

Spinal Fracture in a Foxsnake: Case Report

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Summary

A foxsnake was presented to the ISU Small Animal Clinic with a spinal fracture. The fracture was immobilized using a tubular splint. Healing was complete at 12 weeks, and except for slight neurological deficits the snake recovered completely.

History and Physical Examination

On October 24, 1978, an adult 3-foot long female foxsnake (*Elaphe vulpina vulpina*) was presented to the Iowa State Small Animal Clinic for examination. The snake had been found in the early evening lying on the road after being run over by an automobile. It was alive but immobile. The air temperature was 48°F.

Examination revealed several fresh lacerations and abrasions on the forebody of the snake. A spinal discontinuity was palpable about 8 inches caudal to the head, and the body beyond that point was flaccid. Cloacal tone was normal, but the withdrawal and righting reflexes were both absent in the caudal portion of the body. There was no detectable central recognition of pain. In addition to the neurological deficits the snake was dyspneic with periodic open-mouthed breathing and appeared depressed (no activity or tongue-flicking at room temperature).

Radiographs were taken and revealed a spinal fracture/dislocation 8 inches caudal to the head (figure 1). In addition there were several fractured ribs. Displacement at the spinal fracture site was severe. It was noted that the area of the spinal and rib fractures was in the vicinity of the base of the heart and cranial lung field.

A diagnosis of traumatic spinal fracture with possible severance of the spinal cord was

made. In addition there was possible pulmonary damage due to thoracic trauma.

Therapy

Treatment was begun with Dexamethasone (.2 mg IM) and lactated Ringers solution (10.0 cc intracoelomic). Ampicillin was given initially (5.0 mg IM) and repeated once daily for five days (dosages from *Current Veterinary Therapy VI*²).

The fracture site was both reduced and immobilized using a tubular splint made from a 35 cc syringe case and the technique described by a previous author.³ Anesthesia was not used due to the depression and compromised respiration of the patient. Post-fixation radiographs showed only fair alignment at the fracture site (figure 2) but in order to avoid further trauma to the spinal cord the splint was left in place.

The patient was housed in a cage with a temperature of 80°F and water always available. Throughout its stay at the hospital the snake refused food, so it was tube-fed once weekly with a prepared formula with calcium-phosphorus powder added.¹ The cloacal



Figure 1

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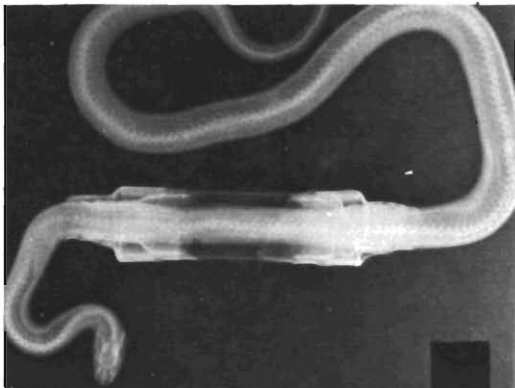


Figure 2

contents were manually expressed once weekly also. Periodic radiographs were made to assess healing.

Six weeks post-injury the snake underwent ecdysis, sloughing the skin cranial to the splint. Anesthesia was induced using Ketamine (5.0 mg IM) and the splint removed. The shedding was completed by hand after soaking the snake, and the splint reapplied.

Results

There was a gradual return of neurological function to the caudal portion of the body. At 2 days post-injury the righting reflex was present and at 3 days the withdrawal reflex returned. Recognition of pain returned gradually in the first week.

The open-mouthed breathing ceased in early November (1 week post-injury) and the snake became more alert, taking an interest in his surroundings. Locomotion was severely limited by the weight of the splint, by the lack of objects in the cage on which to gain a purchase for the body, and by the lack of coordination in the muscles caudal to the splint. Digestion seemed unaffected.

Radiographs at 5 weeks post-injury revealed callous formation with good alignment at the fracture site. However, there was still a lucent area present indicating a lack of bony union. At 7 weeks post-injury the snake defecated for the first time. Radiographs at this time showed no change in the fracture, and it was suspected that insufficient immobilization may have led to a fibrous union. The splint was left in place. At 10 weeks post-injury radiographs were again taken. Further periosteal reaction had occurred involving the six vertebrae cranial to

the fracture site. A large callous bridged the fracture site and also fused several vertebrae cranially creating a kyphosis and scoliosis (figure 3). At this time the splint was removed.

In late January (3 months post-injury) the snake began eating voluntarily, taking small mice. Although the snake is unable to constrict prey in a normal manner there has been no problem with the passage of food past the spinal deformity. The caudal portion of the body has normal muscle tone and reflexes but lacks total coordination so that the locomotion consists mainly of pulling by the first 8 inches of the snake. At this time (7 months post-injury) the snake is growing and doing well.

References

1. Bush, M. Reptilian medicine. American Association of Zoo Veterinarians, *Annual Proceedings*, 1974, pp. 68-78.
2. Kirk, R. W. (ed.), *Current Veterinary Therapy VI, Small Animal Practice*, W. B. Saunders Co., Philadelphia, PA, 1977.
3. Peavy, G. M. A non-surgical technique for stabilization of multiple spinal fractures in a gopher snake. *VM/SAC*, 1972, 72:6 pp. 1055-1059.



Figure 3