exist about management of snake bite in our country, haphazard treatment is offered to the affected individuals. We thought of reviewing the subject and tried to reach at a consensus and few recommendations to be followed nationwide. This is important because proper management of snake bite starting from identification of species of snake to administration of proper dosage of antivenom at appropriate time along with supportive measures has reduced the mortality and morbidity to a great extent in many countries of the world¹.

Patients and Methods

All patients with confirmed or probable snake bite, who presented to the Accident and Emergency Department of PIMS from January, 1996 to December, 1996 were included in the study. All were carefully examined particularly for fang-marks, level of consciousness, bleeding evidence and neurological complications. The details of personal data were recorded. The investigations carried out in each case, included complete blood picture with differential counts, serum creatinine and urea, serum electrolytes, urine for chemical and microscopic examination, serum fibrinogen levels, fibrinogen degradation products, platelet counts, PT, APTT and a chest X-ray. Liver function tests (serum total bilirubin, ALT, alkaline phosphatase) were performed where necessary.

Polyvalent anti-snake venom was administered in a dose of 60 to 100 ml on first presentation according to the severity of bite and signs of envenomation. Another 50 ml of polyvalent anti-snake venom was given to those patients who showed poor response to first dose and similarly 3rd dose of 50 ml was given to those very few patients who did not respond to the second dose. Tetanus prophylaxis was offered to all patients, either in the form of anti-tetanus serum or tetanus toxoid. Steroids and anti-histamines were given as premedication half an hour before the start of polyvalent anti-snake venom infusion.

Local wound treatment was done with soap and water washing without any section or inducing cuts.

No tourniquet or bandages were applied.

Antibiotics were given to patients who had infection at the site of bite. It was also given to patients who

had either fever or leucocytosis or both. Bleeding due to disseminated intravascular coagulation and defibrination syndromes were treated according to general principles, including fresh blood transfusion, freshfrozen plasma, platelet transfusions etc. and anti-fibrinolytic drugs.

Results

A total of 40 patients were seen of whom 27 were male and 13 female ratio being 2:1. Most of the patients were young with mean age of thirty years (range 13-65 years). Twenty-five (63%) patients belonged to low socio-economic status and 15 (37%) to middle socioeconomic status. The rural population was affected most (78% Vs 22%). Twelve patients were from Islamabad or its suburbs, whereas 28 patients came from places more than fifty kilometers away from Islamabad and Rawalpindi. They were referred from primary and secondary health care centres or were self referred. Eight (20%) patients reported within six hours of the incidence and further 8 (20%) presented within twelve hours. The rest of 24(60%) patients came between 12-72 hours after the bite. Fang marks could be identified in 31(78%) patients whereas in 9 (22%) there were no obvious fang marks. Most cases presented in the month of July and August {24 (60%)}. One patient brought the dead snake with him and it was identified as Common Krait. Twenty-five (63%) patients saw the offending snake, however 15 (37%) did not see it because of the night time, but signs of envenomation and fang marks were identified.

Out of 40 patients, only 1 (3%) had normal skin examination, whereas 39(97%) showed skin abnormalities in the form of swelling ecchymosis, oozing and pain at the site of the bite. These signs were present alone or in combination with varying severity. Three (8%) patients had local surgical wound inflicted at some medical centre elsewhere. Systemic bleeding was observed in 23 (58%) in the form of haematemesis, melaena, bleeding gums, haemoptysis and haematuria. Six (15%) had bleeding from more than one site. Seventeen (42%) showed no evidence of systemic or local bleeding. Two (5%) of these had low blood pressure (<90/60 mmHg) whereas it was very high (>200/120) in 2 (5%) which settled without any antihypertensives in due course of time. In one patient blood pressure was unrecordable because of massive bleed and shock. Thirteen (33%) patients, all with variable bleeding had haemoglobin less than 10 gm/dl. Sixteen (40%) bleeding patients had low platelet counts 15000 - 100,000 per cmm and 7 (18%) had evidence of defibrination with normal platelet count but elevated PT and AP'VF and raised FDP and low fibrinogen. Rest of the bleeding patients had all lab evidences of DIC (Disseminated Intravascular Coagulation). Two (5%) patients without any evidence of bleeding, showed mild elevation of PT and APTT with normal platelet count suggesting subclinical evidence of defibrination. Antifibrinolytic therapy was given to all the bleeding cases in the form of tranexamic acid 500 mg 3 times a day through intravenous route.

