

FELINE PRACTICE — ORTHOPEDICS

An 11-year-old, 5-kg, neutered female Domestic Shorthair cat presented with a zygomatic mass which had dramatically stretched the left lateral canthus. Radiography confirmed a single, dense mass that involved the facial zygomatic bone. Histopathological diagnosis following surgical excision provided a diagnosis of osteoma. Rare in dogs and cats, the osteoma was considered to be either a hyperplastic reaction of bony tissue to trauma or a result of ossification of a fibroma. Radiography and excisional biopsy determined the benign nature of this mass.

Zygomatic Osteoma in a Cat

Robert H. Foley, DVM, Diplomate ABVP

Upper Keys Veterinary Clinic
87108 Overseas Highway
Islamorada, Florida 33036

Introduction

Primary bone tumors of the cat are rare; clinical information sources are scarce.¹ One retrospective study of feline neoplasms indicates a 5% incidence of primary bone tumors.² In another study, 7% of all non-hematopoietic feline cancers are primary bone tumors.^{4,5}

In dogs, osteomas are also rare, representing approximately 6% of all primary bone tumors.⁶⁻⁸ Canine osteoma usually affects the skull of either gender. Osteomas are a frequent incidental finding in humans, usually affecting the head and extremities of young men.⁹

Case History

The patient was an 11-year-old, 5-kg, neutered female Domestic Shorthair cat negative for feline immunodeficiency virus (FIV)/feline leukemia virus (FeLV) and healthy except for a 5 x 7 cm zygomatic mass which had grown over an 8-week time period and dramatically stretched the left lateral canthus. The deformity would not allow eyelid closure (Fig. 1). The mass was hard and the surface irregular to the touch. It was non-tender, although the cat was hand shy and obviously could not blink. Compara-

tively, preoperative and postoperative appearances of the patient were quite different (Fig. 2).

Radiography confirmed a single, dense mass that involved the facial zygomatic bone (Figs. 3A & 3B). Because the mass appeared non-invasive with no Codman's triangle or bone lysis, a chest radiograph was not performed.

Surgical excision of the mass was accomplished via a 4-cm incision extending from the left lateral canthus that followed the zygomatic arch. Blunt subcutaneous dissection and sharp subperiosteal dissection exposed the hard, dense mass. The periosteal connective tissue was vascular, but the lateral approach encountered no vital nerves or blood vessels. The tumor attachment to the zygomatic process of the facial bone was separated using a 7-mm osteotome and gentle malleting. The mass joined the normal bone with a distinct "indented pushing" margin which provided an excisional landmark. The tumor lifted out with minimal bleeding and adhesions. Remnants of the mass were rongeuared away. A two-layer closure of subcutaneous 3-0 catgut and 2-0 nylon in the skin layer completed the surgery.

The excised bony mass measured 4 x 5 x 3 cm (Fig 4). Histopathological diagnosis was osteoma (Dr. M.T. Batt, New York State College of Veterinary

Continued

Surgery

The objectives of thyroidectomy in the cat are to maintain meticulous hemostasis, preserve at least one parathyroid gland, and remove all abnormal thyroid tissue.

The cat is placed in dorsal recumbency with the forelimbs pulled caudally and the neck slightly hyperextended. A ventral midline skin incision is made from the larynx to the manubrium. The sternohyoideus and sternothyroideus muscles are bluntly separated on the midline and retracted using Gelpi retractors. The thyroid lobes and external parathyroid glands are identified.

