

NEW TREATMENT OF CHRONIC PROLIFERATIVE AND OBSTRUCTIVE OTITIS EXTERNA IN DOGS WITH COMBINATION OF HARD, PHOTODYNAMIC AND LOW-LEVEL LASERS

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Background: Otitis externa, inflammation of the external ear canal is one of the most commonly diagnosed diseases in dogs. There are numbers of predisposing factors which render individual pets susceptible to chronic and recurrent otitis. The aim of this case study is to explore how a combination of different lasers can be applied to resolve these difficulties. **Materials and Methods** Chronic proliferative otitis externa is often a bilateral and very painful disease and develops over few weeks or months. The entrance to the ear canal is difficult to find because of the proliferation. Symptoms include shaking of the head, grey to yellow cerumen, pus and odor. With classic surgery (in most cases) the only solution is the removal of the ear canal and the base of the auricle.

Study:

1.1. Photodynamic Antibacterial Treatment

The photosensitising agent was given locally and then PDT diode laser (wavelength 810 nm) light was applied. The sensitizer was based on Phenothiazine (Methylene blue). Light reacts with the drug, breaking it down and releasing a single oxygen atom. The oxygen destroys microbial cells from the inside out. Treatment was given one day before the surgery.

1.2. Removing the Proliferative Tissue from the Entrance of the Ear Canal

Our technique for cutting and vaporizing the inflamed tissue is performed using a CO₂ laser (Lasram) 6–10 W, CW. Opening the stenotic ear canal with a laser is a clean, easy, fast and highly effective procedure. No preparation of the surgical area is required; sutures are neither required nor recommended.

1.3. Removing the Proliferative Tissue from the Inner Ear Canal

This is a difficult area to reach with normal surgery but is easy to reach with a thin flexible diode laser optical fibre. A 980 nm wavelength surgical diode laser (Biolitec) was used, CW with 400 micrometer optical fibre. We inserted the diode laser fibre into the canal. We set the laser on 4 or 8 watts depending on the amount of the tissue. The laser beam coagulates the proliferative tissue.

1.4 Low-Level Laser Therapy

LLLTh was applied twice in the first 2 weeks, then once a week for the wound treatment. The dogs received 6–10 treatments of infra diode laser. LLLTh dose depends on the wound

conditions; 6 to 3 J/cm² was used in this case and the dose was gradually decreased week by week.

Results/Conclusion: It was found that a combination of four different lasers could eliminate this serious and painful disease in dogs. The PD therapy reduced bacterial infection and improved conditions for surgery. Laser cut surfaces regenerated quickly without scarring or complications. Wound regeneration with LLLT was excellent in all cases. Functional and anatomical integrity was preserved, and patients were able to continue their routine life. In each case, proliferative tissue was eliminated completely.