

# **Russell's Viper (*Daboia russelii*): bite in Bangladesh**

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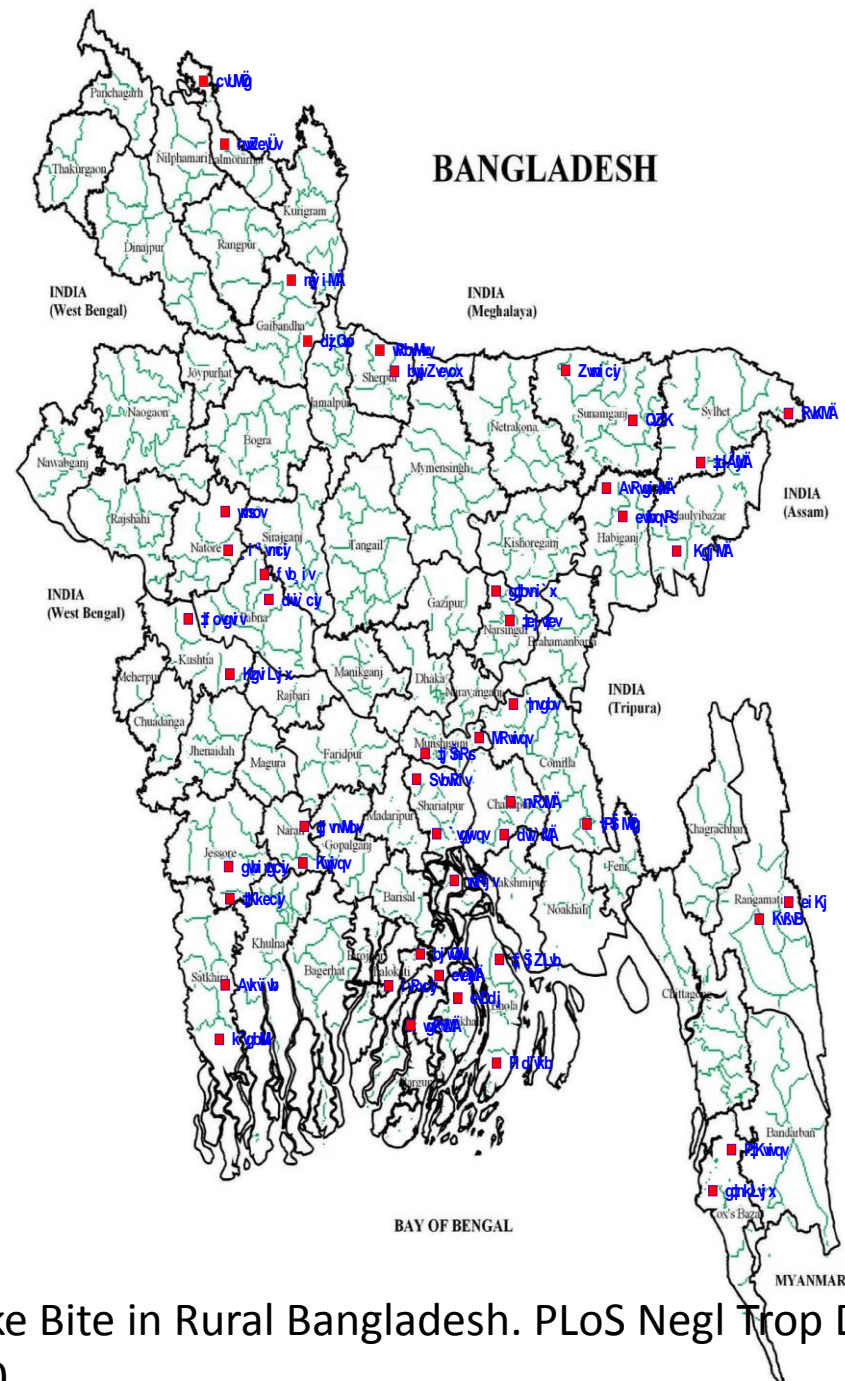
# Community survey

Annual incidence of snake bite in rural Bangladesh:

623.4/100,000 Person/Yr

An estimated 710,159 episodes

Estimated 6,041 death annually



Rahman et al. (2010) Annual Incidence of Snake Bite in Rural Bangladesh. PLoS Negl Trop Dis 4(10): e860.doi:10.1371/journal.pntd.0000860

# Venomous snakes of Bangladesh: underestimated biodiversity

- Historically undercollected
- Species diversity, distribution virtually unknown
- Literature review 1852–2008: 40–50 species
  - ~ 25 species of sea snakes
  - 2 species of cobra
  - 5 species of krait
  - 1 species of king cobra
  - ~ 4 species of coral snake ?
  - ~ 5 species of green pit viper
  - 1 species of true viper
  - records of 4–5 more pit vipers ?

