

TECHNIQUES

SURGICAL EXCISION OF A PERICLOACAL MASS FROM A KING SNAKE (*LAMPROPELTIS MEXICANA*)

Subject and History

The subject was an adult female king snake, *Lampropeltis mexicana*, that had been in captivity for four years. The animal was collected 21 June 1975 in Nuevo Leon, Mexico, and has been maintained in a group cage (60 x 60 x 50 cm) with another female and a male since August 1976. The cage provided photic and thermal regimens which were varied seasonally; summer maximum was 16:8 L:D, $28 \pm 4^\circ$ C, and winter minimum (artificial hibernation) was 2:22 L:D, and $12 \pm 2^\circ$ C. Lighting was with Vita-Lite fluorescent tubes (Duro-Test Corporation, Secaucus, N. J.). Water was available *ad libitum*. Each snake was offered 10 or more live juvenile mice per week during summer activity period; the snakes were not offered food during hibernation. Under this environmental regimen the subject mated and produced fertile clutches in 1977, 1978 and 1979.

When collected, the king snake had a 2 mm diameter palpable subcutaneous nodule lateral to the cloaca on the right side. The nodule regressed during 1976 but enlarged anteriorly after each yearly oviposition to approximately 3 cm long and 0.5 cm wide (Fig. 1). Prior to hibernation in November 1979, feeding and defecation were abnormal, and general activity was reduced. Surgery was performed during hibernation because the subject could be expected to heal before the spring reproductive period.

Surgery and Postoperative Care

The snake was anesthetized with Brevitol Sodium (1.5 mg/kg BW) (Wang, Kubie, and Halpern 1977) injected intraperitoneally. The skin was prepared with 70% ethanol and an incision approximately 2 cm long was made between the first and second scale rows dorsal to the ventral scutes. The incision was begun 1.5 cm anterior to the cloaca and continued posteriorly. Care was taken to cut between and not through individual scales. The skin was gently teased away from the underlying muscle and ribs. This exposed two ovoid masses approximately 1.25 x 0.5 cm and 1.0 x 0.5 cm, and several smaller ellipsoid masses grading to less than .1 cm long. These masses were soft to palpation and were covered with an elastic envelope. They were poorly vascularized and contained a pale yellowish, slightly granular material. All but one mass was easily removed by simply teasing away the surrounding tissue with curved serrated forceps. The last mass was posterior and lateral to the cloaca and was connected to a highly elastic conical portion of tissue whose tip was attached deeply posterior to the cloaca. The mass and tissue were excised by cutting the conical tissue as close as possible to its tip. The entire procedure resulted in minimal hemorrhage. The exci-

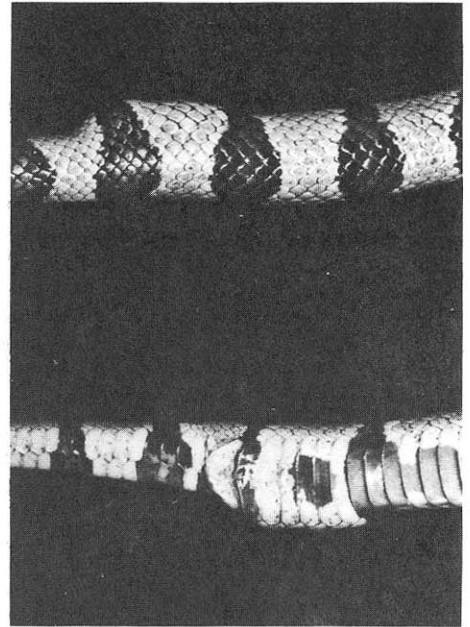


Fig. 1. Appearance of the nodule prior to surgery, dorsal (L) and ventral (R) aspects.

sion site was subsequently irrigated several times with sterile reptilian Ringer's saline. Finally, the incision was closed using 6-0 Prolene polypropylene suture (Ethicon, Somerville, N. J.) in a simple interrupted pattern between each scale. Past experiences with surgery on snakes have shown that cutting and suturing between scales facilitates healing, alleviates problems with ecdysis, and reduces cosmetic damage. No antibiotic therapy was given.

