Lasers + Chemotherapy for Transitional Cell Carcinoma

The most common bladder tumor of dogs is transitional cell carcinoma (TCC). This tumor is difficult to remove surgically because it often involves the bladder trigone and urethra. With surgical excision alone, the median survival times in dogs with TCC have ranged from 86 to 126 days. Chemotherapy increases survival time, and a recent study of a combination of anthracenedione, mitoxantrone, and piroxicam for treatment of nonresectable TCC in dogs reported a median survival time of 350 days. Laser ablation with either carbon dioxide (CO₂) or neodymium: YAG lasers has been used in human medicine for many years. This trial studied the outcome of dogs that underwent CO₂ laser ablation of TCC in the bladder trigone and proximal portion of the urethra and were treated with mitoxantrone and piroxicam. A CO₂ laser (4 to 8 W) was used to ablate the entire bladder mucosal surface area. As much tumor as possible was ablated without penetrating to the serosal layer of the bladder. The bladder was tested for leaks; any leaks were closed with polydioxanone. Chemotherapy was started 10 to 14 days after surgery. Mitoxantrone was administered IV at a dose of 5 mg/m² every 3 weeks for 4 treatments. Dogs were monitored, and mitoxantrone had to be reduced in 1 dog because of low neutrophil counts. Piroxicam was administered at a daily dose of 0.3 mg/kg PO for the life of the dog. Clinical signs at the time of first evaluation included hematuria, dysuria, and stranguria. The dogs were discharged within 72 hours of the procedure; gross hematuria, dysuria, stranguria, or incontinence had resolved in all dogs. Median and mean postoperative survival times were 299 and 411 days, respectively. One dog was free of disease at 800 days. The treatment protocol was well-tolerated and caused few adverse effects.

COMMENTARY: The availability of CO₂ lasers makes them an attractive alternative to surgical ablation in dogs with TCC. Although the number of dogs in this study was small, the results are very promising.—Patricia Thomblison, DVM, MS

Evaluation of carbon monoxide laser ablation combined with mitoxantrone and piroxicam treatment in dogs with transitional cell carcinoma. Upton ML, Tanger CH, Payton ME. JAVMA 228:549-552, 2006