Elapidae

Viperidae

# Medically important snakes of Bangladesh

- Cobras
  - Kraits
  - Green pit vipers
  - Russell's viper
- **Russell's viper**: was an important cause of mortality in the 1920s (anecdotes) recently we recorded 20 cases over 4 yrs (2013-2017) in southern-western Bangladesh.

# Materials and Methods

The present study includes the data of 20 patients of Russell's viper bite.

Patients with the history of Russell's viper snake bite were selected on the basis of the specimen, clinical history and examination and 20 minutes whole blood clotting test.

# Materials and Methods

- 19 patients were admitted in the Medicine department of Rajshahi Medical College Hospital, Rajshahi, Bangladesh.
- One patient was admitted at Patuakhali District Hospital.

This study was carried out over a period of 4 years from March 2013 to October 2017.



**Captured pic of Russell's viper**

Case no 1



## **Live Russell's Viper**

Case no 5



# Hospitalization

Year	No of patients hospitalized
2013 (first case on 2 <sup>nd</sup> june)	2
2014	1
2015	1
2016	10
2017	6

# Age and Sex

- 19 are male and one female
- Male age (years) range 16-53
- Female 20-year- old

# Bite site

- Mostly patients had been bitten while working in the paddy field.
- Two cases while catching fresh water fish

# Primary treatment

- Among 20 patients, 18 initially went to '*OZHA*' for traditional treatment including:
  1. cutting the bite site
  2. sucking of blood
  3. using acid
  4. using mud
  5. unknown substances

