

CASE REPORT

Snake-Bite Gangrene in Children: A Report of Two Cases

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ABSTRACT

Snake-bite can be both life and limb threatening, especially when there is envenomation. Early intervention in a fairly equipped health facility can go a long way in preventing the morbidity and mortality that can result from delay in initiating treatment. In this paper we report two cases of snakebite to the lower limbs in children that were both complicated by gangrene which led to major limb amputation in both. These are avoidable complications that should have been averted by appropriate care immediately after the snake-bite.

Key words: Snake-bite, Gangrene, Children

INTRODUCTION

Snake-bite is an alarming and frightening experience to the victim. This is more so in children of school age who are already conscious of the dangers associated with snakes and snakebite. Snakebite becomes a life-threatening medical emergency only when there is severe envenomation. Of about 2,500 known species of snakes, only about 40 species are sufficiently venomous to cause death, most of these are found in tropical or sub-tropical countries¹. This shows that most snake species are non-venomous. Even bites by venomous snake do not endanger life in man unless sufficient poison is injected at the time of the bite.² However; in children because of their relatively smaller body mass, systemic effects as well as local signs of envenomation are more commonly encountered. These are occasionally life threatening and most often limb threatening. Snakebite is known to occur frequently among rural people, especially

delay in initiating proper medical care with resultant poor outcome.

We hereby report two cases of snake-bite in children in which there is envenomation with severe local tissue necrosis and gangrene. This unfortunately led to major limb amputation.

CASE HISTORY

Case 1

A 5-year old boy was bitten by a snake on the left leg about 2 weeks prior to presentation to this hospital. The boy could not identify the snake; however, he described it as long and black in colour. He noticed some minimal bleeding from the fang sites and pain in the leg. He was taken to the traditional healer where some herbs were applied to the wound; however no tourniquet was applied to the leg. The leg swelling progressed over the next few days for which he was taken to the nearby general hospital where some injections and intravenous fluid were administered. Anti snake venom (ASV) was however not administered. The leg swelling progressed to frank gangrene. The father did not consent to an offer of amputation; he instead requested to be referred to this teaching hospital.

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those working in the fields and herding livestock. Patronage of traditional healers usually means a

He was found to be fully conscious, not dehydrated but markedly pale (PCV 18%) with low grade fever. There was frank wet gangrene of the left leg extending up to the level of the knee joint. He was resuscitated with blood transfusion and commenced on ceftriazone and gentamicin. An above knee (A/K) guillotine amputation was carried out the following day and stump refashioning two weeks later. He was discharged 42 days after admission mobilizing on axillary crutches.

Case 2

A 6-year old Fulani girl was bitten on the right foot by a snake while playing in the bush near their hut 5 weeks prior to presentation. She was initially treated at home by the traditional healer where she was made to drink some concoctions that induced vomiting, then a black 'snake' stone was applied on the fang site after making small multiple incisions. There was swelling of the affected foot and leg with associated pain. These gradually worsened over the next few days. About a week after the bite the parents noticed some foul smelling discharge oozing out of the leg. She was taken to various hospitals before finally presenting to this centre.



Figure 1. case 2: showing gangrene of the right foot and distal two-third of the leg.

She was found to be fully conscious, dehydrated, febrile to touch (T=38.7°C) and pale (PCV 21%) but

otherwise well preserved. There was gangrene of the right foot extending to the proximal one third of the leg, Figure 1.

She was resuscitated with blood transfusion and intravenous fluids, and commenced on intravenous metronidazole and cefuroxime. She underwent below knee (B/K) guillotine amputation and 3 weeks later she had stump refashioning. She was discharged 47 days after admission, mobilizing on axillary crutches.

COMMENTS

The incidence of snake-bite in Nigeria has been reported as 497 per 100,000 population per year.³ Snakebite as a cause of gangrene is not very common but when it does occur the results are usually devastating.⁴ In this report, both children sustained snakebite to the lower extremity that subsequently progressed to frank wet gangrene of the affected limbs. This can possibly be attributed to the effects of the snake venom on the tissues since no tourniquet was applied on the limbs. It is well documented that Snake venoms contain various concentrations of proteases, phosphatidases, neurotoxins, and in some cases, hyaluronidase.¹

The clinical features of local tissue envenomation include intense pain, oedema of the affected limb, local paraesthesia in some cases, and necrosis of the tissue around the bite site about a week or two later.¹ These features were all reported in these two children.

