

**Belonwu RO**  
**Gwarzo GD**

## Envenomation secondary to facial snake bite: Report of a rare occurrence

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Belonwu RO (✉ )  
Gwarzo GD  
Department of paediatrics  
Aminu Kano Teaching Hospital,  
Kano PMB 3452  
Email: raybeloo@yahoo.com

**Abstract:** In Nigeria, snake bite envenoming has remained a significant health problem. Most snake bites in Nigeria and elsewhere predominantly involve the limbs (upper and lower) but may involve other areas of the body depending on time and posture. Our index patient is a rare case of snake bite that involved the face while the child was asleep at night in a rural Fulani village, Nigeria.

The challenges to the child's management which included late presentation to the hospital and non availability of antsnake venom underscores the need for greater commitment on the part of government at various levels to stock and subsidise the price of antsnake venom in snake- bite prone areas.

**Keywords:** snake, envenoming, face.

### Introduction

There are more than 3500 species of snakes but only 200 are poisonous to human beings<sup>1</sup>. Snake bite is an important cause of morbidity in the tropics<sup>2</sup> and snake bite envenoming is a major public health problem among rural communities of the Nigerian savanna<sup>3</sup>

Forty percent of patients do not see the offending snake, but diagnosis is made based on the presence of paired fang marks or typical findings of an envenomation syndrome<sup>4</sup>. Snakes are commonly encountered in the bush but some snake species such as African spitting cobra may enter residential house and bite people who are asleep<sup>2</sup>. Most snake bites are inflicted on the lower limbs<sup>2,5,6</sup>. Snake bites on the face in human is rare and when it occurs it goes with increased morbidity and mortality<sup>6</sup>. In this case report, we present an 11 year old girl seen at Aminu Kano Teaching hospital, Kano with snake bite on the face.

### Case Report

A n 11-year old girl presented to Aminu Kano Teaching Hospital having been referred from Federal Medical Centre in Jigawa State of Nigeria with complaints of massive face/neck swelling and bleeding following snake bite 25hrs before presentation. The child was apparently well and was sleeping on a mat in a hut when she suddenly started screaming at about 10pm. Her father, who was sleeping outside the hut quickly rushed into the hut and found a small bleeding wound below her right eye. There was no bleeding from any other site. Within a few hours, the right periorbital area and subsequently the entire face and neck became swollen. A blister was formed at the medial part of the right lower eye lid and there was associated pain at the site. There was no fever, convulsion, loss of consciousness, loss of vi-

sion and weakness of any part of the body or respiratory distress. She had had no known food or drug allergy and her past medical history was unremarkable. The family members who are nomadic Fulanis, who live in thatched huts in the bush near Badama village in Jigawa state, desperately searched for the suspected offending snake and could not find it. However, the area is known for snakes and there had been many instances of snake bite in the area.

The parents administered herbal medication to the child but due to continued deterioration, she was taken to Federal Medical Centre (FMC) Birni Kudu about 10hrs after the bite. In the hospital, she was given intravenous fluid, blood transfusion, tetanus toxoid injection and referred to our hospital for further management especially as anti-snake venom was not available at referring hospital. On presentation in our hospital, she was conscious and acutely ill looking, afebrile (37.0°C), not pale, acyanosed, anicteric and well hydrated. There was oedema and tenderness which involved the face, neck and upper anterior chest wall. The eye balls could not be examined due to massive oedema of the eye-lids. She had two points of small wounds at the right infra orbital region close to the right eye lid. There was associated periorbital echymosis and a blister on the right lower eye lid. The respiratory system findings were normal except for mild dyspnea. Her pulse rate was 110 beats per minute, regular and full volume. The blood pressure was 100/60mmHg and the heart sounds were normal. She was conscious, agitated but the rest of the neurologic examination was normal.

The clotting time at presentation was more than 2hrs. Her packed cell volume was 34%, WBC was 8.6 x 10<sup>9</sup>/L and platelet count was 250 x 10<sup>9</sup>/L. The prothrombin time was 15 seconds (control 15sec, INR 1.0) while PTTK was 26seconds (reference range 23-36seconds).

The blood samples were however taken after patient had been transfused in the referring hospital. Urinalysis (dipstick) showed haemoglobin while urine microscopy revealed numerous red blood cells. X-ray of the neck showed soft tissue swelling. Other investigations including liver and kidney function tests were normal. Fifty millilitres of polyvalent anti-snake venom was prescribed but parents could only afford to buy 30ml which was administered IV (dissolved in 250ml of 5% Dextrose in water) over 2hrs. Intravenous ampicillin-Cloxacillin combination, metronidazole and topical chloraphenicol eye drops were administered. Other supportive measures included feeding, monitoring of vital signs and fluid input-output. At 72hrs after administering the anti-snake venom, facial swelling subsided substantially and bedside clotting time reduced to 20 minutes. The facial swelling resolved completely within 8days and she was discharged home but lost to follow-up.

