

## CASE REPORT

Vernon O. McCarty,<sup>1</sup> B.S.; Richard A. Cox,<sup>2</sup> M.D., Ph.D.;  
and Bill Haglund,<sup>3</sup> B.S.

### Death Caused by a Constricting Snake— An Infant Death

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**ABSTRACT:** A 21-month-old male was found dead in his crib. An escaped pet python snake (*Python reticulatus*) was found near the child on a cribside shelf. Autopsy findings included petechiae associated with asphyxial death plus puncture wounds consistent with the reptile's teeth. This report details this 1982 death of a child in Reno, Nevada, and includes illustration of the reptile's bite marks plus description of snake jaw mechanics in swallowing.

**KEYWORDS:** pathology and biology, snakes, asphyxia, bite marks, snake bites, teeth marks, python snakes

Authenticated reports of human death caused by nonvenomous snakes are rare. The "giant" constricting snakes of the family Boidae (including the subfamilies Boinae and Pythoninae) rarely attack man with the intention of satisfying their appetite; although, five species, the African rock python (*Python sebae*), Indonesian reticulated python (*P. reticulatus*), Indian python (*P. molurus*), the South American anaconda (*Eunectes murinus*), and the Australian amethystine python (*P. amethystinus*) have sometimes been implicated in death [1-4].

Outside their native habitats these reptiles are maintained for exhibition, breeding, and as pets. At this writing, the authors have confirmed four deaths caused by large constricting snakes in the United States since 1978 (Table 1).<sup>4,5,6</sup> In addition, one authenticated death of a fourteen-year-old boy caused by a reticulated python (*P. reticulatus*) was reported from the Indonesian island of Salebabu in 1927 and a 1979 incident occurred in South Africa involving an African Python (*P. sebae*) killing a youth of thirteen [4].

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<sup>1</sup>Washoe County Coroner, Reno, NV.

<sup>2</sup>Pathologist, Wenatchee Valley Clinic, Wenatchee, WA.

<sup>3</sup>Chief investigator, King County Office of the Medical Examiner, Seattle, WA.

<sup>4</sup>D. S. Boone, County Coroner, Florence, KY, personal communication, 1987.

<sup>5</sup>G. Gantner, Chief medical examiner, City and County of St. Louis, MO, personal communication, 1987.

<sup>6</sup>V. J. M. DiMaio and C. Green, Southwestern Institute of Forensic Sciences, Dallas, TX, personal communication.

TABLE 1—Confirmed asphyxial human deaths caused by large constricting snakes in the United States since 1978.<sup>a</sup>

| Year/State       | Species               | Size, m | Victim's Age | Cause of Death                        |
|------------------|-----------------------|---------|--------------|---------------------------------------|
| 1978<br>Kentucky | <i>P. reticulatus</i> | 3.8     | 33 yrs.      | asphyxia caused by neck constriction  |
| 1980<br>Texas    | <i>P. reticulatus</i> | 2.3     | 5 mo.        | traumatic asphyxia                    |
| 1982<br>Nevada   | <i>P. reticulatus</i> | 2.4     | 21 mo.       | asphyxia caused by constriction       |
| 1983<br>Missouri | <i>p. molarus</i>     | 3.8     | 42 yrs       | asphyxia caused by chest constriction |

<sup>a</sup>Circumstances of four U.S. cases:

1978—Keeper, cleaning snake's cage with the reptile draped over his shoulder, found with snake around neck.

1980—Sleeping child killed by escaped pet snake.

1982—Sleeping child killed by escaped pet snake.

1983—Victim sleeping in residence where snake was allowed to roam freely.

### Case History

The father of a 21-month-old male child reported that he had awakened in the early morning hours and first entered the kitchen of his residence where he observed disruption of articles upon the kitchen counter. Further inspection led to a glass aquarium on the floor where an 8-ft (2.4-m) pet python (*P. reticulatus*) was normally kept. The wooden top of the aquarium was ajar and the snake was absent. The father ran to the child's bedroom where he found the child unresponsive, lying prone in bed and cool to the touch. The child was clad in a diaper and a long-sleeved shirt. The snake was resting on a crib-side bookshelf approximately 4 ft (1.2 m) from the bed.

The reptile had been in the household for approximately three weeks before this incident, having been moved into the home by its owner who resided in the basement of the residence. The snake had been a pet for three prior years and was normally fed rats or mice at intervals of twice per month. No feeding had occurred for the prior seventeen days.

### Medical History

The child was born with a congenital heart defect for which he underwent surgery shortly after birth. Recovery was uneventful. The infant had routine follow-up examinations by a local pediatrician who was aware of a residual atrio-septal defect and dilatation of the aorta.