Neurological symptoms and signs were observed in 5 (13%) patients. Three (8%) complained of numbness and paresthesia at the site of the bite. Ptosis was noticed in one patient. Two (5%) individuals showed evidence of respiratory muscle paralysis (difficulty in breathing, decreased chest movements and decreased air entry), whereas chest X-ray did not reveal any abnormality in them. One of these patients required ventilatory support, but died later. Two (5%) were brought in an unconscious state, one with severe bleeding and shock and the other with neurological features and respiratory muscle paralysis. Rest were alert but anxious. White blood cells were increased from 11,000 to 20,000 per cmm in 16 (40%), of which 10 (25%) were bleeding actively and in remaining, local or systemic infection was incriminated as a cause of leucocytosis. Mild elevation of blood urea (40-100 mg/dl) was there in 4 (10%) with no serious clinical consequences. ALT was mildly elevated (40-80 iu) in 6 (15%) patients in whom liver involvement was suspected due to mild jaundice and hepatomegaly. Total bilirubin was in the range of 2-4 mg/dl. These abnormal parameters settled with treatment without any specific measures.

Polyvalent anti-snake venom was given to 30 patients (75%) in a dose of 60 cc in 21 patients, 60-100 cc in three, 100-150 cc in one patient and upto 200 cc in 2 patients. The dose could not be surely ascertained in 3 cases who received the drug at some other health care centres. In 10 cases antivenom was not administered due to lack of clinical evidence of envenomation. ASV was repeated twice in 8 (20%) patients due to inadequate response with first dose and three times in 2 (5%) subjects again for the same reason. Polyvalent anti-snake venom was repeated within one week in 8 (20%) patients and within 2-3 weeks in others. Mild anaphylactic reactions were observed in 10 (25%) initial patients after administration of ASV. These manifested as skin rash, choking sensation and breathlessness which settled with steroids and antihistamines. Two patients had severe anaphylactic reactions requiring discontinuation of infusion and administration of adrenaline, steroids and antihistamines. Therefore a policy of giving premedication with steroids and antihistamines, half-an hour before starting the ASV infusion was implemented.

Two (5%) patients faced fatal outcome, one of these had presented with shock, coma and severe bleeding and the other died because of respiratory failure. Six subjects left against medical advice but they were in recovery phase and wanted to go home earlier or did not show any signs of envenomation. Rest of them made an uneventful recovery with marked improvement in all laboratory parameters, particularly PT, APTT and platelet counts. Duration of the hospital stay was variable. Thirty-one patients required only observation and hence were sent home after 1-2 days. Nine (22%) required hospitalization, of these, 4 stayed for more than 10 days. Two of them expired.

Discussion

As it is obvious from the study, snake bite is more common in males as compared to females with the ratio of 2:1 for the obvious reason of more exposure of male to field work. The bites were also more in young patients as compared to elders. In this study three fourth of the cases were from rural setting and only 8 patients reported within six hours of the bite while the rest presented late. This late referral was probably because they were managed at some other health care centres or due to poverty and ignorance. Early reporting is important from the management point of view because the sooner the signs of envenomation are detected and polyvalent anti-snake venom administered, the higher are the chances of preventing the complications².

Preservation of the dead snake or pictorial chart of different snakes can improve the identification of the species. Two patients who presented with neurological features were from And Jammu Kashmir indicating the presence of Neurotoxic snakes in that area. In the present study 25 patients could see the snake while the rest could not due to night time bite. This is in accordance with a study done in rural Zimbabwe where majority of the bites were during the night time³.

Leucocytosis and anaemia was noted in patients who bled profusely but possibility of septicemia could not be ruled out. These cases were started on broad spectrum antibiotics⁴. Patients with severe bleeding had more derangement of prothrombin time and activated partial thromboplastin time. In 9, there was evidence of clinical and subclinical defibrination which has been very frequently observed in other studies⁵.

Patients who continued to bleed after initial 60 ml of ASV were given more antisnake venom⁶. This highlights the role of giving higher doses of polyvalent antisnake venom to start with according to the severity of the bite⁶. Ten patients were not given ASV and kept under observation and sent home when they did not show any sign of envenomation. Similar results were observed by others^{7,8}. Mild anaphylaxis were reported initially but premedication with antihistamines and steroids prevented these reactions.

Following recommendations are made about management of snake bite:

Public education about early referral to nearest health facility^{2,9}, with the immobilized affected limb and cleansing of wound with soap and water⁶. Farmers and field workers should be advised to wear long boots and use a lamp at night¹⁰. Printed guidelines after reaching a nationwide consensus should be provided to every basic health centre with adequate training of medical staff. Administration of oral and parenteral analgesics, booster tetanus toxoid or anti-tetanus serum and antibiotics are recommended⁹. Cryotherapy or electric shock should not be applied at the site of bite². Surgical faciotomy or drainage of hematoma is advised if it is causing pressure symptoms. Premedication with anti-histamine and steroid should be done half an hour before infusion of polyvalent anti-snake venom. Skin testing can be done to predict anaphylaxis before ASV infusion. Dose and decision about administration of ASV should be individualized according to grade of bite and severity of envenomation. The dose ranges from 60-200 ml⁶. Anti-fibrinolytic agents (Tranexamic acid) are helpful in bleeding patients especially with defibrination syndrome. IN Ncostigmine should be made available to counteract the effect of neurotoxins on neuromuscular junction.

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