Removal of canine benign cutaneous growths with a flexible hollow waveguide CO₂ laser

By David Duclos, DVM, DACVD
For the Education Center

Nodular sebaceous gland hyperplasia is a common benign tumor of the skin, usually affecting the face, ears, or eyelids. It is often seen in Miniature Schnauzers, Beagles, Poodles, and Cocker Spaniels. Sebaceous gland hyperplasia can be managed with excision, cryosurgery, or laser ablation. CO₂ laser removal can be performed as an outpatient procedure under local anesthesia, providing good cosmesis and minimal scarring.

Technique
After the tumor surface was initially ablated at the highest power setting (Figure 3B), the surgical site was gently blunted with saline soaked gauze. The average power was then decreased to 1.6 W and another laser pass was made (Figure 3C). The site was then blunted with the laser wand turned back to 9 W. The rest of the tumor was ablated in overlapping sweeping strokes. After each laser pass, the surgical site was blotted with saline soaked gauze; but after the final pass, the surgical wound was not wiped (Figure 3D) to allow immediate postoperative appearance of the surgical site. No sutures were used. Note: During the same visit, a small hemangioma was removed from the patient’s trunk (Figure 4A). The ability of the CO₂ laser to achieve hemostasis allows removing it histologically in just a few seconds and without sutures (Figure 4B). Again, initially, the higher power setting was used (3.2 W of average power in the repeat SuperPulse mode). For the final laser pass, the average laser power was reduced to 0.8 W. No postoperative care was prescribed for the ablated lesions.

Conclusion
Soft tissue growths were easily ablated with the VetScalpel® CO₂ laser. In the present study, the excision and the surgical defects were left to heal by secondary intention. Due to its ability to coagulate small blood vessels (less than 0.5 mm in diameter), the laser provided efficient hemostasis throughout the procedure, which ensured good visibility and precise tissue removal with excellent cosmetic outcome. Moreover, the laser allowed for fine adjustments in power and pulsing settings during the surgery with a simple push of a button on the touch screen. The great control afforded by the VetScalpel® CO₂ laser enables the surgeon to remove target tissue, while avoiding unnecessary damage to healthy adjacent structures. Dr. Duclos is a small-animal practitioner in Lynnwood, Wash., where he is the owner and clinical dermatologist at the Animal Skin & Allergy Clinic. He completed his residency in veterinary dermatology at the University of Pennsylvania. He is an associate clinical instructor for the Western University College of Veterinary Medicine in Pomona, Calif., and teaches senior veterinary students as externs at his clinic. He frequently hosts veterinary students from other Veterinary Medical Colleges around the US, and from veterinary colleges in Europe who are seeking to learn about the specialty of veterinary dermatology during their third and fourth year of veterinary school. In addition, Dr. Duclos teaches veterinary residents in dermatology who are seeking to learn more about veterinary surgery for two- to four-week externships sponsored by the American College of Veterinary Dermatology. He recently has begun to take part in the One Health initiative, recognizing that the health of people is connected to the health of animals and the environment. The goal of One Health is to encourage the collaborative efforts of multiple disciplines working locally, nationally, and globally to achieve the best health for people, animals, and our environment. He is an author of a number of book chapters and scientific papers on various topics in veterinary dermatology. He extensively lectures in the US, Canada, and Europe. Dr. Duclos is well known in the veterinary dermatology community for his expertise in CO₂ laser surgery and for his interest in clinical photography.

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

“...the new adjustable handpiece is very neat. It is not as big and bulky as the previous one, and I will probably use it all the time."  

“The miniaturized side-ablation nozzle is useful for larger areas of ablation; for surfaces tumors of over 6–10 mm, the side tip would make the ablation easier. Also it is the only tip useful for the interdigital cysts on the paws or elbows, Bexodan-in-stomatitis, viral warts, and apocrine cysts in ears.”