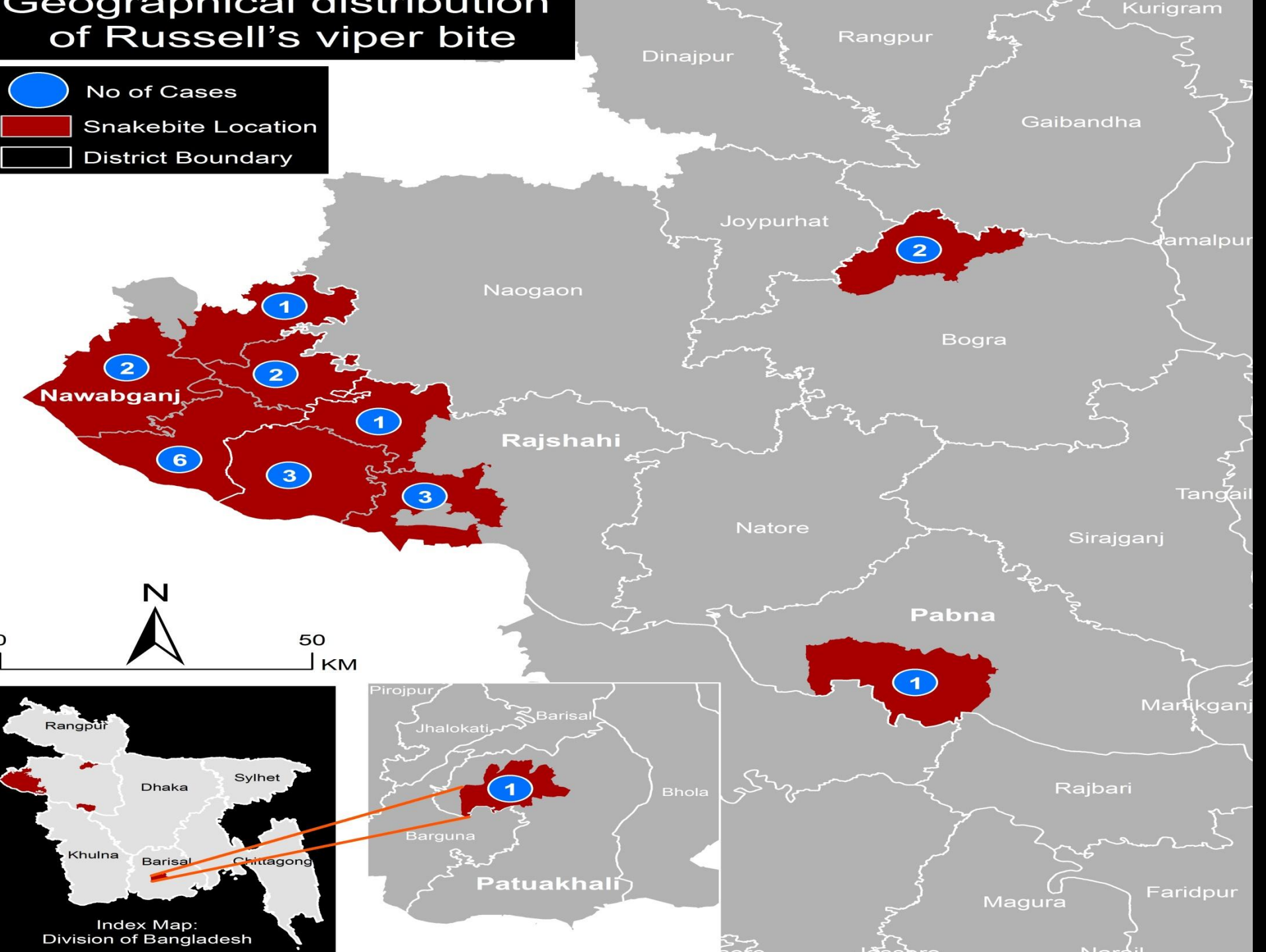
# Time until hospital admission

- Average delay 8.9 hours
- Maximum was 22 hours
- Minimum was 2.3 h

# Geographical distribution

Name of the district	No of patients
Chapainawabganj	11 (55%)
Rajshahi	7 (35%)
Pabna	1 (5%)
Patuakhali	1 (5%)

# Geographical distribution of Russell's viper bite



# Symptoms and signs on admission

Manifestations	No of cases
Non-clotting blood (20m WBCT)	19 (95%)
Blood oozing from bite site	19 (95%)
Local swelling	19 (95%)
Bruising	10 (50%)
Raised CPK	14 (70%)
Evidence of acute kidney injury	10 (50%)



# Neurotoxic manifestation

- Case no-2 from Kuakata, southern Bangladesh presented with
  - Blood oozing from bite site, swelling
  - Ptosis, ophthalmoplegia
  - Conjunctival chemosisbut no dysphagia, dyspnoea



# Dry bite

- One patient (case no-14) had been bitten by Russell's Viper but did not develop any symptoms and signs of envenoming. All tests were normal.



# Kidney biopsy

- Two patients went for renal biopsy because they had features of glomerulonephritis which revealed
  - focal segmental proliferative glomerulonephritis  
(Case no-7).
  - minimal change glomerulonephropathy  
(Case no-12).

# Treatment

- Polyvalent antivenom (Indian origin) given to all envenomed patients
  - Maximum needed 50 vials
  - Minimum was 10 vials



# Treatment

Fasciotomy	IPD	Haemodialysis	Immuno-suppressive therapy	ICU support
4 (20%)patients	7 (35%) patients	1	2 patients (cyclo-phosphomide and methyl prednisolone)	4 (20%)patients

# Outcome

Survived (80%)	Death (20%)
16 patients survived	Case-1 & 2, due to multiorgan failure Case-3 & 7, due to renal failure



# Discussion

Russell's viper is known as 'Chandra Bora' in Bangladesh. It was thought to be near extinct in Bangladesh. There has been a lack of reports of bites by Russell's viper in Bangladesh in the scientific literature. Our series of 20 patients with confirmed Russell's viper bite proves its presence in Bangladesh.

We got patients from two divisions of Bangladesh. All went to OZHA for traditional treatment which delayed admission to the hospital. Patients presented with local swelling, oozing of blood, and had renal failure.

One patient from Kuakata (southern part) presented with neurotoxic features along with other manifestations which indicates that there may be differences in venom composition.

# Conclusion

- Russell's viper is a newly recognised cause of venomous snakebite in Bangladesh
- Presenting features of Russells's viper bite seem to be different requiring investigation
- Still traditional treatment is going on, that should be addressed
- Community awareness, training of healthcare staff, and dialysis capacity should be improved
- Needs geographically comprehensive survey

# Acknowledgement

- Prof. MA Faiz
- Prof. Ridwanur Rahman
- Prof. U Kuch
- Dr. Robed Amin
- Dr. Aniruddah Gosh
- Dr. Azizul Haque
- Dr. Zahirul Haque

# THANK YOU

