Carbon dioxide (CO₂) lasers have become a standard of care in veterinary surgery. Delivering the ideal wavelength (10.6 μm) for soft tissue surgery, CO₂ lasers provide increased precision and result in reduced hemorrhage, swelling, pain and tissue trauma. CO₂ lasers also facilitate many laser-improved and laser-specific procedures.

Since entering veterinary medicine in the late 1990s, flexible hollow wave guide CO₂ lasers have been adapted to the needs of diverse practice types. Now mainstream, this cutting-edge technology is being used in general practices as well as specialty and referral practices.

General Small Animal Practice

Thousands of small-animal practices in North America use CO₂ surgical lasers every day. Jeff Goodall, DVM, of Sunnyview Animal Care Centre in Bedford, Nova Scotia, notes, “We purchased the CO₂ laser in November 2003, and we made the use of the laser mandatory for elective surgeries within one year of purchase.”

He reports that he now uses his flexible hollow wave guide CO₂ laser in over 90 percent of his surgeries.

Dr. Goodall’s CO₂ laser also facilitated other welcome developments in the practice by “attracting more qualified and experienced staff to our practice when we advertised for positions. They were looking for a laser practice, and we inherently had standards that attracted them.” With his CO₂ laser, Goodall established a standard of care that allows him to do better surgery and to attract the best staff and the best clients.

Dermatology Practice

CO₂ surgical lasers have become a standard of care in specialty practices as well, such as in Dr. David Duclos’ Animal Skin and Allergy Clinic in Lynnwood, Wash. Duclos was one of the first veterinary dermatologists to use the CO₂ laser in his specialty.

He notes that his CO₂ laser “removes tissue with less bleeding, less pain and swelling, and because it can be focused precisely, it will only remove the desired tissue without damage to the surrounding structures.”

Avian and Exotic Practice

Avian and exotic practices also have experienced paradigm shifts in terms of their standard of care.

Lee Bolt, DVM, of Asheville, N.C., is a pioneering veterinarian in the avian and exotic specialty.

“I have been using a CO₂ laser since 1999 in my small animal and exotic practice,” Dr. Bolt says. “I wouldn’t practice without it now; I use it every day.”

With respect to his equipment preferences, he adds, “I have a diode laser, but the CO₂ laser is the way to go if you have to pick the most versatile modality.”

Equine Practice

Many large-animal practices incorporate CO₂ lasers. Because of horses’ thicker tissues, higher-powered laser systems are often favored by equine surgeons.

“I recently upgraded to the 40 watt CO₂ laser and I have been impressed with the ability to treat the large tumor masses that I often have to deal with,” reports Robert V. Fleck, DVM, of Rainland Farm Equine Clinic in Woodinville, Wash.

“I also have found the higher wattage and superpulse setting have made incisions a breeze since the horse has relatively thick skin. All in all, I don’t know how I could go back to a pre-laser practice situation.”

Mobile Practice

In central North Carolina, an accomplished CO₂ laser surgeon has taken her laser on the road. Janine Sagris, DVM, began her practice in 2008 in a 24-foot mobile veterinary hospital. Since then, the clientele of Mobile Laser Veterinary Services has grown exponentially.

“I have a flexible hollow wave guide CO₂ laser in my mobile surgery suite,” Dr. Sagris says. “The laser is not optional for my personal pets, so I have the same high standard of care for my clients and patients. I perform everything from spays and neuters to leg amputations and soft palate resections with my CO₂ laser.

“Other veterinarians call on me to perform laser surgeries on their personal pets,” Sagris reports. “I also get many surgical referrals from other veterinarians for specific laser procedures on their clients’ pets.”

Referral Practice

Barbara R. Gores, DVM, an ACVS board-certified surgeon and a founding owner of Veterinary Specialty Center of Tucson, Ariz., uses her CO₂ laser every day.

“I use the CO₂ laser in the majority of my soft-tissue procedures because of the advantages both to me as the surgeon and to my patient, Dr. Gores says.

“I perform a lot of tumor removals, and the laser allows me to do a much more thorough job of dissection and excision of these neoplasms. I have so much better hemostasis. I can concentrate on achieving the most ideal tissue planes in my dissection, rather than spending my time on controlling bleeding and hemorrhage.

“The improved visualization allows me to perform a much more accurate dissection.”

Gores adds that “Due to the non-contact nature of laser surgery, there is much less tissue manipulation, which greatly reduces swelling and edema, thereby greatly improving patient comfort postoperatively. This lessens the incisional licking, scooting and rubbing, which makes both the pet and the owner much happier.”

Conclusion

Hollow wave guide CO₂ lasers are now an important tool in veterinary surgery. They have become a standard of care in general practices and in specialty and referral practices. The technology has continued to develop with the introduction of higher powered lasers that allow broader use and the development of more laser-specific applications. Continued refinements, like tip-less handles for the flexible hollow wave guide lasers, ensure that their use will continue to elevate the quality and scope of veterinary surgery.

John C. Godbold Jr., DVM, is a small-animal practitioner from Jackson, Tenn. With a special interest in laser technologies, he has been a frequent continuing education presenter throughout North America and Europe for more than 10 years, and has trained thousands of colleagues how to use their CO₂ lasers.