

SNAKE ANTIVENOM USE IN SINGAPORE

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Objectives: Snake bites are uncommon in Singapore but there are a few species of medically significant venomous snakes present locally namely the black spitting cobra and the pit vipers. Anti-venom is required for snake bites with severe local envenoming as well as systemic complications. The antivenom present locally is a polyvalent land snake antivenom from India covering 4 common Indian Snakes (Indian Cobra, Common Krait, Russell's Viper, Sawscaled Viper) as well as the sea snake monovalent antivenom.

The purpose of this review is to evaluate the use of antivenom in one hospital in Singapore: the epidemiology, indications, complications from the use of antivenom.

Methods: Antivenom use (polyvalent snake antivenom and sea snake antivenom) is traced from pharmacy records of our local hospital from 2000 to 2015. The case records are then pulled out and the data uploaded into excel sheet. The type of snake, number of vials use, the indications, complications, consultation with toxicologists etc were abstracted from the case records.

Results: The sea snake antivenom was not used for the period of evaluation.

There were 4 cases of polyvalent land snake antivenom use from case records of our hospital. The details are described in the table.

	Case 1	Case 2	Case 3	Case 4
Type of snake	Viper	Shore pit viper	Black cobra	Unknown snake
Number of vials	2	6 (3 in the ED)	2	1
Site of bite	Right thumb	Right middle finger knuckle	Right thumb	Right lower limb
Circumstances/time of presentation	Bitten at reservoir nature reserve, presented at 5hours to ED	Bitten at swamp Presented within an hour	Bitten through glove while trapping snake in urban area Presented within an hour	Bitten on right foot dorsum in outlying island Time of presentation unknown
First aid/tournquet	Nil	Nil	Light tourniquet	Nil
Indication for antivenom use	Immediate swelling of hand	Swelling from hand to mid forearm, numbness over upper limb	Progressive swelling to wrist	Data unavailable



Others Complications from bite	Nil	Nil	Cardiac arrhythmia	Wound infection with reattendance at ED
Complication from antivenom	Nil	Nil	Yes	Data unavailable
Test dose antivenom given	Subcutaneous	Nil	Nil	Data unavailable
Premedication	Promethazine and hydrocortisone	Diphenhydramine and hydrocortisone	Nil	Nil
Referral to Toxicologist	Poisons Centre	Toxicology Service	Toxicology Service	Data unavailable
Operation	Nil	Nil	Nil	Fasciotomy for compartment syndrome
Length of hospital stay (days)	2	7	4	12

We also present in detail a case of likely pyogenic reaction to antivenom. The patient developed upon antivenom administration, chills and rigors and had hypotension which needed vasopressor support for 12 hrs.

Conclusions: Land snake envenomation is a rare but important cause of injury for the urban population of Singapore. The use of snake antivenom is required in select cases. The use of antivenom is not without risk and can result in morbidity for the patient. This may range from serum sickness, anaphylaxis and pyogenic reactions, necessitating further treatment and lengthening hospital stay.