

Daboia Siamensis Bite in Lembata East Nusa Tenggara

Maria Natalia Indawati¹, Tri Maharani²

¹RSUD LEWOLEBA LEMBATA NTT, ²RSUP DAHA HUSADA KEDIRI

Abstract. Snake bite events often occur. In Indonesia there were 135,000 snake bite cases each year with mortality rate 50-100 cases per year. Cases report of snake bite envenomation in child in Indonesia have never been published. The case report of venomous snake bite *Daboia siamensis* is needed to outcomes.

Daboia siamensis envenomation in child aged 12 years, manifestation nausea, vomiting, general weakness, hematuria, gum bleeding, degree of consciousness, ptosis, shortness of breath.

Diagnose of envenomation by *Daboia Siamensis* is obtained from directly anamnesis about the appearance of the snake involved, complaints and symptoms experienced by patients and the presence of hemostasis disorders that supports an envenomation due to *Daboia Siamensis*.

Delay inadequate treatment in this case, is one factor that causes more severe of systemic envenomation with result massive bleeding, DIC and IUFD.

Key Words: venomous snake bite, envenomation in *Daboia Siamensis*

1. Introduction

Indonesia is an archipelago with a variety of flora and fauna including snakes that are almost feared by most people not only because of the effects caused by venomous snake bites but also mystical things that are often associated with this creature.

Venomous snake bites are a very potentially life-threatening disease. The World Health Organization (WHO) recognized snakebites as Neglected Tropical Disease (NTD) in 2017 and acknowledged that, despite incomplete data on mortality and morbidity associated with the disease, especially in the tropics and sub-tropics, it has been underestimated and WHO recognizes that a more coordinated international response is needed. Who also acknowledges that, due to decades of inattention to the disease, it has left the basic systems, resources, and tools needed to reduce and control the disease to be left behind. Snakebite are common, although the exact number of snakebite cases is not known for sure, but worldwide an estimated 5.4 million people experience snake bites each year and more than 2.7 million people with venomous snake bites. Worldwide, 81,000-138,000 snakebite deaths are obtained and about three times the total number of such cases of amputation and permanent disability due to snakebite cases each year [1]. In countries with the incidence of venomous snake bites, it is possible that the incidence of snakebites in pregnant women also increases. In studies from South Africa, India and Sri Lanka, pregnant women have accounted for 0.4% to 1.8% of hospitalized snakebite victims accompanied by worsening in the mother and fetus [2] [3]. In Indonesia, the number of snakebite cases is 135,000 cases per year with a death rate of 50-100 cases per year [4]. Data on the number of snakebite cases in Indonesia may still be more than has ever been reported, because there are still many cases of snake bites that are not recorded. The lack of public knowledge in Indonesia causes people to still more often entrust the handling of snake bites to snake handlers, shamans or traditional medicine experts so that they do not reach health facilities [5] [6].

Daboia siamensis or known as the keramek snake is one of the most medically important snakes both in Indonesia, especially in Java, Komodo island, Lembata and parts of East Nusa Tenggara and in other Southeast Asian regions, especially Thailand and Myanmar because the incidence rate of snake bites is very high and also the effects of the toxin can cause a very severe incidence of morbidity and mortality, especially in pregnancy, both for the mother and the fetus [7]. Knowledge about handling venomous snake bites is still an interesting topic to know because *Daboia* cases rarely find this case especially in the daily practice and also the limited availability of anti-snake venom, namely *daboia siamensis* *ruselli* antivenom thailand which is still a very effective therapy option to prevent or reduce the risk posed by snake venom [7].

Reporting of the incidence of venomous snake bites in pregnancy is needed to improve information and knowledge about the handling of envenomasi. This is what prompted us to report a case of envenomasi *daboia siamensis* that has never been published before from Indonesia.



Fig. 1. Location LEMBATA EAST NUSA TENGGARA



Fig. 2. Bite mark

The snake ran away and was blackish-brown in lembata its local name of the keramek snake see figure 3.



Fig. 3. Snake *daboia siamensis ruselli/keramek* (NTT)

Patients suffer from decreased consciousness, vomiting blood urine, nosebleeds, ptosis, shortness of breath.



Fig. 4. State of the patient aldo

2. Treatment Management

Signs and symptoms are the presence of bleeding gums, nosebleeds, hematuria, vomiting blood, ptosis, decreased consciousness and shortness of breath.