The thyroid tumors are removed by either an intracapsular or extracapsular dissection technique.⁵ The intracapsular technique is described here. Preservation of the thyroid capsule ensures preservation of the extracapsular parathyroid gland, which is especially important during bilateral thyroidectomy. Meticulous hemostasis is critical to maintain good visualization of the surgical field. Bipolar cautery allows pinpoint coagulation of minute vessel. The caudal thyroid vein of one abnormal lobe is ligated and transected. A nick incision is then made in an avascular area of the thyroid capsule of the caudal aspect of the gland. This incision is extended cranially with scissors until the entire capsule is opened. The thyroid parenchyma is bluntly removed from its capsule using sterile Q-tips (Johnson & Johnson Medical, Inc., Arlington, Tex.), leaving the thyroid capsule and an external parathyroid gland intact. The cranial thyroid vessels should not be disturbed since transient or permanent ischemia of the parathyroid gland can occur, causing postoperative hypocalcemia. The thyroid tissue may fragment as it is separated from the capsule. If this occurs, all the pieces of thyroid tissue should be removed, even if portions of capsule are removed with them. The resected tissue is submitted for histopathologic evaluation.

Postoperative Care

Postoperatively, the cats are closely monitored for evidence of hemorrhage from the surgical site. Occasionally, even when hemostasis was complete at the time of surgery, postoperative bleeding will occur but is usually manageable with direct pressure. Serum calcium levels are monitored for at least 2 days postoperatively. If hypocalcemia develops due to removal or damage to the parathyroid glands, the cat is treated according to the

protocol in Table 1.⁶ Early signs of hypocalcemia are muscle soreness or spasm, anorexia, and depression. Later signs are collapse and tetany. Hypocalcemic tetany following intracapsular thyroidectomy is rare. A technique of staged bilateral intracapsular thyroidectomy (i.e., removing one lobe at a time, 3-4 weeks apart) was compared to simultaneous bilateral intracapsular thyroidectomy and simultaneous bilateral extracapsular thyroidectomy. Incidence of postoperative hypocalcemia was lowest in the staged group and highest in the extracapsular group.⁷ The difference in hypocalcemia between the staged intracapsular and simultaneous bilateral intracapsular thyroidectomy groups was not believed to be significant. More recent studies from the Animal Medical Center found no difference in incidence of postoperative hypocalcemia between the intracapsular and extracapsular technique.⁸ Significantly more cats developed recurrence of hyperthyroidism after intracapsular dissection than with extracapsular dissection.

Thyroid replacement therapy (L-thyroxine, .1 mg per os s.i.d.) may be indicated for cats that have had bilateral thyroidectomy. The serum T₄ level should be periodically evaluated while on replacement therapy.

The prognosis for hyperthyroid cats after thyroidectomy is good. Histopathology of the thyroid tissue usually reveals adenomatous hyperplasia. Relapse of hyperthyroidism occurs rarely (10% incidence) 1-2 years postoperatively due to regrowth of the adenoma. ■

REFERENCES

1. Evans HE, Christensen GC: *Miller's Anatomy of the Dog, The Endocrine System*, Philadelphia, WB Saunders Co, 1979, pp 611-618.
2. Nicholas JS, Swingle WW: An Experimental and Morphological Study of the Parathyroid Glands of the Cat. *Am J Anat* 34:469-508, 1925.
3. Turrell JM, Feldman EC, Nelson RW, et al: Thyroid Carcinoma Causing Hyperthyroidism in Cats: 14 Cases (1981-1986).
4. Peterson ME: Feline Hyperthyroidism. *Vet Clin North Am* 14:809-826, 1984.
5. Birchard SJ, Peterson ME, Jacobson A: Surgical Treatment of Feline Hyperthyroidism: Results of 85 Cases. *JAAHA* 20:705-709, 1984.
6. Peterson ME: Treatment of Canine and Feline Hypothyroidism. *JAVMA* 181:1434-1436, 1982.
7. Flanders JA, Harvey HJ, Erb HN: Feline Thyroidectomy, a Comparison of Postoperative Hypocalcemia Associated With Three Different Surgical Techniques. *Vet Surg* 16:362-366, 1987.
8. Welches CD, Scavelli TD, Matthiesen DT, Peterson ME: Occurrence of Problems After Three Techniques of Bilateral Thyroidectomy in Cats. *Vet Surg* 18:392-396, 1989.

REPRINTS of this article may be obtained from the author **ONLY IF** a self-addressed return envelope is enclosed.

