

Study of snakebite cases admitted to Yangon General Hospital

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A total of 461 snakebite cases (312 retrospective plus 149 prospective) admitted to Yangon General Hospital from January 1999 to April 2001 were studied. Both groups had similar epidemiological and clinical parameters, data were pooled and presented together. Russell's viper bite constitutes 14% (n64) , cobra 5% (n 22), sea snake 0.2% (n 1), unknown 66% (n 302) and green pit viper 16% (n 72). Thirty eight percent (24/64) of Russell's viper bites developed renal failure, 21% (5/24) underwent peritoneal dialysis and 80% (4/5) recovered. Forty two percent (10/24) of the cases with acute renal failure and shock died. Only 52% (33/64) of Russell's viper bites had incoagulable blood on admission and 2 to 14 ampoules of antivenom were given. Clot restoration took 2 ¼ hr to 4 days. Eighteen percent (4/22) of the cobra bites needed ventilatory support and all recovered. Forty four percent (32/72) of green pit viper bites had incoagulable blood on admission and 10% (7/72) were given 1 to 7 ampoules of Russell's viper antivenom. Four percent (12/302) of unknown bites were given 1 to 4 ampoules of either Russell's viper or cobra antivenom. No specific antivenom was available for sea snakebite case and the patient expired despite conservative therapy.

INTRODUCTION

Snakebite is an occupational hazard of our farmers. It usually occurs in the paddy fields and patients are transported to the nearest health station for treatment. A proportion of snakebite cases were either referred or admitted to Yangon General Hospital (YGH) for further management. It is not known that the pattern of snakebite cases admitted to YGH is different from that of district hospitals [1]. Snakebite still rates at high rank among causes of admission to YGH. Geographical variation of the biological properties of Russell's viper venom is well documented [2]. This study concerns with study of clinical details and outcome of snakebite cases admitted to YGH during 1999 Jan to 2001 April.

MATERIALS AND METHODS

This study included both retrospective (1999 Jan to 2000 July) and prospective (2000 Aug to 2001 April) snakebite cases admitted to YGH. Since the patients' clinical parameters and outcome of the two groups were similar, data were pooled and presented together. For retrospective study, the patients' old medical records were reviewed. Clinical details of the prospective cases were recorded in standard proformas. Clotting test was performed on admission and repeated 6 hourly for 24h in patients presented with clottable blood and 6h in patients with incoagulable blood until normal clotting is restored. 2-4 ampoules of monospecific antivenom were given to Russell's viper and cobra bite cases.

RESULTS

A total of 461 snakebite patients (312 retrospective & 149 prospective) were studied. Fourteen percent (n64) of the bites were due to Russell's viper (*Daboia russelii siamensis*) (RV), 4% (n22) cobra (*N. kaouthia*), 0.2% (n1) sea snake, 16% (n72) green pit viper and 66% (n302) unknown bites.

Russell's viper bites

30% (n19) of RV bites were from Twentae township, 16% (n10) Dala, 14% (n9) Hlaingtharyar, 8% (n5) Kyimyindaing, 5% (n3) Hmawbi, 3% (n2) Khanaungto, Tharkayta, Hlegu & South Dagon, and 1.5% (n1) Htantabin, Kyauktan, Kawhmu, Hlaing, Kunchangon, Zalon (Ayerwaddy Division), Yangon (Zoo), Mingalartaungnyunt, Thingankyun and Botahtaung.

Table 1. Clinical details of Russell's viper bite cases

(44 retrospective + 20 prospective)	%	
Time of bite : Day (6am-6pm): Night (6pm-6am)	21:43	33:67
Activity when bitten : working: walking:staying at home (prospective)	9:4:7	45:20:15
Place of bite : paddy field: house compound : work place: on the road (prospective)	6:5:5:4	30:25:25:20
Site of bite : upper limb: lower limb	13:51	20:80
First aid: tourniquet	19	95
immobilization	16	80
suction	4	20
incision	4	20
herbal medicine	1	5
tattoo	2	10
local injection of anti-venom around site of bite	2	3

Clinical details of Russell's viper bite cases are shown in table (1) and (2). Of 64 bites, 64% (n41) were systemic, 30% (n19) local and 6% (n4) no envenoming. Two to four ampoules of antivenom were given to all (except one) and 2-12 amps were given at admission. Two systemic envenoming cases

treated with 2 amp of antivenom initially and followed by 4 amps in divided doses died of complications. Subcutaneous injection of antivenom around site of bite was found in 2 cases.

