Original Article

Presentation of Snake Bite and Treatment Outcome in Medical Unit-III at PMCH Nawabshah

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ABSTRACT

Objective: Snakebite is a major public health problem in Pakistan; our objective is to determine the presentation of snakebite and treatment outcome.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Medical Unit III, PUMHS Nawabshah from Jan 2016 to Dec 2016.

Materials and Methods: 112 patients were selected for this study; both male and female were selected for this study. Patients were selected after clotting time.

Results: Total patients were 112 in which 85 males, 27 females, on identification of snakes by patients and their relatives' they reported 94(viper) 7(cobra) 11(unidentified), site of bite was on legs and feet 103 and hands 9. Clotting time was prolonged in all 112 patients. ASV was injected to 112 patients. Out of 112 patients 111 survived after ASV and one patient died.

Conclusion: Snakebite is a major public health problem in Pakistan especially rural areas. Highest number of bites were caused by viper, majority of snake bites occurred at night and early in the morning, lower limb was commonly involved in snake bite, early arrival of patient in teaching hospital and treatment with ASV life can be saved. Education of the public is necessary about snakebite treatment. Preventive measures including wearing of long shoes, use of torch and lantern are necessary.

Key Words: Snake bite, Viper, Cobra, ASV

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INTRODUCTION

Snake bite is major public health problem in many countries including Pakistan.

About 3000 snake species exist in the world out of these 600 are venoumous (poisonous)

Snakes inject modified sliva (venom)

Venomous snakes are present in most parts of world[1]

In Pakistan common snakes are viper, cobra, krait. Krait are commonly present in desert of district Tharparkar Pakistan.

Each year there are 1.8 to 2.5 million poisonous snake bites. Resultant 100000 to 125000 death occurs annually. Death due to snake bite is due to poor medical care in many countries. Regions where incidence of snake bites and death occur include India, Pakistan, Srilanka, Bangladesh, sub-Saharan, Africa and latin america[2]. Majority of snake bites has been seen in young population.[3]

More than 3million bites per year with the result death occur more than 150,000.

According to world heath organization snake bites are neglected disease[4]. In Nigerian savanna 10% of hospital beds are occupied by snake bite patients.

Incidence of snake bite in benue vally of Nigeria is 497 per 100,000 population per year with 10 to 20% untreated mortality.

Carpet viper(Echisocellatus) is the most common cause of morbidity and mortality in the region.

The african cobras(naja ssp), commonly bite humans as atractaspis ssp and small vipers rarely bite [5]. Patients belonged to rural areas especially farmers are mainly affected. Clinical features include hemorrhage, incoagulable blood, shock, local swelling, bleeding, bullae formation and in some cases necrosis[6].

Other systems involved in snake bite central nervous system with intracranial hemorrhage.[7]

Neurotoxicity can occur due to cobra bites. Other complication amputation blindness due to the bite of spitting cobra, wound infection, tetanus, malignant transformation, anxiety, stress, hysteria, and worry[8] and Renal failure.

Snake bite venom most commonly occur in lower limb, during walking very close to snake[9]

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In western countries snakes are kept as pets, so common bites site is upper limb[9]

Snake venom is collection of peptides, enzymes and other toxins

Clinically toxins cause tissue necrosis affect neurological, cardiovascular and coagulation systems[9].

There are multiple compounds in snake venom, cause neurotoxicity, pre and post synaptic blockers to cytotoxic compounds such as phospholipase A_2 that cause necrosis on this site of snake bites[10].

Management: Correct identification of snake is compulsory for the management. Snake species varies from one geographical area to another . In most cases patient can not identify snake and make mistake for different species. There are different thoughts about treatment. Avoid tourniquet, patient should be shifted to near teaching Hospital[11]. All patients of snake bite should be admitted in medical ward, for pain relief give paracetamol and narcotics, avoid intramuscular injection and NSAIDS drugs. Main treatment is anti snake venom and protect 80% patient mortality from carpet viper bites[12]. Inappropriate or ineffective antivenom cause mortality and mortality can be reduced by giving appropriate antivenom 70-80%[13]. Anti snake venom can cause anaphylactic reactions. Patient information about treatment and adverse reactions are necessary. Along with anti snake venom analgesics, tetanus toxoid, parental fluid and blood transfusion.

