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A RETROSPECTIVE STUDY OF CLINICAL PROFILE OF VIPER BITE CASES IN SELECTED HOSPITALS IN CENTRAL KERALA

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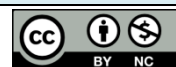
Abstract

Viper bite is a commonly occurring occupational health hazard to people involved mainly in agricultural sector in tropical and sub-tropical areas. The aim of the study was to assess the clinical pattern of poisonous snakebites from four selected hospitals in central Kerala. Study site: Carithas Hospital (Kottayam), Little Flower Hospital and Research Centre (Angamaly), Paalana Institute of Medical Sciences (Palakkad) and Charis Medical Mission (Muvattupuzha). Percentage of cases collected from Carithas hospital, Little Flower hospital, Paalana hospital and Charis hospital were 51. The various clinical profile was assessed such as Hb level, symptoms, total leukocyte count, platelet count prothrombin time etc. Conclusion: Practice of locally developed treatment protocol for optimised treatment of viper bite is required.




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Introduction

Regional variations in the clinical manifestations of viper snakebites are a complex and multifactorial phenomenon. These variations can be attributed to several factors including the composition of their venom, the genetic diversity of their prey and the geographical and environmental conditions [1, 5].

- A. Venom composition: even within a single species, the venom composition may vary geographically. This is partly due to the differences in the viper's diets as it adapts to local prey species. Consequently, a viper in one region might have venom that is more or less potent in certain aspects compared to its counterpart in a different region [6].
- B. Genetic variations: vipers can display genetic diversity between populations in different regions. This genetic diversity can impact venom composition and in turn the clinical effects of their bites [7, 8].
- C. Environmental factors: factors like temperature and humidity can influence a viper's metabolism and viper

Production. In turn this can affect the clinical outcome of snakebite. It's crucial to consider these regional variations when dealing with snakebites [9-20].

Methodology

Study site - The study was done in the department of General medicine in four selected hospitals in Central Kerala - Caritas hospital (Kottayam), Little Flower Hospital and Research Centre (Angamaly), Paalana

Study design - Multicentre retrospective observational study

Study duration- The study was done for duration of 10 months (August 2018-May 2019)

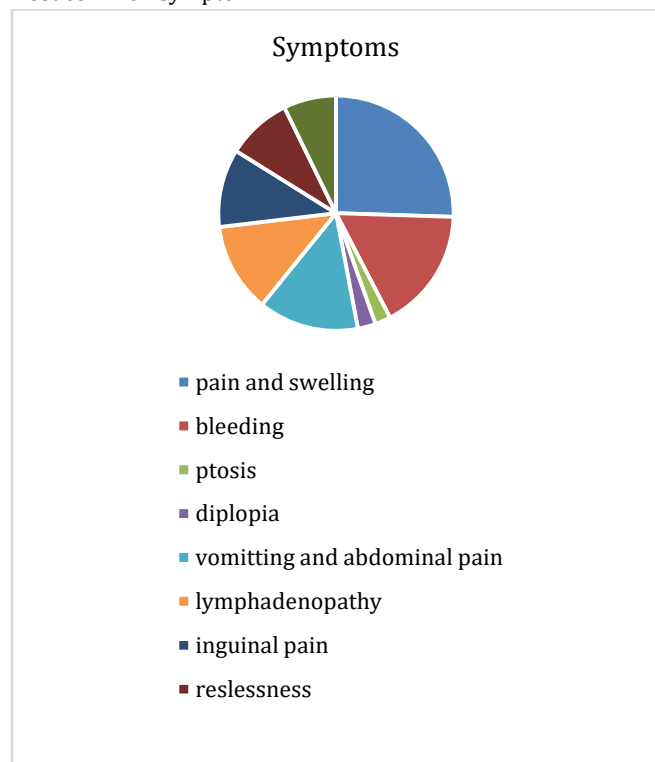
Study population- All victims of poisonous snake bites admitted in the general medicine department of the above four hospitals from January 2017 to December 2017stitute of Medical Science (Palakkad) and Charis Medical Mission (Muvattupuzha).