The subject was placed in an isolation cage which provided a 12:12 L:D photic cycle and a temperature of $18^\circ\text{C} (\pm 2^\circ\text{C})$. Recovery from anesthesia was slow, requiring approximately 48 hours. The wound drained serous fluid for 24 hours and was edematous for 72 hours. Healing appeared complete after one week, at which time the subject was returned to hibernation in the group cage. The photic cycle was changed to 10:14 L:D on 21 March 1980 and the subject became active within a few days. The first observed feeding was 4 April. Copulation was observed 7 and 21 May. The sutures were shed with the skin on 8 June (Fig. 2). Oviposition of 11 eggs was on 16 June.

Histology

The masses (Fig. 3) were placed in neutral buffered 10% formalin while the conical portion of tissue was placed in Bouin's fixative. The tissues were embedded in paraffin, sectioned at $7 \mu\text{m}$ and stained with hematoxylin and eosin. Histologic examination of tissue sections revealed that the masses were composed of cystic structures with an epithelial lining. The lumens contained eosinophilic cellular debris with cholesterol clefts and occasional bacterial colonies. Examination of sections of the conical tissue revealed it to be a folded structure containing a lumen lined by a thick stratified squamous epithelium. The epithelium of the gland was multifocally infiltrated with heterophils and the

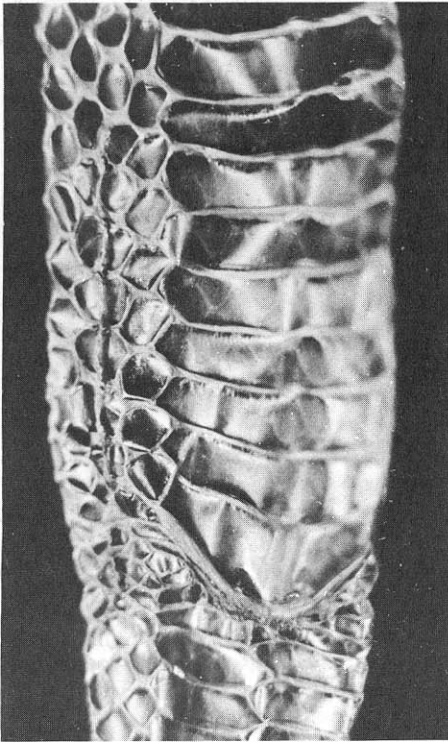


Fig. 2. Sutures present in the shed skin.

either a lowered resistance to the chronic infection during pregnancy, or pregnancy-related activity of the gland.

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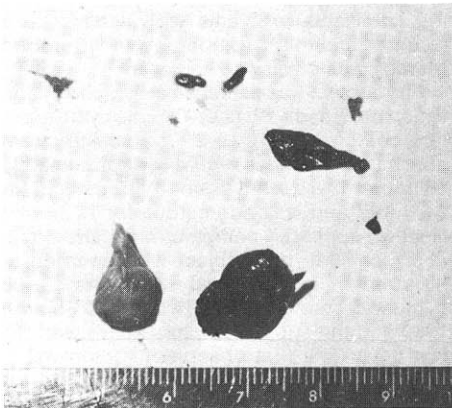


Fig. 3. Masses removed in the surgical procedure.

lumen contained cellular debris and numerous bacteria. The surrounding subcutaneous tissues contained occasional foci of mixed inflammatory cells. Histologically the folded conical structure was consistent with being a cloacal gland. The pathologic changes probably resulted from a bacterial infection or injury of the right cloacal gland. The lumen of the gland was occluded and had apparently ruptured and healed with the lumen opening into the subcutaneous space. Glandular products and debris of the infection then formed the masses. The relation of the symptoms to reproductive periods may have resulted from