Spinal osteopathy in a boa constrictor

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A Colombian boa constrictor (*Boa constrictor constrictor)* was presented with hard swellings palpable at intervals along its spine. The owner had rescued the snake from a previous keeper and did not know its age. He had kept the boa for five months. It was three feet long (91 cm), husbandry was satisfactory and the snake ate regularly. The owner reported that since he had obtained the snake, it tended to drag its tail and did not grip firmly with the caudal half of its body. The snake was able to move about its vivarium and climb.

On examination the boa was found to be thin (body score 2/5) with loss of dorsal musculature, accentuating the spinal processes. Several firm swellings were palpable at fairly regular intervals along the spine. The tail and caudal section of the body seemed a little weak. The snake was mobile, but was not very flexible over its caudal half. Its ability to grip with the lower part of its body and tail was also impaired. It showed no signs of discomfort when the swellings were palpated.

DIAGNOSIS

Differentials for the swellings were:

- neoplasia
- granulomas
- abscesses
- sequelae to traumatic events
- spinal osteopathy.

Fig. 1: *Extensive ankylosis and spondylosis in the spine of the boa constrictor.*

The snake was admitted for radiography (Figs. 1-3). Areas of ankylosis and spondylosis-like lesions were seen in the spine. The lesions were extensive and severe, extending from the level of the lungs to the distal third of the body. Most of the spine through this area was ankylosed. A diagnosis of spinal osteopathy was made. Further investigation and subsequent treatment, together with prognosis, were discussed with the owner. For reasons of cost, combined with an unfavourable prognosis, the owner decided against any further action, preferring to keep the snake until the condition became debilitating. At a follow-up six months later the snake was still feeding and mobile.

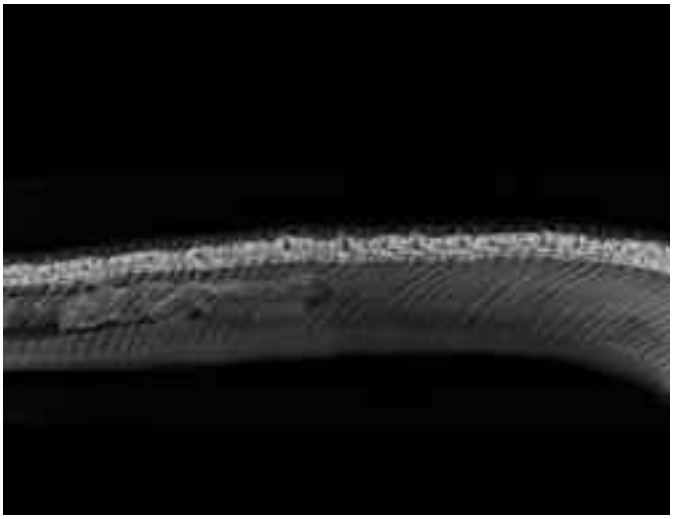

Fig. 2: *Detail of the spinal changes.*

Fig. 3: *A normal corn snake skeleton for comparison.*

DISCUSSION

Spinal osteopathy has been described in a variety of reptiles (lizards, turtles and snakes). Snakes appear to be particularly prone to the disorder, which is characterised by proliferative spondylosis lesions affecting sections of spine.

Aetiology

Various aetiologies have been suggested for the osteopathy, including:

- trauma
- nutritional disturbances
- inactivity due to exercise restriction
- neoplasia
- local infection or septicaemia.

Currently the focus of attention is on bacterial causes, driven by the fact that the lesions have often been found to culture positively for bacteria, including *Salmonella*. There is believed to be an immune-mediated response to the bacterial infection which gives rise to the proliferative changes seen. The difficulty is that successful culture may involve submission of bone biopsies or joint swabs, not always easy or practical in general practice. Another problem is that the bony lesions may not develop for some 24-36 months following the initial infectious episode, and many affected animals will show no detectable evidence of bacterial involvement.

There is often a correlation between septicaemia and local bacterial infection, so it would be appropriate to submit blood for culture.

Clinical signs

The clinical signs seen with spinal osteopathy will vary from palpable swellings with no noticeable effect on motility, through reduced strength and

CASE HISTORY - An early case of spinal osteopathy

A 15-year-old Solomon Islands boa (*Candoia paulsoni paulsoni*), resident in a small commercial collection, had a history of anorexia of a year's duration. It had been attended by the visiting veterinary surgeon, and had been force-fed by the staff. Recently the snake had developed a clicking sound from its tail region.

On examination the snake was in good condition (body score 3/5) and fully mobile (Fig. 4). As described, there was an occasional loud click audible as the snake moved its tail. Radiographs of the snake were obtained (Figs. 5 and 6), and two small areas of change were noted in the spine: one area was at the level of the cloaca and the second was 4 cm distal to this. Each area involved 3-4 vertebrae. There was proliferation of bone combined with bone lysis, and disruption of the line of the vertebral column.

A presumptive diagnosis of early spinal osteopathy was made. Further investigation of this case may take place.

Fig. 4: *A Solomon Islands boa.*

Fig. 5: *Skeleton of a Solomon Islands boa.*

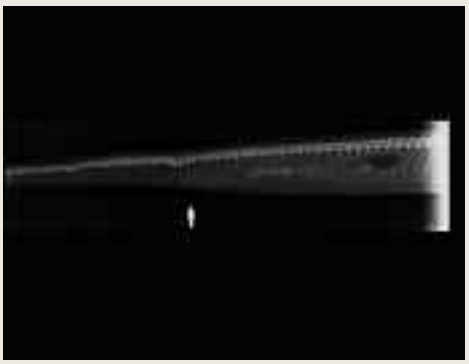

Fig. 6: *Detail of the Solomon Islands boa showing two early areas of spine pathology. (The marker indicates the level of the cloaca.)*

mobility of the body at the site of and caudal to affected spinal segments. The commonest history given by keepers is that part of the snake's body is stiff or not moving. The condition is usually progressive and affected snakes will become less mobile until they become unable to move sections of their bodies, to constrict or to strike. They may develop odd postures and have difficulty righting themselves if placed in dorsal recumbency.

Treatment

Treatment is often unrewarding. To have any chance of success the condition and its cause must be identified early and then treated aggressively. If nutritional deficiencies or problems with insufficient exercise are identified, these can be managed. If a bacterial involvement is confirmed or suspected, intensive treatment with an appropriate antibiotic indicated by culture and sensitivity should be employed. This may involve local debridement of lesions and local delivery of drugs, followed by intramuscular therapy. To date treatment with non-steroidal anti-inflammatory drugs has not produced detectable improvements.

Results of treatment have not been encouraging, so owners may not be keen to pursue intensive and expensive courses of therapy.

Because of the possible bacterial involvement, affected animals should be isolated from unaffected individuals to reduce the chances of further cases occurring.

Quality of life

Assessment of pain and consequently quality of life can be difficult in reptile patients. At the least, affected individuals should be seen to be feeding regularly and displaying a willingness to move and explore their environment. Where an individual is anorexic or tends to spend all of its time hidden away and immobile, then euthanasia should be advised.

FURTHER READING

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