“With the VetScalpel system, Aesculight has raised the bar, again, for surgical laser manufacturers out there in the veterinary space. Another important consideration is that VetScalpel lasers are supported with first-rate customer service operation from the Aesculight’s manufacturing facilities here, in Seattle, Washington.”

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FIGURE 2A

FIGURE 2B

FIGURE 2C

FIGURE 2D

FIGURE 3A

FIGURE 3B

FIGURE 3C

FIGURE 3D

FIGURE 4A

FIGURE 4B

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Removal of canine benign cutaneous growths with a flexible hollow waveguide CO₂ laser

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Nodular sebaceous gland hyperplasia is a focal, non-neoplastic cutaneous lesion, often seen as a solitary small circular nodule (0.5 - 0.8 cm in diameter), often with a shiny, smooth, or scaly surface. Treatment of nodular sebaceous gland hyperplasia is usually by surgical removal of the tumor with the CO₂ laser. Soft tissue growths were easily ablated with the VetScalpel® CO₂ laser. This Education Center article was underwritten by Aesculight, Inc.

Technique

The laser enables the surgeon to remove target tissue, while controlling blood loss and achieving excellent cosmetic results. It provides greater control over blood loss and coagulates small blood vessels (less than 0.5 mm in diameter). The laser provides efficient hemostasis throughout the procedure, which allows safe and precise tissue removal with excellent cosmetic outcome. Moreover, the laser allows for fine adjustments in power and pulsing settings during the course of surgery with a simple touch of a button on the touch screen.

Procedure 1: Nodular sebaceous gland hyperplasia removal

Patient: Bella, a 12 year-old female, spayed pit bull terrier dog. The owner requested its removal. The bump was diagnosed as a local sebaceous gland hyperplasia. The owners requested to remove the tumor.

Technique

More power is typically required to ablate sebaceous gland hyperplasia as compared to histiocytoma. Initially, the laser was aimed at the mass and the laser power was decreased to 6 W; the laser was fired in the SuperPulse (SP) mode. The laser beam was directed in overlapping strokes with the laser beam positioned perpendicular to the target tissue (Figure 2B). After laser passes, the surgical site was wiped with a saline-soaked gauze pad and examined. Insignificant bleeding was noted. The laser pulse duration was decreased to 20 μs and average laser power was reduced to 4 W; several more laser passes were performed to clean up the deep part of the lesion. The laser pulse duration was then shortened to 15 μs and the average power was decreased to 3 W. Another laser pass was made and the site was blotted with a saline gauze pad to ensure the complete removal of sebaceous tissue (Figure 2C). With the final pass, a protective layer of coagulated tissue was created (Figure 2D). The resultant tissue defect was left to heal by secondary intention. No post-operative care was prescribed.

Procedure 2: Removal of histiocytoma

Patient: Tucker, a 12 year-old male, neutered boxer dog, was brought in with a salient, 0.5 cm in diameter, button-shaped, elevated lump located dorsally on the edge of the left pinna (Figure 5A). The tumor was tan and pink. The owner was concerned about its appearance and requested that it be removed. There was no significant history of growth. Diagnosis of histiocytoma was made and it was decided to remove the tumor with the CO₂ laser. The procedure was performed under general anesthesia.

Note: During the same visit, a small hemangioma was removed from the patient's trunk (Figure 4A).

Conclusion

Soft tissue growths were easily ablated with the VetScalpel® CO₂ laser. The procedure was quick, and the surgical defects left were left to heal by secondary intention. Due to its ability to coagulate small blood vessels (less than 0.5 mm in diameter), the laser provided efficient hemostasis throughout the procedure, which allowed safe and precise tissue removal with excellent cosmetic outcome. Moreover, the laser allows for fine adjustments in power and pulsing settings during the course of surgery with a simple touch of a button on the touch screen. The great control afforded by the VetScalpel® CO₂ laser enables the surgeon to remove target tissue, while avoiding unnecessary damage to healthy adjacent structures.

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