

EDITORIAL

The Resurgence of the Russell's Viper in Bangladesh: A Significant Threat to Public Health

Islam S

DOI: <https://doi.org/10.3329/bafmj.v57i1.76591>

Snakebite is a global public health issue, and in majority of cases it is undermined. Tropical and subtropical countries are mostly affected, Bangladesh being one of them. There is scarcity of countries' epidemiological situation in relation to snakebite poisoning.¹

Russell's viper locally known as Chandrabora has been named after Patrick Russell, a Scottish herpetologist. In his book 'An Account of Indian Serpents, Collected on the Coast of Coromandel' published in 1796, Russell stated that the snake has a "highly venomous nature".² The clinical profile of Russell's viper bite includes local swelling, coagulopathy, renal dysfunction and neuromuscular paralysis.³

The occurrence of Russell's viper in Bangladesh is century old information and its rarity was known to the wildlife biologists till 2013 but its recent booming is also causing a major threat to human life in the area. Two species of Russell's viper are known to occur in this universe of which *Daboia russelii* is distributed in Pakistan, India, Nepal, Bhutan, Bangladesh and Sri Lanka.⁴

Russell's viper was seemed to be rare in Bangladesh. History suggests that Russell's viper was an important cause of mortality in the 1920s, but no case of envenoming by this species has since been reported in Bangladesh. Recently Russell's viper bite has been reported and it is one of the common snake bites at Rajshahi region which has great morbidity and mortality as well.⁵

Previously considered extinct, this species was native to the Barind region of North Bengal. However, it has now spread across some 27 districts in the country via the Padma waterway, with numbers steadily increasing.⁶

According to a study conducted in 2023, approximately 7, 000 people in Bangladesh succumb to snakebites annually. However, timely administration of anti-venom significantly enhances survival rates.⁷ Ecological imbalance, combined with the snake's high reproductive rate, have led to a rapid increase in their population. Experts attribute the increase in Russell's viper sightings and incidents to the disruption of the food chain. Besides these, killing of natural predators like foxes, monitor lizards (guishaps), mongooses and birds like eagles & kite birds (Bengal Chil), has allowed the snake population to flourish. The abundance of prey such as mice and frogs in crop fields further supports their proliferation. Effective protective measures are essential in combating this menace.⁸

The Russell's viper is one of the most venomous snakes in the world. Unlike most snakes, Russell's vipers are aggressive and will attack if they feel unsafe and threatened. They strike with incredible speed, completing the entire process in just a sixteenth of a second. The venom of the Russell's viper is hemotoxic, causing severe tissue damage. A bite leads to immediate swelling and can result in the destruction of various organs, including the lungs and kidneys. Coagulopathy, renal dysfunction, neuromuscular paralysis and local envenoming were seen in the victims,

ranging from monosystemic involvement to various combinations. Without prompt medical treatment, the affected area can begin to rot within five minutes of the bite.^{3,8}

A recent seminar by the World Health Organization (WHO) held in Myanmar highlighted the importance of using protective gear for proper protection from Russell viper bite. The WHO seminar also stressed the need for improved first aid methods, early distribution of antivenom, and education of doctors, nurses, and the community about snakebite prevention and treatment. These strategies are crucial for Bangladesh as well. The growing threat of Russell's vipers in Bangladesh requires immediate action to protect vulnerable populations, particularly farmers and fishermen. The ongoing efforts to distribute anti-venom and raise awareness are crucial steps in combating this growing menace, ensuring the safety and well-being of people.⁸

Snake bite is an important but neglected public health issue, especially for populations living in the rural areas. The rural community identifies poor health seeking behavior, including treatment taken by the traditional healers and medicine shopkeepers, village doctors etc. Mass awareness is required to develop mental capacity among the villagers to take appropriate precautions, whilst being given the right interventions for the safe reduction of snake poisoning in Bangladesh.¹

Brigadier General Shafiqul Islam, MPhil, MPH

Commandant

Armed Forces Medical Institute

Dhaka Cantonment

Mobile:01711393458

E-mail: shafiqgpg@yahoo.com

ACKNOWLEDGEMENT

Colonel Ahmad Ahsan, D Av Med, MPH

Instructor Medicine

Armed Forces Medical Institute

Dhaka Cantonment

REFERENCES

1. Hossain J, Biswas A, Rahman F, Mashreky S, Dalal K and Rahman A. Snakebite Epidemiology in Bangladesh—A National Community Based Health and Injury Survey. Health.2016; 8: 479-486. doi: 10.4236/health.2016.85051

2. Debunking tales of the Russell's viper. The daily Star; July 24, 2024. Available from: <https://www.thedailystar.net/opinion/views/news/debunking-tales-the-russells-viper-3639596> (Accessed on 24.7.24).

3. Kularatne SAM, Silva A, Weerakoon K et al. (2014) Revisiting Russell's Viper (*Daboia russelii*) Bite in Sri Lanka: Is Abdominal Pain an Early Feature of Systemic Envenoming? PLoS ONE 9(2): e90198. doi:10.1371/journal.pone.0090198
4. Ahsan MF and Saeed MA. Russell's Viper (*Daboia Russelii*) in Bangladesh: Its Boom and Threat to Human Life. J. Asiat. Soc. Bangladesh, Sci. June 2018; 44(1): 15-22.
5. Rahmani ASMM, Haque MZ, MK Rahman MK, Amin MR, Faiz MA. Russell's viper bite and its immediate outcome in Bangladesh. BJM. 2023; 34: (1) Supplement.
6. Once thought extinct, Russell's viper strikes fear in dozens of districts. BDNEWS.COM. 24 JUNE 2024.
7. Bangladesh sees a spike in snakebite cases. The Indian Express. 23 June, 2024.
8. How Bangladesh can tackle Russell's viper threat with WHO measures. Available from: <https://en.somoynews.tv/news/2024-06-21/086CMK7O>(Accessed on 21 June 2024).