Osteoma in Two Young Dogs

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Osteoma is a frequently observed tumor in the human. It is not common in the dog. This report describes osteoma of the cranium in a 14-month-old Doberman pinscher, and of the distal humerus in an 11-month-old Irish setter. Both tumors were clinically diagnosed and successfully removed surgically. Differentiating the benign bone tumor from the malignant variety obviated amputation or euthanasia.

Introduction

There is a paucity of clinical information and references in the veterinary literature relating to the bone tumor, osteoma. Reports of primary bone tumors in the dog offer limited information pertaining to osteoma\(^7,8\) or no comments at all.\(^3,4\)

One recent survey of 133 selected primary bone tumors in the dog noted only eight osteomas (6%).\(^6\) All eight of the osteomas were confined to the skull and mandible and five (63%) were in dogs three years of age or younger. There was no sex predilection. The study covered a 23-year period.

In man, osteoma of the head and extremities is noted frequently, often as an incidental finding on survey radiographs.\(^1,2\) The tumor requires surgical extirpation when normal function is impeded or pain is present.\(^5\) The greatest frequency is in young adult males.\(^5\)

Case Histories

Case 1 — The patient was a 14-month-old male Doberman pinscher. There was a rapidly growing, smooth, hard mass involving the bones of the left zygomatic arch. Over a period of six weeks, the mass had grown to 5.0 cm by 7.0 cm in size. The dog was exhibiting a deleterious behavioral change. The mass was not sensitive.

Radiography revealed a solitary dense mass involving only the facial and temporal zygomatic bones. It did not appear invasive [Figure 2]. Radiographically the thorax was normal. The tumor was surgically removed and there was no recurrence during a six-month observation period.\(^5\) Histopathologically, the tumor was classified as an osteoma.\(^6\)

Case 2 — The patient was an 11-month-old neutered female Irish setter. She had been lame on her right forelimb for three weeks at the time of initial examination. Although this was the first observed episode of lameness, there was disuse atrophy of the muscles of the...
shoulder girdle, arm, and forearm. A round, hard, bone-like mass could be palpated deep in the antecubital space. The mass was firmly attached to the distal humerus and painful on palpation. There was no visible swelling from the mass in spite of the disuse atrophy of muscles. The elbow and shoulder joints were normal on palpation. Sensory and motor nerve function distal to the mass was normal. There was no history of trauma to the region.

Radiography revealed a solitary 2.0 cm by 3.0 cm dense mass that did not appear invasive [Figure 3]. Thoracic radiographic findings were normal.

Because of the depth and inaccessibility of the tumor mass at the time of biopsy, the decision was made to remove the mass in its entirety. The biceps and brachialis muscles, brachial artery, and musculocutaneous and median nerves covered the medial and anterior aspects and branches of the radial nerve and the brachioradialis muscle covered the lateral and distal aspects of the mass. The mass was subperiosteal and very firm, with a poor blood supply. It created a slight indentation on the surface of the humerus at its junction with the humerus (a “pushing margin”). Extirpation was accomplished without complications. Return of limb function after surgery was slow but complete. There has been no recurrence to date (21 months later). Histopathologically, the tumor contained irregular, dense trabeculae composed of well-differentiated bone and it was classified as an osteoma [Figure 4].

Discussion

Osteoma was once considered to be merely hyperplasia, a local exuberance of bony tissue elicited by trauma, irritation, or infection. Currently, osteoma is believed to be a benign bone-forming growth. Osteoma is primarily formed by intramembranous bone, and therefore, arises most commonly on the inner and outer surfaces of the skull and the mandible. More rarely, it occurs on the appendicular skeleton. It is always covered by periosteum.

The patients in this report are noteworthy because of the scarcity of osteoma case studies and the uncommon location of the tumor in dog 2. Because the patients were young dogs of large-breed types and because the tumors were rapidly growing, osteosarcoma would have been a reasonable consideration. Superficially, the prognosis might appear very dismal which could incite radical unwarranted amputation or euthanasia. Radiographic examination and biopsy determination of the benign nature of these tumors allowed subsequent successful surgical removal, with recovery of normal function and appearance.

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References