Both were started on traditional treatment initially before seeking medical help, it is not uncommon in this part of the world for patients to first consult their traditional healer for snakebite. This usually results in delay in reporting to orthodox medical facilities. This was noted by Habib.⁵ where he also reported the commonly observed practice of making incisions on the fang site and application of a black 'snake' stone. In our second case the stone was applied and is believed to absorb the poison from the bite site. In cases of snakebite with evidence of envenomation, it is well documented that systemic therapy with ASV and early local bite site excision improves the outcome.¹ Unfortunately, in both children, the ensuing gangrene ultimately led to major limb amputation. In The Gambia,⁶ most snakebites in children were on the lower limbs and occurred near homes which is similar to the finding in this report. The same pattern is also reported among adult Nigerians in Benin-City, where 73.5% of snakebites were on the lower extremity.⁷ Most cases of snakebite to the limbs present with

painful progressive swelling.⁸ This swelling might be due to simple oedema or due to a rise in the intra-compartment pressure leading to compartment syndrome. In children, measurement of compartment pressures is a valuable adjunct to clinical suspicion in the diagnosis of acute compartment syndrome secondary to snakebite.⁹ While early fasciotomy is the main stay in treatment of compartment syndrome, care and discretion must be exercised in cases secondary to snakebite. Fasciotomy should not be contemplated until haemostatic abnormalities have been corrected, otherwise the patient may bleed to death.¹⁰ It has also been reported that fasciotomy worsens the amount of myonecrosis in crotalid snake venom-injected tissue.¹¹ In performing lower limb amputation in children all effort should be made to preserve the distal femoral growth plate, therefore a below knee amputation should be the target. This prevents the subsequent limb length discrepancy that results between the two thighs. None of the two patients was fitted with prosthesis, this unfortunately is common in this country. It concurs with the findings in Zaria where out of 118 children with amputation none had a prosthesis fitted.¹²

CONCLUSION

Snake-bite is an alarming experience because of the feeling of impending doom. When there is envenomation it can be life or limb threatening. Public enlightenment campaigns should be embarked upon by the government on the need for early hospital treatment for the victims so as to prevent this poor outcome. Government and non-governmental organizations should help amputees in developing countries with procurement of prostheses.

REFERENCES

- 1 Ajao OG, Hawtin JG. Snakebite and snake venom ophthalmia. *Journal of the national medical association* 1980;72:961-4
- 2 Muthusamy E. Snakebite: Experience in Bukit Mertajam District Hospital, Pulau Pinang *Sing Med J*. 1988;29:383-6
- 3 Habib AG, Gebi UI, GC. Snakebite in Nigeria. *Afr J Med Med Sci* 2001;30:171-8
- 4 Prakash S. Snakebite gangrene of the leg. *Indian J Plast Surg* 1987;20:61-3
- 5 Habib AG. Tetanus complicating snakebite in northern Nigeria: clinical presentation and public health implications. *Acta Trop* 2003;85:87-91
- 6 Enwere GC, Obu HA, Jobarteh A. Snake bites in children in The Gambia. *Ann Trop Paediatr* 2000;20:121-4
- 7 Omogbai E, Nworgu Z, Imhafidon M, Ikpeme A, Ojo D, Nwako C. Snake bites in Nigeria: A study of the prevalence and treatment in Benin City. *Trop J Pharmaceutical Research* 2002;1:39-44
- 8 Blaylock R. Epidemiology of snakebite in Eshowe, KwaZulu-Natal, South Africa. *Toxicol* 2004;43:159-166
- 9 Cawse NH, Inglefield CJ, Hayes C, Palmer JH. A snake in the clinical grass: Late compartment syndrome in a child bitten by an adder. *Brit J Plast Surg* 2002; 55:434-5
- 10 Ahmed SM, Ahmed M, Nadeem A, Mahajan J, Choudhary A, Pal J. Emergency treatment of a snake bite: Pearls from literature. *J Emerg Trauma Shock* 2008;1:97-105
- 11 Tanen DA, Danish DC, Grice GA, Riffenburgh RH, Clark RF. Fasciotomy worsens the amount of myonecrosis in a porcine model of crotaline envenomation. *Ann Emerg Med* 2004;44:99-104.
- 12 Yakubu A, Muhammad I, Mabogunje O. Limb amputation in children in Zaria, Nigeria. *Ann Trop Paediatr* 1995;15:163-165