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# Laser Use Enjoys Variety of Clinical Applications

By Mary Carter  
For The Education Series

In the last few years, there has been a dramatic increase in the use of therapeutic lasers in veterinary medicine. Industry leaders estimate that 20 percent of veterinary practices in North America use a therapy laser, and report that its use is rapidly expanding overseas. And veterinary distributors uniformly say that therapy lasers are one of their fastest-growing product categories.

The therapeutic effect of lasers has been studied for almost 40 years, and most of the work to understand its mechanisms of action has been accomplished with in-vitro research. Thousands of papers have been written on the subject, and there does seem to be consensus that lasers of an appropriate therapeutic wavelength that deliver effective doses of laser energy stimulate a photobiochemical cascade of events at the cellular level which relieves pain, reduces inflammation and increases microcirculation. These three effects result in an accelerated healing.

Armed with this understanding, clinicians have treated a growing and remarkable range of conditions; any patients in pain or patients with inflammation benefit from laser therapy.

In addition to treating dogs and cats, laser therapists have treated small birds, reptiles and pocket pets. Veterinarians report the laser assists in their successes treating conditions as diverse as cystitis in guinea pigs, arthritis in penguins, pancreatitis in cats, non-healing fractures in dogs, and meniscal tears in elephants.

This is the first in a series of case reports in this space to illustrate the breadth and scope of conditions in which laser therapy is being used.

## Lick Granuloma<sup>1</sup> (Figures 1 and 2)

**PROBLEM:** Lick granuloma of several years' duration over the right metatarsus. Previous temporary improvements had been noted following oral antibiotic therapy and bandaging. The patient had received no therapy for this lesion for over a year prior to laser treatment.

**PATIENT:** Daisy, mix, 5 years old, FeS, 48 lbs

**PROCEDURE:** Treatment with the Companion Class IV Therapy Laser three times a week for four weeks, then two times a week for four weeks.

**RESULTS:** After two weeks of therapy the patient was no longer licking the lesion and it had begun to reduce in size. Measurements taken before and after eight weeks of treatment indicate significant reduction in the mass of granulomatous tissue.

Pre- and post-treatment measurements

	PRE	POST
<b>WIDTH:</b>	3.5	2.5 cm
<b>HEIGHT:</b>	5.0	3.0 cm
<b>DEPTH:</b>	3.5	1.5 cm

**Note:** This case underscores the importance of continuing treatment for long enough a time to allow chronic tissue changes to begin to reverse and resolve.



Figure 1. Before Treatment



Figure 2. After eight weeks of Class IV therapy laser treatment as the only treatment modality.



Figure 3: Acute exacerbation of chronic otitis externa with pain, swelling and edema, discharge and canal occlusion. Standard diagnostics, including video-otoscopy, must be delayed until the swelling is reduced.

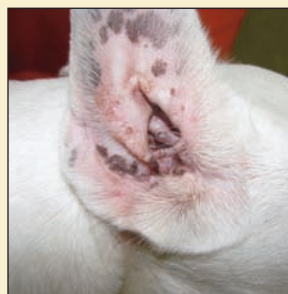


Figure 4: Dramatic resolution of edema and swelling five days after Class IV therapy laser treatment and beginning of parenteral and topical medication

## Acute Otitis Externa<sup>1</sup> (Figures 3 and 4)

**PROBLEM:** Acute exacerbation of chronic otitis externa. Severe pain and swelling that occluded the ear canals prevented complete diagnostics.

**PATIENT:** Petey, Jack Russell terrier, 2 years old, M, 20 lb.

**PROCEDURE:** Treatment with a Class IV therapy laser was used as an adjunct to initial medical care. The goals were to reduce pain, inflammation and swelling so more complete diagnostics could be performed.

**OVERALL TREATMENT PLAN:** Use of the Class IV therapy laser a single time to initially reduce pain, swelling and edema was added to a standard protocol of oral prednisone and topical cleanser and anti-bacterial agents. Initial cytological examination demonstrated a mixed Malassezia and Gram positive bacterial infection without polymorphonuclear cells. This common presentation calls for cleansers, and anti-inflammatory and anti-microbial medications.

