History

A 2-year-old castrated male Newfoundland with a 4-month history of lingual masses was examined. On physical examination, 2 masses were identified at the base of the tongue. The larger mass was located in the caudal portion of the left side of the tongue, midway between the median sulcus and the margin. It measured 10 X 5 cm and was ulcerated. The smaller mass was located at the margin of the right side of the tongue, near the tongue's base. It measured approximately 5 cm in diameter. Both masses were firm, and their margins were well circumscribed on palpation. The owner reported that blood had been observed in the saliva only once. The dog was eating and drinking well at home but seemed to gag more than usual. The dog also had a history of forelimb lameness but was not lame at the time of evaluation. Results of a CBC were unremarkable, and serum biochemical analysis findings included calcium concentration of 2.93 mmol/L (reference interval, 2.02 to 2.91 mmol/L), phosphorus concentration of 1.92 mmol/L (reference interval, 0.84 to 1.83 mmol/L), glucose concentration of 6.6 mmol/L (reference interval, 4.0 to 6.3 mmol/L), cholesterol concentration of 8.42 mmol/L (reference interval, 3.87 to 8.39 mmol/L), and creatinine kinase activity of 276 U/L (reference interval, 44 to 249 U/L). Radiographs of the tongue were obtained (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page
Radiographic Findings and Interpretation

On lateral and lateral oblique radiographic views, 2 irregularly shaped masses are present within the tongue near its base, with the left mass appearing larger than the right. Radiographically, the left mass measures 4.6 X 1.5 cm, whereas the right mass measures 1.7 X 1.3 cm. Each mass consists of multifocal islands of granular-like mineral opacity material. Differential diagnoses include dystrophic or metastatic mineralization, calcinosis circumscripta, granuloma (foreign body or parasites), or neoplasia.

Comments

With the radiographic images used to establish the extent of mineralization, the masses were surgically removed and were submitted for histologic evaluation. Multiple foci of chalky deposits were grossly visible on cut sections of the masses. Histologically, multifocal to coalescing lakes of granular mineral were surrounded by a rim of multinucleated giant cells, epithelioid macrophages, and moderate numbers of plasma cells, neutrophils, and lymphocytes. These lakes were separated by fibrous bands containing spicules and trabeculae of woven bone. The overlying mucosa was mildly hyperplastic. The microscopic findings were consistent with calcinosis circumscripta.

Calcinosis circumscripta is an uncommon syndrome in dogs and is characterized by the deposition of calcium salts in a nodular pattern within the subcutaneous tissues. Calcinosis circumscripta most commonly occurs at sites of previous trauma, pressure points, and bony prominences.1 It has also been reported to occur in the tongue.1,2 Large-breed dogs < 2 years of age are most often affected, with German Shepherd Dogs being predisposed. Lesions are often solitary, but multiple lesions are seen as well.3 Treatment consists of surgical removal of affected tissues and is usually curative. The etiology of calcinosis circumscripta may include such pathophysiologic processes as dystrophic, metastatic, iatrogenic, and idiopathic mineralization. Breed predispositions for dogs is possible; in humans, the disorder can be inherited as an autosomal recessive trait.

In a retrospective case series4 of lingual lesions in 1,196 dogs, calcinosis circumscripta was the most common nonneoplastic, noninflammatory lesion identified, accounting for 4% of the evaluated specimens. Dogs with lingual calcinosis circumscripta were often young, with 82% < 2 years of age. The odds of a large-breed dog being affected were 2.55 times the odds of a small-breed dog being affected with German Shepherd Dogs and Labrador Retrievers significantly more likely to be affected than small-breed dogs. Male dogs were also more commonly affected with lingual calcinosis circumscripta than were female dogs.

In a study5 of 77 dogs with calcinosis circumscripta, the most common lesion locations were the hind limbs (50% of dogs) followed by the tongue (23% of dogs). Fifty-three percent of the affected dogs were male, and 88% were < 4 years of age. Most of the affected dogs were of large breeds, with German Shepherd Dogs being the most commonly affected (27% of dogs). Surgery was curative, and none of the dogs had underlying metabolic diseases.

In conclusion, calcinosis circumscripta is uncommon in dogs but may cause lingual lesions, particularly in young male large-breed dogs, as in the case of the dog of the present report. Although the radiographic presence of a nodular, mineral opacity within the tongue is consistent with calcinosis circumscripta, histologic evaluation of a lesional biopsy specimen is required to ultimately diagnose this condition.