The child was a well-nourished, well-developed, male weighing 10 kg and measuring 86 cm long at the time of death. Head circumference was 49 cm and chest circumference measured 48 cm.

### Autopsy Findings

Snakeskin particles identical to those of the python were removed from the chest area of the child's shirt. Multiple petechial hemorrhages were observed beginning most prominently on the left side of the neck and extending upward to involve the left facial region, scalp, and posterior head. Petechiae were also noted on the conjunctival surfaces of the eyes and the oral mucosa. No scleral petechiae were found.

Over the chin, nose, and mouth region extending to the right face were multiple puncture wounds varying from 1 to 2 mm in diameter. Individually these punctures were accompanied

by surrounding ecchymosis and fresh hemorrhage. The puncture wounds were arranged in linear and semi-parallel fashion with groups of approximately six punctures in each row (Figs. 1 and 2). Approximately 4 mm of unbroken skin separated each individual puncture site. Underlying fascia was punctured only to a depth of approximately 3 mm.

Palpable on the lateral right forehead and superior to the right ear was a raised area of ecchymosis without disruption of the external skin. Superficial hemorrhage within the galea



FIG. 1—Right face of child showing multiple puncture wounds.



FIG. 2—Inferior view of child's neck and face showing parallel nature of puncture wounds.

beneath the raised ecchymosis was noted upon reflection of the scalp. No skull fracture was present. A superficial recent cerebral contusion 1 cm in diameter was seen on the right frontal lobe of the brain. No other significant lesions were identified.

### Snake Jaw Mechanics and Swallowing

Snake jaw mechanics involve a complex constellation of movement. Dentition of the family Boidae consists of two parallel rows of numerous, recurved, homodont teeth on each side in the upper jaw and a single row in the lower jaw (Figs. 3 and 4). These teeth are rootless and are shed periodically. Except for bones of the cranial portion immediately surrounding the brain and brain stem, the remaining bones of the skull exhibit loose linkages between each other and are capable of astounding degrees of kinesis [5,6].

Upon opening its mouth to strike prey, the dentition-bearing elements of the upper jaw are pushed forward, the maxillae drawn apart, and the premaxilla superior and forward. The lower jaw unhinges completely from upper skull elements. When biting down on the prey a partial reverse movement occurs, drawing the bones closer together and rearward. Once prey is secured by biting, constricting snakes then throw coils about the prey and constrict until the prey ceases to move. Such constriction does not fracture bones. The snake then maneuvers its jaws to a point advantageous to swallowing. On a small mammal it usually moves its jaws over the nose and swallows the animal head first.

Snake-swallowing action consists of one side of the jaw remaining engaged while the opposite side is disengaged, moving forward and reengaged. This operation is repeated, alternating from side to side, until the prey is swallowed. Uncoupling of the lower jaws, the tremendous mobility of skull elements, and elasticity of the reptile's skin allows prey much larger than the snake's normal diameter to be swallowed. Accounts of bone-crushing force while constricting appear to be exaggerations.

### Conclusions

The immediate cause of this child's death was listed as asphyxia caused by constriction. The multiple puncture wounds are consistent in size, spacing, and with the dental arcade of



FIG. 3—Lateral view of snake skull (minus quadrate bone) showing numerous recurved teeth for securing prey (*P. reticulatus*).

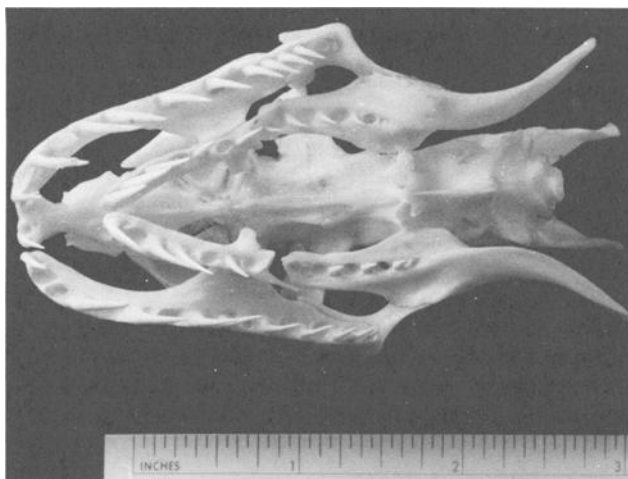


FIG. 4—*Inferior view of upper dentition showing parallel rows of teeth (P. reticulatus).*

the reptile. The bites are considered indicative of the habit of constricting snakes to secure their prey by biting while subsequently constricting the prey by wrapping it in coils. The frequency at which large constricting snakes are involved in human deaths is rare.

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Address requests for reprints or additional information to  
 Vernon O. McCarty  
 Washoe County Coroner  
 P.O. Box 11130  
 Reno, NV 89520