A frequent challenge in this condition is the time lag between initial presentation and effect from medications. Occlusion of the ear canal makes topical treatment unsuccessful.

The value of using Class IV laser therapy treatment in cases of acute otitis externa is the rapid reduction in swelling and edema that allows early initiation of successful topical treatment.

**RESULTS:** Twenty-four hours after an initial single therapy laser treatment the owner was able to begin treating with topical medications at home. Five days after initial treatment the edema, swelling, pain, discharge and debris were markedly reduced. Lichenification was reduced and the patient tolerated bilateral digital video otoscopy of the entire ear canals.

## Fracture Healing<sup>1</sup> (Figures 5-8)

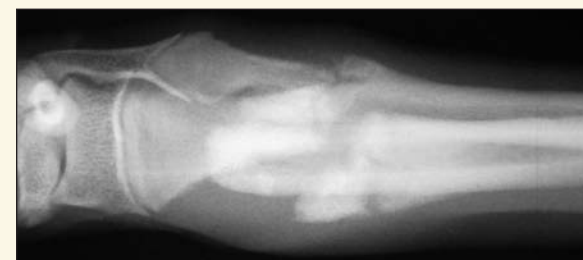
**PROBLEM:** This stray patient was presented non-weight bearing on the left foreleg. Palpation revealed a non-mobile painful swelling of the distal antebrachium. Radiographs showed a partially healed fracture with anterior override of the distal segments and acceptable medial and lateral alignment.

**PATIENT:** Teddy, mix, 7m, M

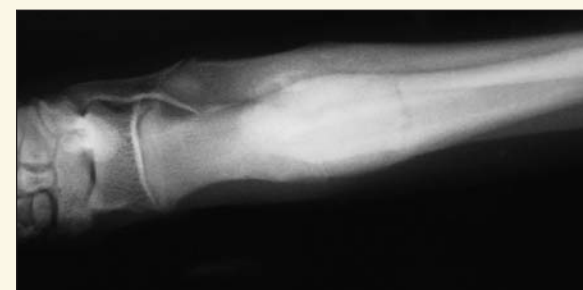
**FRACTURE MANAGEMENT APPROACH:** The adopting owners were given the option of surgery and internal fixation. Since the fracture site was non-mobile, they choose conservative management including laser therapy.

**TREATMENT PROTOCOL AND TECHNIQUE:** The patient was treated on Day One with five subsequent every-other-day treatments.

During each treatment, the fracture site was treated with a scanning technique, moving at a speed of one inch per second. The area was treated from all directions (360 degree treatment).



Figures 5 and 6: Non-mobile partially healed fracture with anterior override of the distal segments. Patient was non-weight bearing



Figures 7 and 8: Twenty-eight days after initial laser treatment. Continued rapid ossification of the callus is seen as well as significant remodeling of the ends of the fractured bones. The patient was non-symptomatic at this time.

**PATIENT MANAGEMENT:** The patient was confined to allow moderate activity indoors and leash-controlled activity outside. No splint or cast was applied. Weight bearing was allowed as healing progressed.

**RESULTS:** The patient began limited weight bearing 48 hours after the initial therapy laser treatment. Weight bearing increased rapidly with full weight bearing noted 21 days after the initial treatment.

Radiographs showed much faster than expected ossification of the callus and remodeling of the fracture ends. ●

Mary Carter is a freelance writer who has written on her special areas of interest including disaster preparedness, especially as it impacts the pet population and the elderly, epidemiology, and laser surgery.

### FOOTNOTES...

1. Abridged case reports reprinted with permission. Godbold, Jr., John C., Atlas of Class IV Laser Therapy—Small Animal, CD ROM Edition, Southern Digital Publishing, Jackson, Tennessee, 2012

This Education Series article was underwritten by Companion Therapy Laser of Newark, Del.