Table 1. List of giving drugs

Tanggal	Obat	Dosis dan frekuensi	Waktu diberikan	Waktu selesai	Reaksi Y/T	Keterangan
20/1/2020	Antivenom russel's daboia	2 vial			T	
	As. tranexamat	3 x 1 gram (k/p)			T	
	Omeprazole	1 x 30 mg			T	
	Ondancetron	3 x 3 mg			T	
	Sucralfat	3 x 15 cc			T	
	Paracetamol	3 x 300 mg			T	
	Nebu combiven	4 x 1			T	
	Aminofilin	2 x 120 mg			T	
	Caco3	3 x 1			T	
	Meropenem	3X 400 mg			T	
	KSR	2 x 1			T	

Table 2. Observation of the patient's clinical state

Tanggal	Waktu	GCS	Nadi (x/m)	Tensi (mmHg)	Napas (x/m)	SpO2 (%)	PSP (0-10)	RPP (cm/jam)	PKGB Y/T
14/1/2020	8.30 pm	E4M6V5	68	100/60	20	99	4		
15/1/2020	9.07 pm	E2M4V3	60	120/80	36	91	6		
16/1/2020	8.30 am	E1MIVx	70	120/70	29 (on venti)	99	0		
17/1/2020	8.30 am	E1M5Vx	93	120/81	31 (on venti)	97	0		
18/1/2020	8.30 am	E1M6V5	84	110/60	24	93	6		
18/1/2020	10.00 pm	E4M6V5	118	100/60	26	92	4		
19/1/2020	08.30 am	E4M6V5	96	100/60	22	97	4		
20/1/2020	08.30 am	E4M6V5	98	120/80	22	98	4		



Fig. 5. Conditions in the ICU on a ventilator

Patients experience respiratory failure and bleeding in the form of vomit and also bleeding from the nose or epistaxis so it is decided to be assisted by the installation of ETT and ventilator then installed NGT it turns out that the fluid that comes out is profus blood. Laboratory results at table 3 showed a heavy thrombocytopeni.

Table 3. Laboratory results

Tanggal	Waktu	20 WB	WB	HB	PLT	CT	BT	Ur	SCr	Na	K	Cl	Ca
14/1/2020	21.00	17.100	11,8	115000	18'	2'							
15/1/2020	07.00	10.200	6,6	51000	45'	7'	87	2,6	140	5,6	109	1,14	
16/1/2020	06.00	11.600	8,8	48000	15'	5'	167	3,6					
16/1/2020	13.00	10.600	11,9	80000	16'	6'			140	4,8	110	1,02	
16/1/2020	19.00	10.300	13	78000	20'	2'							
17/1/2020	01.00	10.600	12,5	98000	15'	4'	232	4,8	144	4,1	106	0,97	
17/01/2020	07.00	9800	17,1	67000	12'	4'			142	4,0	107	0,94	
17/01/2020	19.00	11300	17,4	57000	9'	2'			144	4,4	106	0,97	
18/01/2020	07.00	16100	17,4	49000	12'	2'	320	6,0	141	3,7	103	0,90	
19/01/2020	07.00	25300	14,6	45000	10'	1'	408	7,4	143	2,6	101	-	
20/01/2020	07.00	14000	13,6	68000	9'	1'	373	5,5	147	2,2	108	1,05	

In this case when the initial treatment was still using meth biosave before whistling this case in Indonesia toxinology under Dr tri maharani, after correcting this case then the treatment was given Thai antivenom daboia siamensis ruselli.

Antibisa Sesuai untuk Indonesia

No.	Antibisa	Dosis Pertama/Vial
1.	Bio SAVE (Serum Anti Bisa ular polyvalen) atau disebut juga SABU I Produsen: PT. Bio Farma (Persero)  Setiap ml dapat menetralsasi bisa ular : ➤ Ular tanah (<i>Agkistrodon rhodostoma</i>) ≥ 10 LD ₅₀ ➤ Ular weling (<i>Bungarus fasciatus</i>) ≥ 25 LD ₅₀ ➤ Ular kabra (<i>Naja sputatrix</i>) ≥ 25 LD ₅₀	10 mL/ 2 vial (memberikan benefit setelah 6 jam) Pemberian yang dianjurkan oleh RECS Indonesia: - Bungarus: 2 vial /2 jam, 40-80 dlm 100cc NS tts/mnt - Naja: 2 vial /6 jam 40-80 tts/menit dlm 500 cc (2%) NS - Agkistrodon: 2 vial/6 jam 40-80tts/menit dlm 500cc(2%) NS

Fig. 6. Antivenom From Indonesia

Bidder snake venom in Indonesia is a polyvalent that covers only a few types of snakes where it turns out that it cannot be for this daboia siamensis or keramek snake.

