

ANAPHYLACTIC SHOCK FOLLOWING BITE BY A 'SLOW LORIS,' *NYCTICEBUS COUCANG*

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Abstract. A case of anaphylaxis of the circulatory collapse type and complicated by hematuria following bite by a "slow loris" (*Nycticebus coucang*) is reported. Treatment consisted in supportive measures and an antihistamine. The patient made a full recovery. There was no clinical evidence of any toxic substance in the saliva of the loris in spite of a northern Thai folklore belief that *Nycticebus* is a venomous animal.

Anaphylaxis following an animal bite seems to be a rare occurrence. Typically, it develops after drug injection or ingestion such as during penicillin or quinine therapy but it has also been reported subsequent to insect stings and after eating certain foods (shrimp, milk, eggs, chocolate, crab and nuts). Gamma globulin has been implicated in a few cases of anaphylaxis.¹ The capability of foreign proteins such as those of horse serum to sensitize experimental animals and man, causing a predictable immediate type allergic reaction, is well known.^{1,2} Such a catastrophic event is usually characterized by any combination of the following symptoms and manifestations: apprehension, burning discomfort or paresthesia of extremities, spasm of bronchial and skeletal musculature, hypotension with circulatory collapse, non-hematopoietic vascular purpura and, not infrequently, death.² Two forms of anaphylaxis usually are recognized in man: one causing predominantly pulmonary symptoms and the other with acute circulatory collapse as the primary clinical manifestation.¹

The slow lorises (*Nycticebus coucang*) or *linglom* of Thailand are a small woolly mammal belonging to the Order Primate, suborder Prosimii and infraorder Lorisidae. *Nycticebus* comprises two species, *N. coucang* and *N. pygmaeus*, as well as several subspecies which range in weight from 85 to 350 grams. The galago or African bush baby is closely related to the slow loris, belonging to the same infraorder.³ Lorises are arboreal, shy, nocturnal and native to Asia where they can be found from India to the Indonesian Islands. They

live in tropical rain forests at sea level but are also found in higher and drier altitudes up to 4,000 feet (1,220 m).

The slow loris makes an attractive pet since it is "cuddly," usually deliberate in movements, and has almost human prehensile hands and feet (Fig. 1A). The animal, if obtained while still young, seems to become attached to its owner. Loris fanciers known to the author seem to handle the animal a good deal and it soon becomes used to this, demanding to be picked up by emitting a short cricket-like call. A loris will usually know its owner, whom it is not likely to bite except in unusual circumstances, but it will show displeasure when picked up by any stranger. Lorises feed on insects, leaves, fruit seeds, small lizards and bird's eggs. Though the animal has an impressive set of 36 teeth with long pointed premaxillaries (Fig. 1B), no published report of poison glands or of toxic substances in its saliva could be found.³

This case represents the first reported instance of a severe, immediate-type allergic reaction of the circulatory collapse type following the bite of *N. coucang*.

CASE REPORT

The patient, a 43-year-old Caucasian physician, has been the owner of a male 2½-year-old slow loris (Fig. 1A, B) for about 2 years. The patient has been in good health except for a solitary renal calculus which was removed in 1966. There was no past history of any allergic manifestations. He has been in the habit of holding the animal frequently and admits to having incurred minor bites in the past. His loris was permitted to visit another male owned by a friend; the animals fought, and the patient was bitten as he was separating them. The bite was on his right wrist

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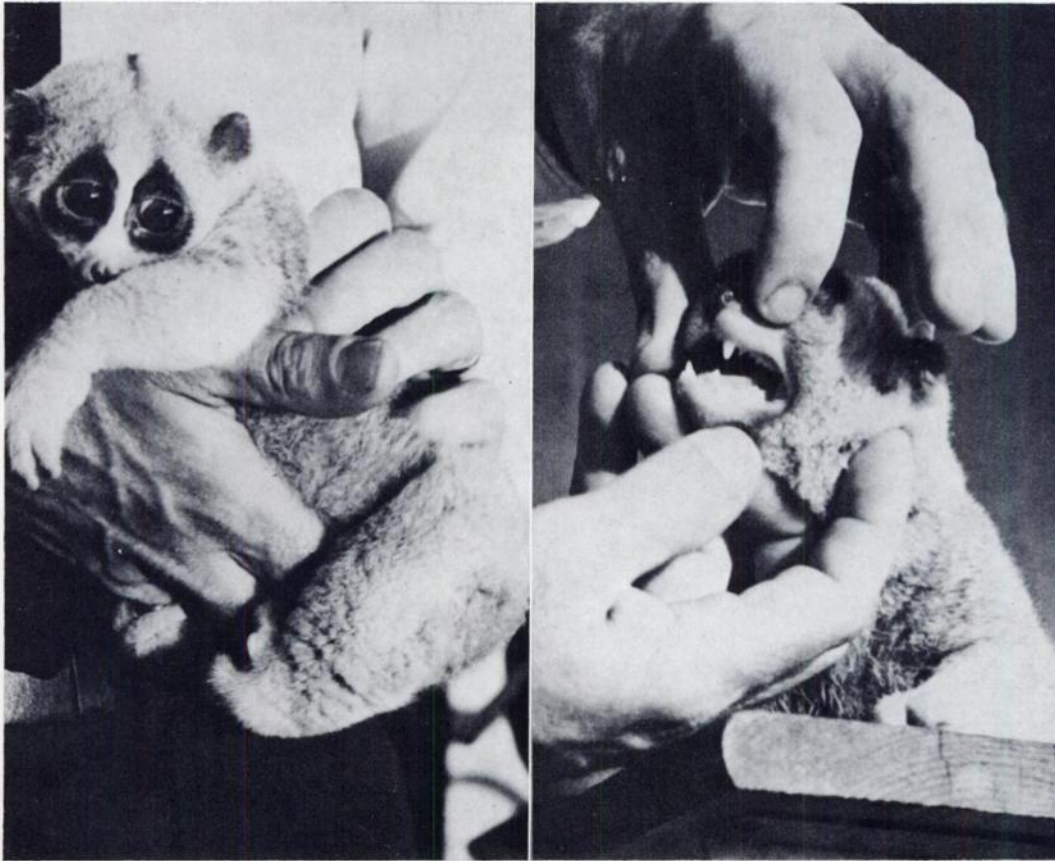