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## Discussion

In Nigeria four families of venomous snakes are found but three species carpet viper (*Echis ocellatus*), black-necked spitting cobra (*Naja nigricollis*) and puff adder (*Bitis arietans*) which belong to viperidae and elapidae families are the most medically important and associated with envenoming<sup>7,8</sup>. Most of the snake bites in humans affect the lower limbs, less often the upper limbs and rarely the face<sup>5,9,10</sup>. In a series of 103 cases of snake bite reported by Madaki et al in Zamko Nigeria, all the bites were on the limbs and none on the face<sup>9</sup>. The reason adduced for the higher propensity of involvement of the limbs is that the limbs are exposed and vulnerable to snakes while walking, farming, rearing animals or even playing by young ones while in the bush. The face is high above the ground while engaged in the previously mentioned activities but while lying flat such as during sleep in snake infested areas, the face is at ground level and so equally vulnerable as in this patient.

Most snake bites occur outdoors and accounted for 75% of cases reported by Mustapha in a series from Gombe, Nigeria<sup>11</sup>. However, some snakes such as the African spitting cobra may enter human dwellings at night and bite people who are sleeping. Our index patient lived in a thatched hut located in the bush where snakes are commonly found and so was bitten while sleeping during rainy season. The experience is not surprising because during rainy season, snake habitats are over flooded with water and are disturbed by farming activities<sup>2</sup>. Therefore snakes may seek shelter in the homes as occurred in our patient. In our index patient, the offending snake was not identified but the clinical findings especially puncture sites (fang marks) constituted enough evidence to support our diagnosis. In a retrospective review by Avilla et al in Costa Rica, a diagnosis of snake bite was made in a 24month old-child after the scalp revealed fang marks after shaving the hair in presence of disseminated intravascular coagulopathy<sup>12</sup>. In the same

series the snake species was not identified in 24 out of 82 cases<sup>12</sup> and the report did not reveal whether the snakes were even seen by witnesses. In our own case also, the snake was not seen and the specie could not be determined. Our approach to making the diagnosis is supported by Blaylock in South Africa who reported that 40% of patients do not see the offending snake but diagnosis is made based on presence of paired fang marks or typical findings of envenomation syndrome<sup>4</sup>. It was noted that the first contact of the patient with hospital was 10hrs after the bite. That was a significant delay which would have made envenomation syndrome to become full blown. Moreover, the referring hospital did not have anti-snake venom which further increased the risk of complications. In rural areas, access road may be several kilometers away and in our patient the fact that the bite took place at night contributed to further delay. Several instances of delayed presentation had been reported from various studies in Nigeria<sup>13,14</sup>.

The severity of envenoming depends on volume of venom injected, the anatomical site of injections (bites on head and trunk tend to be more complicated), size of the victim and time lapse between bite and medical attention<sup>6,15</sup>. In our patient with facial snake bite, the above mentioned conditions were not favourable. Probably, the unclear herbal medication first aid and treatment in the referral hospital probably modified the symptomatology in the patient. Nonetheless, patient still had significant facial, neck and upper chest wall swelling which if it had progressed would have led to severe respiratory compromise and possibly the need for hyperbaric oxygen<sup>16</sup>. We noted that even though there was some derangement in the haematologic profile, the values could have been worse considering the earlier blood transfusion before she presented to us.

While we recommended 50ml of the anti-snake venom, parents could only afford to buy 30ml and that was given accordingly. This brings to the fore the need for not only making the anti-snake venom readily available but also at highly subsidized price especially for the rural poor who are most at risk. This opinion had been expressed by Habib et al who believe that access to snake anti-venom leaves much to be desired<sup>17</sup>. That the patient was discharged after 8days of admission in our hospital is equally a rare success story because in the retrospective review by Avilla Aguero et al in Costa Rica, all the 6 children who had facial snake bites died<sup>12</sup>. This could have happened because their series included much more younger children especially infants and under fives who are more prone to severe envenoming. However, a similar success story to ours was recorded in Costa Rica in a case report by Quiroga et al<sup>6</sup>. Their case was younger (3yrs), clinically more serious requiring intubation, and underwent surgical drainage of multiple abscesses although he spent longer duration (two weeks) in hospital before discharge. Our patient was lost to follow-up which is a common challenge in managing rural poor people in developing countries. Therefore, issues of psychological complications and any delayed physical disability that may have arisen later could not be

addressed.

more equitable distribution of the product to all the vulnerable areas of the country. There is also a great need for the various tiers of government to evolve housing schemes that will be extended to rural areas so as to reduce the vulnerability of the rural farming and nomadic populations who are most at risk.

## Conclusion

In conclusion, much as federal Ministry of Health, Nigeria has invested in production of EchiTAB-Plus-ICP and EchiTABG anti snake venoms, there is still need for a

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