Sources of data collection: Data was obtained from the medical records which include admission sheets, patient history notes, patient treatment charts, laboratory data reports, progress sheets, discharge summary, nurses' records, prescriptions, doctor's order, daily admission list maintained by Medical Records Department (MRD), statistics maintained by the ICU of general medicine department of the four selected hospitals.

Result and Discussion

Clinical Presentation in Viper Bite

It includes pain at the bite site and swelling 16.6% (103 patients each), bleeding 11% (68 patients), vomiting and abdominal pain 9% (56 patients each), lymphadenopathy 8% (50 patients) inguinal pain 7% (46 patients), restlessness 5.8% (36 patients), ECG abnormalities, slurry speech 4.7% (29 patients), respiratory distress 3.7% (23 patients), diplopia 1.6% (10 patients), ptosis 1.4% (9 patients) Swelling and pain at the bite were the most common symptoms. This pattern is similar to the study with conducted by Mahadavan et al 13 in which swelling and local site pain were the common symptoms. As viper venom is hemotoxic in nature other symptoms noticed include bleeding, ventilation, abdominal pain, lymphadenopathy, inguinal pain, ECG abnormalities, restlessness, slurry speech, ptosis, respiratory distress and diplopia. Diplopia is the symptom seen least in viper bite compared to other symptoms whereas in cobra bite it was the most common symptom.



Changes in Laboratory Parameters in Viper Bite

Changes in Haemoglobin Level in Viper Bite. In case of viper bite, haemoglobin level significantly lowered due to haemolysis. A decrease in haemoglobin concentration was noted in all the cases of viper bites. Average Hb was 13.47g/dl on first day, 12.7g/dl on second day and 12.69g/dl on third day. It reflects blood loss or intravascular haemolysis as the viper venom is hemotoxic.

Haemoglobin level	Mean (mg/dl)
1 st day	13.47
2 nd day	12.7
3 rd day	12.69

Changes in Total Leucocyte Count in Viper Bite
 Mean TLC on first day: 12178.43 cells/mm³, Mean TLC on

second day: 14003.57 cells/mm³, Mean TLC on third day: 14964.18 cells/mm³. It was observed that TLC was increasing during first three days of hospital stay.

TLC level(4500-1100 cells/mm ³)	Mean (cells/mm ³)
1 st day	12178.43
2 nd day	14003.57
3 rd day	14964.18

Changes in Prothrombin Time in Viper Bite

Prothrombin time is measured in seconds. The normal range of PT is 11 to 13.5 seconds.

Average PT on first day was 19.58sec, 2nd day 18.3sec and 3rd day 18.62 sec and the Average PT was 17.05. As viper is hemotoxic in nature, victims admitted with viper bite showed prolongation of PT. Prolongation of the PT is the most common manifestation of coagulopathy.

Prothrombin time	Mean (sec)
1 st day	19.5
2 nd day	18.3
3 rd day	18.62
During hospital stay	17.05

Changes in Activated Partial Thromboplastin Level in Viper Bites

The APTT is considered as more sensitive version of the PTT. Viper envenoming is characterised by elevated APTT level. On first day 42.03529 sec, on 2nd day 36.63158 sec and on 3rd day 32.47368 seconds. In most of the cases PT and APTT both are raised on first day and the average values are within normal range on Day 1 and 2. This implies that there was impairment in blood coagulation pathway which might have been corrected after the administration of Anti-snake venom.

APTT level	Mean (sec)
1 st day	42.03
2 nd day	36.63
3 rd day	32.47

Conclusion

This retrospective study of viper bite cases in central Kerala revealed common clinical symptoms of swelling and pain at the bite site accompanied by significant haematological changes including decreased haemoglobin, increased leukocyte count, declining platelet count and prolonged prothrombin time, which were potentially mitigated by timely antivenom treatment.

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Conflict of interest

No Conflict of interest

Ethical approval and Inform Consent

Not Required

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