Table 2. Clinical details of 60 envenomed Russell's viper bite cases

Local features	%	Symptoms (local-19 & systemic-41)	%
Local pain at site	57	95	18 30
Local swelling	57	95	12 20
Tender lymph node	20	33	16 27
Local blister	3	5	Systemic (41)
Necrosis	2	3	Gum bleeding 1 2
Bruise	1	2	Haemoptysis 2 3
Blackening	9	15	Haematemesis 10 17
			Melena 10 17
			Haematuria 13 22
			Conjunctival haemorrhage 6 10
			Conjunctival edema 8 13
			Puffy face 10 17
			fever 19 32
			Oliguria <400ml/24hr 24 40
			Proteinuria 41 68
			Shock 11 18
			Hypertension 7 12

Clot restoration took 27.7 h (2¼h-5 days) and in 5 fatal cases blood is incoagulable upto the time of death (2-4 days). Twenty four (38%) patients subsequently developed acute renal failure (ARF): 5 (21%) underwent peritoneal dialysis, 19 treated conservatively, of which 7 (37%) recovered. Eighty percent RV bite patients recovered including 11 patients with ARF. Thirteen (20%) of the systemic envenomed cases with complications died of shock, systemic bleeding and acute renal failure (ARF).

Cobra bite

Cobra bite cases were admitted to YGH in 6h (½ -74 h) after the bite. Majority 56% (5/9) were bitten during daytime and 82% (18/22) applied first aid before admission. Most 58% (11/19) were bitten in the lower limb and 42% (8/19) in the upper limb. Eighteen percent

(n4) of the bites were from Tharkayta, 14% (n3) Hlaingtharyar, 14% (n3) Twentae and the rest from other Townships of Yangon division. Majority 59% (n13) of cobra bites had drowsiness, 50% (n11) ptosis, 45% (n10) local swelling, 27% (n6) respiratory depression, 18% (n4) dyspnoea, 9% (n2) slurred speech & tachypnea, 5% (n1) blurred vision, tender local lymph node, cyanosis, confusion, respiratory arrest and shock respectively. One to 10 ampoules of anti-venom were given to all patients. Thirty six percent (n8) were referred to intensive care unit and 18% (n4) required ventilatory support and all recovered.

Sea snakebite

One sea snakebite patient bitten in Insein Township was admitted to YGH in 7½ h after the bite. He was bitten at hand and presented with painful local swelling secondary to wound incision and later complicated with local cellulitis, dyspnea, dysphagia, paraparesis, myoglobinuria, renal failure, respiratory muscle paralysis and respiratory failure. Despite ventilatory support, the patient died.

Green pit viper bite

Green pit viper bites accounts for 16% (72/461) of the bites and 64% (n46) were bitten in Bahan Township and 10% (n7) in Kamaryut Township. Forty four percent (n32) had incoagulable blood on admission, 89% painful local swelling and 10% blister, bruise, necrosis and cellulitis. All were admitted to the hospital within 4 hrs after the bite. Most 63% (n45) bites occur in lower limb and 25% (n18) in upper limb. Majority 67% applied tourniquet and 10% (n2) received 2-7 amp of Russell's viper antivenom.

Unknown bites

Majority 66% (302/461) of the bites were unknown bites. Apart from slight local swelling and pain, no serious sequelae

occurred. Four percent (n12) of the bites received 1-4 amp of either Russell's viper or cobra antivenom. All recovered without any complication.

DISCUSSION

The pattern of snakebite cases admitted to YGH is different from that of referral study of the same hospital. Majority of the bites are unknown bites (66%) and green pit viper bite constitutes 16% of the bites. The possible reasons for high admission to the hospital include YGH has facilities for renal dialysis and ventilatory support.

Russell's viper bite is most common in Tontay town ship. Since snakebite patients are still using traditional first aid, extensive health education is needed. For systemic envenoming patients, initial 2 amp of ASV is not enough to prevent development of serious complications. At least 4 amp of ASV should be prescribed initially in systemic envenomed patients (3). Efficacy and doses of RV antivenom should be reviewed since clot restoration took 27.7 h in this study.

It is also noted that Russell's vipers from Yangon division are quite effective in envenoming the victims since 64% of the bites resulted in systemic envenoming compared to 61% in Myinmu [1], 44% in Tharyawaddy [4] and 34% in Taungdwingyi [5]. Spontaneous bleeding such as haemoptysis, haematemesis, melena and haematuria were less common compared to Danuphyu study [6]. About one third of RV bite cases developed acute renal failure and the incidence was higher than other studies [1].

Green pit viper bite presented with incoagulable blood and local swelling could misdiagnose as Russell's viper bite. Unnecessary use of antivenom is also noted in green pit viper and unknown bites.

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