

Snakebite – Red-Necked Keelback – *Rhabdophis subminiatus*



Red Necked Keelbacks are now considered quite dangerous and potentially deadly.

(Page Updated: 6 September 2016)

Red-necked Keelback Snakebite and Envenomation

A couple months back I received an email from a concerned father whose son was bitten by a red-necked keelback (*Rhabdophis subminiatus*) he had found in their neighbor's garden.

“My son is suffering from non clotting, severe swelling, and paralysis and is now in ICU, where his vital and neuro signs are ok, but blood not good.”

These snakes have, in the past, not been identified as a dangerous snake. Many people have them as pets, and free-handle them with bare hands. Sometimes these snakes bite, but once they are handled a bit they usually calm down and rarely bite. There have been some cases in the literature where bites have resulted in hospitalization, and there has been a push to identify these snakes as what they are – venomous, and dangerous.

Colubrids, rear-fanged snakes, are nearly all venomous. Venom is modified saliva that helps the snake kill and break down the body of their chosen food.

I was excited to have a response from the father of this boy that spent 2 weeks in a Thailand hospital after suffering 2 bites from this snake.

Here's what I learned after some questions by email...

1. Can you tell anything about how the bite occurred? Was the keelback snake typically calm – and then, out of the ordinary behavior – it bit your son?

Calm, he was showing off to his friend's that he can handle snakes, this red-necked keelback was a wild one not a pet. He has a constrictor, a corn snake and a python as pets, all fairly placid, but the keelback he had no understanding of.

2. Approximately how long did the snake bite down on your son's hand? Was it less than 1 second? 1-3 seconds? 3-5? 10? 60 or more? This is the most important question because in the past we haven't seen enough venom transferred from quick bites, or even repetitive quick bites...

Between 30-40 seconds I believe. It wouldn't let go.

3. Did the snake bite more than once that day?

Bit him twice within a few minutes.

4. Did the snake routinely bite your son – often?

First time.

5. Can you tell me approximately how long was the snake? Do you have any photos of it? Can you please send if you do?

No photo's I'm afraid, he didn't mention how long it was, but he will be back from school at the weekend, and I'll fish more info out of him.

6. Did you get the snake in Thailand? There in Phuket, or where?

Wild snake in his friend's garden (Phuket).



Red Necked keelback – do not keep as a pet – can cause serious kidney damage.

So, here again – the red-necked keelback snake bit down for an extended period of time – 30+ seconds, and had time to squeeze

a lot of venom into the boy's hand. Then bit again.

There is no manufactured antivenin for the *Rhabdophis subminiatus* as it is here in Thailand. In Japan there is a small amount of antivenin produced to handle bites from their local species. To my knowledge there has been nobody treated with this antivenin outside of Japan, and I'm sure they would not be all that interested to give up some of their small supply to export to another country.

More information on venom toxicity and treatment after bite by this snake: [R. subminiatus](#).

Venom Characteristics

(from

<http://www.afpmb.org/content/venomous-animals-r#Rhabdophissubminiatus>)

Venom consists of mainly procoagulants, which can cause renal failure; plus mild neurotoxic factors. Envenomation does not always occur. Bite may be almost painless, with minimal local swelling. Symptoms of envenomation may include local numbness, headache, nausea, & vomiting; in severe cases renal failure has caused human deaths. No known antivenom currently produced.

LD50 for intravenous injection – .125 to .129 mg/kg. That is extremely venomous, in the same category as *Bungarus candidus* (Malayan Krait), *Naja kaouthia* (Monocled Cobra), and *O. hannah* (King Cobra).

One WHO (World Health Organization) publication about the management of venomous snake bites in Southeast Asia mentions the antivenin for *Rhabdophis tigrinus* in Japan as having some effect on the venom of *R. subminiatus*. I am not sure if this is strictly for *R. subminiatus* found in Japan, or not. Worth a try though if you can get them to send you some antivenin.

Otherwise, there is no other option – there is no monovalent antivenin specifically for *R. subminiatus*.

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Yamakagashi (*Rhabdophis tigrinus*) antivenom. Also effective against rednecked keelback (*R. subminiatus* venom)

I have some time today, and I'm curious what their response will be. I'll write them to see whether they could, in an emergency, be able to send some antivenin here to Thailand to treat a bite by *R. subminiatus* or *R. tigrinus*.

OK, I've written them, lets see if they respond...

Update 2/11/2016 – No, they did not respond at all. Nothing. Today I was thinking about the topic and decided to write more people to see if I could get some vials of *Rhabdophis tigrinus* antivenom from Japan to try in treating patients with complications from bites of *R. subminiatus*. The following is the letter I'm sending to a number of researchers, scientists, and again, to "The Japan Snake Institute."

Dear Toru Hifumi,

Greetings from Thailand! I am a snake enthusiast from the USA, living in Thailand for the past 11 years.

I read your paper, "Effect of antivenom therapy of *Rhabdophis tigrinus* (Yamakagashi snake) bites."

I have been researching the subject of *Rhabdophis* envenomation because I have had a few experiences here, helping young boys who were bitten.

In both cases, the victim was a young male child. One was 12 years old, and the other was only 9 years old. Both the boys had kept the snakes as pets and thought them to be harmless.

Both were admitted to hospital intensive care for 10-14 days with bleeding from various orifices and ultimately renal failure.

I have read that your antivenom may help particularly in cases of renal failure.

On two occasions I emailed staff at "The Japan Snake Institute" about possibly purchasing some antivenom to help these boys recover. Unfortunately, I never received any reply from them at all.

I am hoping you will reply favorably after reading this note!

As you know, Thailand has not made antivenom for any snake in the *Rhabdophis* genus. *R. chrysargos* and *R. nigrocinctus* are also found in Thailand, and they may have similarly toxic venom.

I anticipate more emergency situations involving children in the coming year(s) and I must try to help in any way I can.

I am asking you if I can purchase some of the *R. tigrinus* antivenom for experimental use by hospital staff when patients in Thailand are envenomated by this snake.

We are not seeking to make any profit from this venture, the antivenom will be provided to Thailand hospitals on a case-by-case basis, and at cost (no markup).

As I understand your article to read, each vial of freeze-dried *R. tigrinus* antivenom, Equine (lot #0001) is able to

neutralize the coagulant activity of about 4 mg of *R. tigrinus* venom.

If we were able to purchase just 10 vials, or even 5, that could be a significant help to patients here in Thailand who need it – especially children.

Would you please respond favorably to this request?

Thank you for your time and concern about what will most certainly be in the near future – a life and death matter.

With highest regards,

Vern J. Lovic

ThailandSnakes.com