MATERIALS AND METHODS

This cross sectional descriptive study was conducted in the Medical Unit II at PMCH Nawabshah from Jan 2016 to Dec 2016.112 patients were selected for this study informed consent was taken from all patients, questionnaire was given to all patients or their relatives study was done according to questionnaire, including residential area, age, sex, literacy level , time, fang marks and identification of snake. Identification of snakes was done showing pictures of snakes

Inclusion criteria. Patients with prolonged clotting were **included for this study.**

Age -12 to 60 years
Prolonged clotting time
Fang mark of snake

Exclusion criteria

Age below 12 years and above 60 years
Normal clotting time
No fang mark

RESULTS

112 patients enrolled for this study 85 males and 27 females

Age	No. of patients
15-25 years	22
26-50 years	70
51-60 years	20

Snakes

Snake type	No of patients
Viper	94
Un identified	11
Cobra	7

Snake

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Viper	94	83.9	83.9	83.9
	Cobra	7	6.3	6.3	90.2
	Uniden-tified	11	9.8	9.8	100.0
	Total	112	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farmer	90	80.4	80.4	80.4
	businessman	5	4.5	4.5	84.8
	unemployed	17	15.2	15.2	100.0
	Total	112	100.0	100.0	

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	87	77.7	77.7	77.7
	female	25	22.3	22.3	100.0
	Total	112	100.0	100.0	

Clotting time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	29	2	1.8	1.8	1.8
	31	1	.9	.9	2.7
	32	1	.9	.9	3.6
	33	3	2.7	2.7	6.3
	34	2	1.8	1.8	8.0
	35	3	2.7	2.7	10.7
	36	3	2.7	2.7	13.4
	37	3	2.7	2.7	16.1
	38	6	5.4	5.4	21.4
	39	12	10.7	10.7	32.1
	40	6	5.4	5.4	37.5
	41	18	16.1	16.1	53.6
	42	10	8.9	8.9	62.5
	43	12	10.7	10.7	73.2
	44	12	10.7	10.7	83.9
	45	6	5.4	5.4	89.3
	46	3	2.7	2.7	92.0
	47	5	4.5	4.5	96.4
	48	1	.9	.9	97.3
	49	2	1.8	1.8	99.1
	50	1	.9	.9	100.0
	Total	112	100.0	100.0	

Symptoms: Hematuria was present in 60 patients, local limb swelling in 80 patients, epistaxis 15 patients, hematemesis in 17 patients, restlessness in 8 patients, headache in 12 patients, bleeding from the gums 18 patients, hypertension in 22 patients, diabetes mellitus 11 patients.

Clotting time, prothrombin time and APTT was prolonged in all patients as stated in statistical analysis.

Occupation

Farmers 90, Businessmen 4 un employed 18.

Antivenom and patients

55 patients 4 vials, 44 patients 10 vials, 10 patients 12 vials and 2 patients received 20 vials.

Clotting time was prolonged more than half an hour in all patients. Blood transfusion was given to 37 patients and fresh frozen plasma was given to 16 patients.

Blood CP

Hb% 5-7 30 patients

Hb% 8-10 69 patients

Hb% 11-13 13 patients

ATS was given to all patients, antibiotics Ceftriaxone and Cephradine was given to all patients to control wound infection. Out of 112 patients one patient died.

Statistical analysis was done using SPSS 15 Version.

Descriptive Statistics

	N	Min.	Max.	Mean	Std. Deviation
Age	112	20	60	37.52	10.452
Sex	112	1	2	1.22	.418
Occupation	112	1	3	1.35	.732
Snake	112	1	3	1.26	.626
C.time	112	29	50	40.97	4.108
PT	112	15	20	16.71	.907
APTT	112	34	39	36.65	.975
Hb	112	1	13	8.83	2.066
L.Count	112	10000	130560	14351.97	11228.378
P.Count	112	122000	270000	191080.36	21855.025
Urea	112	29	41	37.73	1.908
Creatinine	112	.9	1.3	.998	.1200
Valid N (listwise)	112				

snake * Occupation * Sex Cross tabulation

Count

Sex			Occupation			Total
			farmer	businessman	unemployed	farmer
Male	snake	viper	65	2	9	76
		cobra	3	0	2	5
		unidentified	3	0	3	6
	Total		71	2	14	87
Female	snake	viper	13	2	3	18
		cobra	2	0	0	2
		unidentified	4	1	0	5
	Total		19	3	3	25

Anova

		Sum of Squares	df	Mean Square	F	Sig.
Snake	Between Groups	16.191	38	.426	1.139	.311
	Within Groups	27.300	73	.374		
	Total	43.491	111			
C.time	Between Groups	911.203	38	23.979	1.820	.014
	Within Groups	961.717	73	13.174		
	Total	1872.920	111			

Anova

		Sum of Squares	df	Mean Square	F	Sig.
snake	Between Groups	16.191	38	.426	1.139	.311
	Within Groups	27.300	73	.374		
	Total	43.491	111			
PT	Between Groups	38.102	38	1.003	1.377	.121
	Within Groups	53.175	73	.728		
	Total	91.277	111			