To help this patient, the lewoleba hospital team, one of which is Dr. Maria, contacted dr tri Maharani in east Java to help antivenom and manage the handling of daboia siamensis snake bites. He eventually went to Thailand and bought antivenom daboia siamensis ruselli and took it to lembata to lewoleba hospital.



Fig. 7. Antivenom daboia siamensis ruselli as well as the doctors and nurses who gave it



Fig. 8. The condition of the patient also after aff intubation and treated in the room in conditions of bleeding and acute kidney failure

Table 4. Laboratory Results

Laboratory result												
date	hour	WBC	HB	PLT	CT	BT	Ur	SCr	Na	K	Cl	Ca
14/1/2020	21.00	17.100	11,8	115000	18'	2'						
15/1/2020	07.00	10.200	6,6	51000	45'	7'	87	2,6	140	5,6	109	1,14
16/1/2020	06.00	11.600	8,8	48000	15'	5'	167	3,6				
16/1/2020	13.00	10.600	11,9	80000	16'	6'		140	4,8	110	1,02	
16/1/2020	19.00	10.300	13	78000	20'	2'						
17/1/2020	01.00	10.600	12,5	98000	15'	4'	232	4,8	144	4,1	106	0,97
17/01/2020	07.00	9800	17,1	67000	12'	4'		142	4,0	107	0,94	
17/01/2020	19.00	11300	17,4	57000	9'	2'		144	4,4	106	0,97	
18/01/2020	07.00	16100	17,4	49000	12'	2'	320	6,0	141	3,7	103	0,90
19/01/2020	07.00	25300	14,6	45000	10'	1'	408	7,4	143	2,6	101	-
20/01/2020	07.00	14000	13,6	68000	9'	1'	373	5,5	147	2,2	108	1,05

Table 5. Laboratory Results

Date	hour	wbc	hb	Plt	ct	Bt	ureum	scr	Na	k	Cl	ca
22/1/20 20	06.48	11,3	12, 8	51			143	1,9	145	2,4	107	1,11
23/1	11.31	14,78	12, 1	99			71	1.4	140	3,7	103	1.1

3. Discussion

3.1. How to find out the *Daboia siamensis* snake as the cause of this patient's envenomasi?

The way to find out the cause of a snake bite precisely is to show directly the snake can be by taking the snake to a health facility to be identified or by showing pictures / photos of the snake taken with the camera at the time of the snake bite. But this is very rare.

In addition, we also have to know the distribution of snakes in Indonesia to be able to estimate the species of snakes that bite the victim. If there is no help from expert and experienced medical personnel, then we should be able to find or collect data by asking initial questions such as which parts were bitten, when and what is being worked on when bitten, where and what the picture of the snake is and what the current complaints are. This is greatly helped by the snake bite form made by Dr. Trimaharani. The answers to these questions will go a long way in determining the species of snake that bit the victim [7].

In this case, based on anamnesis directly to the patient, it was obtained that the patient was bitten by a snake in the afternoon in the garden by a blackish-brown snake like the color of the surrounding dry leaves so that it was not visible to the patient before the patient was bitten, with a triangular shaped head and had a short impression of the patient's complaints that showed the presence of envenomasi both locally and systemically where massive bleeding was obtained with laboratory results showed The presence of DIC so that it can be concluded that this snake toxin is hemotoxin. Also signs and symptoms of ptosis, respiratory failure as well as an increase in ureum and creatinine indicate this is a type of neurotoxin and nephrotoxin that is only owned by the *Daboia* species group. Also the geographical location of the island of Lembata is typical where according to Indonesian toxinologist dr trimaharani is the habitat of *Daboia siamensis*. After all the data we collected based on information from patients, all complaints felt by patients and the results of physical and laboratory examinations, as well as the results of consultations with venomous snake experts in Indonesia, we concluded that this patient experienced envenomasi due to the bite of the *Daboia siamensis* *ruselli* snake in lembata [7].

