

## A PERSONAL ACCOUNT OF ENVENOMATION BY A BLUE-NECKED KEELBACK, *MACROPISTHODON RHODOMELAS* (BOIE) (REPTILIA: SQUAMATA: NATRICIDAE)

R. Subaraj

Blk 127, Tampines Street 11, #09-444

Singapore 521127

Email: [serin@swiftech.com.sg](mailto:serin@swiftech.com.sg)

### INTRODUCTION

A series of symptoms ranging from massive headaches to breathing difficulties were experienced by the author after being bitten by a blue-necked keelback (*Macropisthodon rhodomelas*), a snake species which was hitherto not known to be venomous.

### OBSERVATIONS

The following is a time sequence account of a snakebite incident that occurred to me on 18 Oct.2004. It took place in Singapore, in a forested area where I was conducting a research exercise with some friends.

18 Oct.2004, 1940 hrs: I encountered the blue-necked keelback (*Macropisthodon rhodomelas*) at the research site. This is an uncommon snake and I have only encountered the species a couple of times in the Bukit Timah Nature Reserve. This individual (Fig. 1), approximately 35 cm long, was collected and held temporarily for closer examination. It was quite defensive and immediately bit me as I picked it up.



Fig. 1. The blue-necked keelback that bit the author.

18 Oct.2004, 1950 hrs: The snake refused to calm down in my hand and continued to twist its body about. Eventually, it managed to get a good grip of my index finger in its jaws and sunk one of its fangs deep in, chewing at the same time. I was not unduly worried as I had been bitten by snakes many times before, and this species was supposed to be non-venomous. As the bite started to hurt, I carefully extracted the fang from my finger and placed the snake back in the tank. Feeling a little giddy, I walked unsteadily over to the nearby water fountain to rinse the blood from the bite. As I washed my finger, numbness spread rapidly from my finger to my wrist. At the same time, the giddiness intensified and my head began to throb.

18 Oct.2004, 1951 hrs: As I turned away from the water fountain, everything around me started to spin, and a cloud of darkness began to engulf me. My entire body became weak and a massive headache took over. I stumbled over to the nearest pillar as I heard my wife shout out my name. I grabbed a nearby pillar but was too weak to hold on. Then my knees suddenly buckled and I collapsed to the ground. Fortunately, as I was still conscious, I managed to lie down on my back without hitting my head. A rucksack was quickly slipped under my head, while my wife, who is a nurse by profession, began to monitor my pulse. It was at 115 beats per minute.

18 Oct.2004, 1952 hrs: I broke out in a profuse cold sweat. Breathing became difficult, and my lungs began to hurt as I took quick but shallow breaths. My head felt as if it was being squashed in from all sides and from the top. Someone pulled my bandana off. Panting, I began a running commentary of what I was feeling, partly to keep conscious and partly to keep my companions informed about my condition. In between, I was asked questions to help keep me awake, and my wife kept urging me not to fall asleep as I was feeling really drowsy. I turned to my side in a 'recovery position' to help ease the breathlessness and the headache. A cereal drink was brought to me, but I could not consume it as I was gasping for air.

18 Oct.2004, 1955 hrs: Despite the agony, I overheard my companions whispering among themselves to call an ambulance. I shouted at them not to, as I was still conscious and alert, and I believed I simply needed time for my body to cope with the venom and the shock. The headache was still massive, my chest still hurt, and it was difficult to breathe. The part of my hand from the bitten finger to the wrist still hurt quite bad and felt numb at the same time. However, my condition was not getting worse, and seemed to have stabilised somewhat.

18 Oct.2004, 2015 hrs: I was not perspiring as much as before, and was able to make slower and longer breaths, though this was still a little difficult and the chest still hurt. The headache was still bad, but I felt able to sit up. With the help of those around me, I slowly sat up and shifted to lean against the pillar. That felt better, but I was not allowed to stand up. My companions informed me that they had gone ahead and called the ambulance as I looked and sounded quite bad earlier. I managed to sip some of the cereal drink.

