Indian Journal of Forensic Medicine and Pathology
Volume 4, Number 3, July - September 2011

Review Article

Snake bite and its treatment: The essential awareness

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ABSTRACT

Snake bites when viewed globally form a major chunk of neglected health problem in the tropics which comprise mostly of the developing and underdeveloped countries. Lack of awareness, delay in presentation to hospital, difficulty in identification of snake, clinical manifestation and treatment protocol, along with Anti Snake Venom (ASV) and its complications remain the vital issues regarding snake bite and its treatment that needs to be highlighted.

Key words: Snake bite; Awareness; Dry bites; Treatment; ASV; First Aid

INTRODUCTION

Snake bites when viewed globally form a major chunk of neglected health problem in the tropics which comprise mostly of the developing and underdeveloped countries. Snake bites and its management is a fundamental national health concern in rural India [1]. The reason for this is multiple; spectrum varies right from blind beliefs, fear of the folk to identification and management problems by trained doctors. The vital issues regarding snake bite and its treatment that needs to be highlighted include; lack of awareness, delay in presentation to hospital, difficulty in identification of snake, clinical manifestation and treatment protocol, along with Anti Snake Venom (ASV) and its complications.

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Dry bites

An important fact that needs to be highlighted is that more than 20-30% of snake bite is caused by potentially non venomous snakes (or venomous with less significant effects) [2] and many deaths are caused by the factor of "fear" (vagal shock). Besides, snake bites can be a dry bite or defense bite [2, 3] in which no venom is injected. Monteiro et al have reported dry bite in a study conducted on viper bites in a tertiary care center in Southern India and attributed the lower incidence of dry bites to the referral bias [4].

First Aid measures in snake bite

A large number of snake bite cases receive first aid measures prior to hospitalization [5]. With regards to first aid, some basic precautions need to be exercised. General public should be educated to make sure that the tourniquet is not tied too tightly above the affected part which itself occludes the arterial supply leading to gangrene of the part distal to the tourniquet. The tourniquet should be tied lightly as to occlude the venous and lymphatic drainage only. In a study in simulated snakebite scenario, Norris et al [6] reported that physicians and lay people

are unable to apply pressure immobilization properly.

Identification of snakes, clinical manifestations and toxins

Even though every snake has a distinct identification feature identification of snake still remains an area of concern. Previous research suggests that the identity of the snake in snake bite cases remain obscure to an extent of 66% [1]. Globally viperidae family is responsible for majority of snake bites. They are easily identified by a triangular head and other local variations. In India cobras and kraits are next common. A cobra is easily identified by a hood which often bears a spectacle shaped mark. Krait is identified by a central row of hexagonal scales running along the dorsum of the body along with circular rings or bands [2, 3]. Clinical manifestations vary depending upon the nature of venom [3]. Snake venom are vasculotoxic (haemotoxic) or neurotoxic in most of the cases of land dwelling snakes, whereas it is more commonly myotoxic in case of sea snakes (hydrophidae). Vipers are predominantly vasculotoxic while cobras, kraits, and coral snakes are predominantly neurotoxic. Death can ensue as early as 20 min or may be delayed upto 2 days depending upon the snake bite and other factors such as the depth of bite, amount of venom injected, and site of bite [3]. Neurotoxic venom is known to cause death in less than 30 minutes so it is of utmost importance to identify the bite caused by a neurotoxic snake by the treating doctor based on history, signs and symptoms. Whereas, in a case of suspected viper (haemotoxic) bite time may permit essential investigations that include a complete blood profile, bleeding time, and clotting time [3]. The issue is hence, vital as the management of a case of snake bite, varies depending upon the species of the snake. Basic information regarding the common snakes present in the locality to the people in general can thus be helpful in the management of snake bite to a great extent.

Specific treatment in snake bites

Snake bite is a medical emergency, hence, immediate management should be started and the patient should be shifted to a centre well equipped with emergency care (with life support system). A fatal case of Krait bite is reported by Monteiro et al [7] where the diagnosis of snake bite was delayed and the victim was managed symptomatically by the family physician for an insect bite. The case emphasizes on the fact that the possibility of snake bite should be considered in an otherwise healthy person who presents with sudden onset of neuroparalytic features. Anti Snake Venom (ASV) is the treatment of choice in management of cases of snake bite and should be started promptly. However, owing to their significant side effects medical practitioners should be cautious before administering it. Identification of the snake species if possible is once more emphasized as monovalent ASV for a particular species are now available that should be preferred over polyvalent ASV whenever available. Moreover owing to a wide variation in the composition of the venom form region to region [3], indigenously developed ASV particular to that region should be administered otherwise chances of treatment failure remain. For instance ASV developed for Indian vipers was not a success when used for viper bites in Sri Lanka [8]. Besides, adverse effects of ASV have to be managed aggressively as they can lead to life threatening immune reactions [8]. These reactions have to be managed with steroids, adrenaline and anti-histaminics [9]. These adverse affects are very common almost to an extent of 50% of the cases where ASV was administered [1]. More than 20% cases of viper bites developed allergic reactions to the test dose polyvalent ASV administration in a study from South India [4].

CONCLUSIONS

Snake bite if managed efficiently yields good results and if neglected is sure to cause mortality. In order to address the possible variations a protocol has to be formulated that should cover all aspects like- identification of the snake, signs and symptoms, and management of the case. Some such effective protocols have been proposed in literature [10]. Further a consensus has to be arrived at so that a uniform protocol can be followed at the national and international level. Studies about snakes, snakebite and its treatment are numerous but ironically the views have been confined to text books and journals; that too predominantly the western literature. The present paper attempts to widen the awareness on this subject matter

among the medical scientific community to improve on the existing state of affairs in India. It proposes and stresses on the need to disseminate information on similar issues of importance among practicing physicians of the commonly affected regions through widely circulated and well read journals.

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