3.2. How to establish the diagnosis of envenomasi in this patient?

In these patients, local envenomasi is obtained which develops into systemic envenomasi. Local envenomasi of this patient in the form of local pain in the fingers of patients bitten by snakes that then spread to the hands and arms accompanied by swelling, echymaosis, bleeding gums and snake bite scars to ptosis or difficulty opening the eyes due to paralysis of superior palpebral muscle muscles, tightness, to respiratory failure, dark-colored urine until an increase in ureum and creatinine that indicate acute kidney failure. Systemic symptoms in the form of bleeding and blood clotting disorders are symptoms of systemic envenomasi that are common after a snake bite from the family *Viperidae*. Bleeding can be persistent bleeding from bite marks, spontaneous systemic bleeding such as from the gums most often detected first, epistaxis, sub-conjunctival hemorrhage, intracranial hemorrhage (can be characterized by signs of lateralization and or decreased consciousness, hemoptysis, hematemesis, hematochezia, melena, hematuria, vaginal bleeding, sub-cutaneous bleeding (petekia, purpura, echymosis). Systemic

envenomasi in the form of bleeding due to blood clotting and hemolysis disorders due to viperidae toxins that are hemotoxin [8] [7].

3.3. How is it handled in patients post snakebite *Challoselasma rhodostoma*?

The algorithm for handling snake bites in each country / region is different but the principle of handling patients with snake bites according to WHO is: first aid treatment by ensuring the condition of the victim, immobilization of patients, especially the extremities that are bitten by using spalk / elastic bandage / pressure bandage, pad pressure immobilization in daboia species and immediately transport patients to health facilities; transportation to the hospital as quickly as possible but still safe and comfortable for victims, should be able to reduce mobilization when transporting especially the extremities from the bite site; Rapid clinical assessment and resuscitation: the ABCDE approach must be implemented and ensure the patient is stable; detailed clinical assessment and diagnosis of snake species; investigations / laboratory tests; giving anti snake venom; observation of the response to anti-snake venom; decide whether further doses of antivenom are needed; supportive therapy; treatment of the bite site; rehabilitation; treatment of chronic complications; education on how to avoid the next bite [7].

Treatment with the administration of anti-snake venom is expected to neutralize freely circulating toxins, preventing the development of envenomasi that allows improvement. However, this process takes approximately 3-7 days so that the patient is still helped to get other supportive therapy [7]. The problem of coagulopathy, neurotoxin and nephrotoxin caused by the snake bite *Daboia siamensis* can be managed by the provision of appropriate antivenom adequately, Tissue damage can be widespread in envenomasi caused by this snake especially if optimal anti-snake venom administration is delayed [9] [10]. Therapy and rehabilitation of bite victims of the Viperidae family may require a long and careful follow-up. Education is needed in patients that perhaps the function of the bitten limb may be functionally not fully returned optimally so that it still requires occupational therapy and rehabilitation with social and financial support may be needed [10]. After the patient is discharged from the hospital, rehabilitation therapy is rarely supervised but needs to be consulted to the patient and family that rehabilitation therapy can accelerate the functional reception of bitten limbs [7].

3.4. How does the patient's clinical development start from treatment until the patient is discharged?

Broadly speaking, this patient's clinical condition improved after receiving treatment for 13 days at dr. lewoleba hospital, lembata. In terms of clinical patients after treatment after the administration of Thai antivenom, there is a very significant improvement that can be seen from the absence of complaints of bleeding again accompanied by improvements in laboratory results, namely the value of faal hemostasis which shows normal values, ureum and creatinine that decrease even to normal again platelets increase and eventually normal. The existence of clinical and laboratory improvements is a very profitable thing.

4. Conclusion

The case report regarding the envenomasi snake bite *Daboia siamensis* is the first case report we reported from rsud dr. Lewoleba Lembata NTT. In this case report obtained systemic envenomasi such as massive bleeding and respiratory failure and acute kidney failure as a result of *daboia siamensis* toxin which is hematotoxic, neurotoxic, nephrotoxic. Initial handling of envenomasi in this case is still inadequate and not in accordance with the standard of handling, where the incision action is obtained on snake bite scars, traditional treatment in the form of massage on bite marks and also the provision of anti-snake venom that is not specific species *daboia siamensis*. Delayed adequate treatment in this case, is one of the factors that cause the occurrence of more severe systemic envenomasi which results in massive bleeding, DIC and respiratory failure and acute kidney failure. Adequate anti-snake venom and monovalent specific to *daboia siamensis* in these patients provides a good response to patient improvement. With the report of this case, it is expected that there will be an envenomasi procedure in

the bite of *Daboia siamensis* in Indonesia in accordance with WHO standards so that patients can be rescued. It is hoped that with the national guidelines, it is expected to reduce morbidity and mortality.

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