18 Oct.2004, 2020 hrs: Three members of the Singapore Civil Defence Force arrived with a stretcher. They checked my pulse-rate which was 100 beats per minute. They also asked me a few questions but for some reason, they neither listened to my heartbeat nor took my pressure. Perhaps they too were unsure about snakebite cases and besides, I was sitting up and appeared to be talking normally. They wanted to take me to a hospital for observation, but I stubbornly refused their offer. I told them that if I was able to stand up and walk in a straight line, I would not accompany them. I was able to do just that without any difficulty apart from feeling weak. Satisfied with my condition, the ambulance officers left soon after. I then realised that my shirt was thoroughly drenched in perspiration.

19 Oct.2004: The headache had gone away after some sleep, but I still had slight difficulty in breathing. I had a birding client in town and I did not want to cancel this job. I picked him up at 0600 hrs and managed to spend the whole day taking him around Singapore. The one noticeable effect that persisted throughout the day was that I was still slurring and had trouble completing my sentences. Obviously the toxin was still in my body but being out and perspiring in the field seemed to help.

Some of the effects continued until the following day as I occasionally forgot what I was going to say in mid-sentence. However, I have recovered completely from then on.

## DISCUSSION

The dog-faced water snake (*Cerberus rynchops*), Oriental whip snake (*Ahaetulla prasina*) and paradise tree snake (*Chrysopelea paradisi*) are common snakes in Singapore that are known to be mildly venomous. I have been bitten many times by these snakes, but did not suffer any ill effects.

I believe that my severe reaction may have more than just the venom. Firstly, I had participated in a 24-hr bird-watching competition the day before when I managed only an hour of sleep. Being exhausted and weak, both physically and mentally, had obviously lowered my body's levels of resistance. Secondly, I suffer from sinusitis and am slightly

asthmatic. This probably accounts for the respiratory problems resulting from the bite. Thirdly, I had allowed the snake to sink its fang deep into my finger and to chew on it. Hence, the snake had probably injected a significant dose of venom.

At that time, I was 1.79 m tall and weighed between 115 and 120 kg. I suspect that a bite of the same nature would probably have a more serious effect on a smaller-sized person. Incidentally, the person who had captured this very snake that morning was also bitten. Apart from a slight headache and pain at the bite area, he did not experience the same severe reaction that I did. Perhaps the snake had inflicted a 'quick' bite on him rather than the slow 'chewing' bite it did on me.

Under normal circumstances, all snakes, venomous or otherwise, would rather avoid humans rather than attempt a direct confrontation. For the past 23 years, and after numerous encounters, I have yet to find a single snake that will deliberately chase me. Snakes are not likely to bite unless they are cornered, forcefully restrained or trodden upon. In this case, I would not have been bitten if I had not pick the snake up with my bare hands.

The keelbacks (family Natricidae, previously considered a subfamily of the Colubridae) are generally thought to be harmless to man although some of its members are known to be venomous, a notable example from Southeast Asia being the red-necked keelback (*Rhabdophis subminiatus*) (see Cox et al., 1998: 47; Tweedie, 1983: 91). The blue-necked keelback (*Macropisthodon rhodomelas*), on the other hand, is regarded as non-venomous in many publications (e.g., Tweedie, 1983: 97; Lim & Lee, 1989: 61; Lim & Lim, 1992: 81; Cox et al., 1998: 47).

I had not expected a bite from a blue-necked keelback to have such a serious impact. Although my companions on that evening were traumatised by the event, it was fortunately, not fatal. I hope that this personal account will provide a greater insight into this reportedly 'non-venomous' snake.

#### LITERATURE CITED

Cox, M., J., P. P. van Dijk, J. Nabhitabhata & K. Thirakhupt, 1998. *A Photographic Guide to Snakes and other Reptiles of Peninsular Malaysia, Singapore and Thailand*. New Holland Publishers (UK) Ltd., UK. 144 pp.

Lim, F. L. K. & M. T. Lee, 1989. *Fascinating Snakes of Southeast Asia — an Introduction*. Tropical Press Sdn. Bhd., Kuala Lumpur. 124 pp.

Lim, K. K. P. & F. L. K. Lim, 1992. *A Guide to the Amphibians and Reptiles of Singapore*. Singapore Science Centre, Singapore. 160 pp.

Tweedie, M. W. F., 1983. *The Snakes of Malaya. 3<sup>rd</sup> Edition*. Singapore National Printers (Pte) Ltd, Singapore. 167 pp.