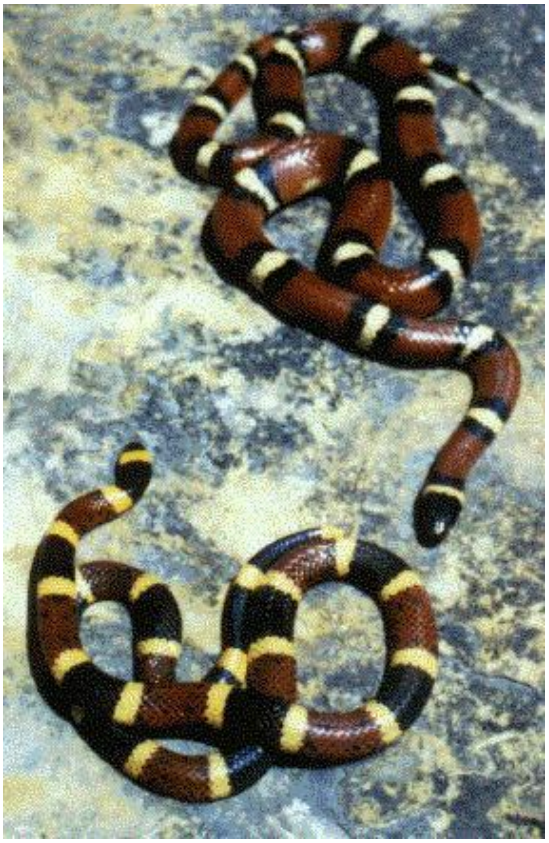
Clotting time PT APTT * snake

Snake		C.time	PT	APTT
Viper	Mean	41.20	16.68	36.70
	N	94	94	94
	Std. Deviation	4.081	.858	.948
Cobra	Mean	37.57	16.86	36.71
	N	7	7	7
	Std. Deviation	4.353	.690	1.254
unIdentified	Mean	41.18	16.82	36.18
	N	11	11	11
	Std. Deviation	3.516	1.401	.982
Total	Mean	40.97	16.71	36.65
	N	112	112	112
	Std. Deviation	4.108	.907	.975

Krait

Cobra

Viper



Non Poisonous Snake

DISCUSSION

Globally there are 1200000-5500000 incidence of snake bite. Majority of snake bite is in south and Southeast Asia; sub Saharan Africa, central and south America. Death ratio due to snake bite is lower in latin American countries. Global incidence of snake bite and mortality rate is difficult to estimate. Majority of snake bites occur in rural areas and poor countries. Snake bites varies seasonally in different countries, in some countries high incidence are during monsoon agricultural working days. Many people do not get hospital treatment and prefer traditional remedies. Some die at home and their death ratio is not recorded. Studies from rural Nigeria and Kenya have reported 8.5 and 27% snake bite patients got hospital treatment[14]. In Bangladesh hospitals 54% were bitten by non poisonous snakes 46% were bitten by poisonous snakes[15]. Majority of bites were caused by elapids and vipers. The species of snake s and venoms vary from one region of world to another. In some regions of world, it was reported that bites occur in head and neck area. bites occur during sleep[16], sleeping on the floor are bitten by nocturnal snakes. During sleep commonly bites caused by kraits(Bangarus careulew) . Bite by Cobra occurs in late after noon. In Sri Lanka snake bite by pit viper caused local swelling systemic symptoms and coagulopathy [16] and lower limb was commonly bite during day time[17]. Kraits bite their victims most commonly during sleep at night, respiratory paralysis occur 77-100% without treatment[16]. Krait bite most commonly noted in Thar Pakistan. The severity of envenomation vary from species to species and life style of snakes. Death ratio is increased by the bite of poisonous snakes[18]. In some regions it has been demonstrated that the median time to arrival at the hospital after a bite was 9 hours[16]. Difference could be due to facilities. According to Makino et al it was observed that patient administered anti venom had a shorter hospital stay[17]. Until 1990 anti snake venom was administered subcutaneously or intramuscularly[19]. Intravenous administration of antivenom had started in 1990.

CONCLUSION

Snake bite is common problem in Pakistan remote areas. Farmers are the victims of snake bite due to bare foot working in the grassy field. Viper is commonly found in sindh; cobra bite is rare and krait bite is common in desert of thar. Early arrivals of patient in teaching hospitals lives can be saved with antivenom .Education to people about snake bite and treatment is necessary,avoid herbal remedies, sucking wound, tourniquet and other remedies. Snake bite is common between 6 pm to 8 am. Education not to walk bare feet, use of at night time and incase snake bite early hospitalization is necessary.

Author's Contribution:

Concept & Design of Study:	Jeando Khan Daidano
Drafting:	Noor Ali Samo
Data Analysis:	Noor Ali Samo, Saeed Khan
Revisiting Critically:	Akbar Yousfani Rafique Ahmed Memon
Final Approval of version:	Jeando Khan Daidano

Conflict of Interest: The study has no conflict of interest to declare by any author.

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