FIGURE 1. Slow loris, *Nycticebus coucang*. Figure 1B (right) shows pointed premaxillary teeth.

and was only moderately painful, but the animal hung on for several seconds. About 4 to 5 minutes after the bite, the patient noted a burning pain of his hands and feet. Shortly after this he started to feel weak and apprehensive, and developed a severe bilateral, pulsating backache which he stated was comparable to the renal colic he had previously experienced. He then became clammy and hypotensive, and developed a faint, rapid and thready pulse along with cyanosis of all his extremities. The bite site was packed in ice and he was taken to the U. S. Army Hospital.

On admission, about 20 to 30 minutes after the bite, he was conscious, oriented, but clammy, with cold and cyanotic extremities. His blood pressure was 60/0 and his pulse was 140 per minute. There was no bronchospasm, and no petechiae or urticaria were noted. The patient was shivering, and complained of severe bilateral back pain and of feeling very cold. The bite was about 1 cm long,

located on the radial side of the right wrist; it appeared slightly macerated but was not bleeding. The remaining physical examination was unremarkable.

The patient was given 1 cc of a 1:1,000 solution of epinephrine im and 50 mg of diphenhydramine. An intravenous infusion of isotonic saline solution was started and he was warmed with blankets. His discomfort was sufficiently severe to require three injections of 75 mg of meperidine during the next 8 hours. His blood pressure slowly returned to a normal 130/85 within 1 hour after admission.

Initial laboratory studies revealed a normal hemogram, a normal platelet count, and a non-centrifuged urine specimen that was loaded with red blood cells. A Rumpke-Leed test remained negative. A repeat urine examination 8 hours after admission revealed many red cells and red cell casts. Urine cultures, prothrombin time,

BUN, serum calcium and phosphorus, repeat hemogram and platelet count were all normal.

The patient improved gradually throughout the subsequent 8 hours of hospitalization and was discharged, still somewhat weak but free of pain. Moderate microhematuria with red cell casts could still be found 1 week after the loris bite. All abnormal urinary findings had disappeared by the end of the 2nd week and the patient has remained well during the following 6 months. He has continued to keep a collection of two lorises but they have so far refrained from biting him again. He has developed no other allergic manifestations.

It is interesting to note that about 12 hours before the incident reported here the same loris had bitten a friend of the patient deeply in his shoulder, likewise hanging on for several seconds.

DISCUSSION

It has been stated by several loris fanciers known to the author that the bite of *Nycticebus* may be poisonous and that people have been known to die of it in northern Thailand. This rumor was discussed with Mr. Harold M. Young, Director of the Chiang Mai Zoo (P. O. Box 24, Chiang Mai, Thailand), who is a widely respected authority on animals of this area. He comments on his experience with loris bites in this personal communication:

"Regarding the bite of the slow loris, I have noted that the reaction to the bite is different among different people. At one time I was in Burma among the hill people there and the general belief of the tribes was that the loris was the only animal in that region that had venomous saliva. It may be that there is an allergic reaction to this particular kind of bite. In the majority of cases that I have seen, the bite causes intense pain. Near the border of China a very healthy and well-built man was bitten on the forefinger by a loris. The pain was so intense that he decided to come to our station for medical treatment but collapsed about 2 miles outside his village. This is the only fatal case I know of, but some of those we have treated have been most severe, with excruciating pain. The general belief among the people is that the loris ranks with some of the semipoisonous snakes, but the reaction to the bite is worse when the animal has gone some time without food. I will be very much interested to know what medical tests will

prove, because I have always handled these little animals with care. I have taken for granted that because they move so slowly Nature has endowed them with a special form of defensive venom for protection. Those newly captured in the wild are most pugnacious and combative. They look harmless and alluring and a person is tempted to stroke one but the natives say: Beware!"

Our case presented clinically as a typical anaphylactic reaction, presumably due to salivary content injected into the patient by a prolonged bite. The clinical manifestations noted were burning of hands and feet, hypotension, and severe bilateral costo-vertebral angle pain. Hematuria with red cell casts was noted and persisted for some 10 days after a subjective recovery. The hematuria was thought to have been due to increased reno-vascular endothelial permeability as the result of a suspected antigen-antibody reaction and not due to any defects in blood clotting. It would, of course, have been interesting to have been able to obtain a renal biopsy specimen for immunomicroscopy. The patient recovered without complications and without the use of steroids. The rapid onset of symptoms (less than 5 minutes), the clinical picture which was characteristic of anaphylaxis, and the lack of any systemic symptoms in a second individual bitten by the same animal are presented as strong arguments against a poisonous mechanism as the cause. Our patient, who has been a loris owner for 2½ years, has had ample opportunity to be sensitized to *Nycticebus* saliva. It is suggested that the "cuddly" nature of the loris entices frequent handling and results in a greater tendency of owners to be sensitized to saliva by minor scratches and nibbles. The particularly clinging and masticating biting habit of *Nycticebus* would make it capable of injecting sufficient saliva to cause an anaphylactic reaction in an occasional previously sensitized individual. Such reactions may have been incorporated into northern Thai folklore in which the *Linglom* is labeled a venomous animal.

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