Use CO₂ laser to excise trichoblastoma

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For The Education Center

Tumors of the hair follicles include, in decreasing order of frequency, trichoblastomas, trichoepitheliomas, and pilomatrixomas, and account for about 5 percent of all skin tumors in dogs. Classified at one time as basal cell tumors, trichoblastomas arise from the hair germ epithelium but are generally benign and have an excellent prognosis following surgical excision. However, their location sometimes results in ulceration and bleeding.

The location of the mass can make surgical excision difficult or postoperative recovery problematic. Soft tissue cysts and masses between the digits have increased chances of bleeding due to contact with the ground, little available skin to adequately close an incision and self-mutilation. Such bleeding during surgery can obscure the veterinarian’s view and lead to secondary trauma of underlying structures. Pedal vessels and tendons have little covering for protection.

Without adequate closure, the postoperative patient’s wound may need to heal openly and bandaged, with perhaps a splint to prevent the pet from bearing weight and flexing or extending the foot enough to cause dehiscence. Client compliance is a strong factor in such a postoperative management.

A CO₂ laser cauterizes blood vessels up to 0.5 millimeters in diameter as it cuts, allowing excellent visualization of the tissues as the surgery proceeds. The laser’s precise incision and hemostasis control are valuable when care must be taken to watch for and preserve delicate structures such as the underlying pedal vessel network.
vessels and flexor tendons. Invasive masses may be more easily dissected from such structures with the laser. Reduced direct tissue contact and the ability to destroy pathogens decreases infectious contamination. Nerves and lymphatics are sealed, decreasing postoperative pain, swelling and discomfort while allowing the pet a faster recovery time with less tendency to self-mutilate.2

Case

Janny Ann is a 5-year-old spayed golden retriever who was referred from her veterinarian for a presumed mass of the plantar left hind paw (Figure 1). Janny Ann’s owner noticed increasing incidents of intermittent bleeding from the paw, creating a nuisance around the house. Differential diagnosis included an interdigital cyst, a foreign object in the paw or some type of mass.

After unsuccessful attempts to resolve the lesion medically, the case was referred to our clinic for surgical exploration. An exam revealed a firm 2-centimeter cutaneous mass between the plantar metatarsal and digital pads of the left hind paw, which did not palpate as invasive to underlying structures (Figure 2). No open wounds or discomfort were observed on palpation. The decision was made to remove the mass in its entirety for biopsy.

Anesthesia

The patient was premedicated with dexmedetomidine 125 mcg/m² IM and carprofen 4.4 mg/kg SQ. The patient was induced with propofol 3 mg/kg IV, and general anesthesia was maintained with isoflurane via endotracheal tube.

Laser Equipment

A 20-watt Aesculight surgical CO₂ laser was used with a flexible hollow waveguide and a handpiece with a removable 0.25-mm ceramic tip and wide ablation nozzle.

Technique

The patient was positioned in left lateral recumbency with the left hind limb positioned to facilitate access, and the operative site was clipped and prepped.

The laser was utilized to excise the mass in an elliptical incision (Figures 4-A, 4-B and 4-C), with constant tension applied to facilitate incision and monitor underlying structures. A smoke evacuator drew vaporized debris away from the site (Figure 5), while moistened gauze helped to protect peripheral tissues from thermal injury (Figure 7).

The laser offered excellent hemostasis, and complete excision went without complication (Figures 6, 7 and 8) or damage to the underlying vessels (Figure 9). The precision of the laser provided enough skin for adequate closure. A wide ablation nozzle (Figure 10) assisted in ablating uneven skin edges to facilitate complete closure (Figure 11).

Postoperative Care

The patient was administered atipamezole 250 mcg/kg, butorphanol 0.2 mg/kg, and penicillin G procaine 20,000 units/kg IM at surgical recovery. A bandage was applied over the left hind paw and was to be changed within two to three days by her regular veterinarian. An Elizabethan collar was used. The patient was discharged the same day with cephalixin 500 mg PO BID for 10 days and carprofen 12.5 mg PO BID for seven days.

A biopsy found the mass to be a trichoblastoma, with no evidence of vascular or lymphatic invasion. Removal of the mass was complete and was expected to be curative.

REFERENCES


This Education Center article was underwritten by Aesculight of Woodinville, Wash., the manufacturer of the only American-made CO₂ laser.