

nerves in horses by vaporization at various power densities using the CO₂ laser. The nerve specimens were removed at the time of CO₂ laser neurectomy and submitted for histological examination. Nerve sections vaporized at the higher power densities suggest a lesser degree of complete axon destruction than at lower power densities. In preventing neuroma of severed peripheral nerves in horses, it appears that low power density is preferable for clinical use.

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CO₂ LASER MANAGEMENT OF ONYCHOMYCOSIS. John E. Mancuso, Steven P. Abramow. Onychomycosis represents a most challenging and difficult management problem for the podiatrist and dermatologist involved in the care of these patients. The relative resistance of this condition to mechanical, chemical and oral treatment has led to extreme difficulty in achieving normalcy. The carbon dioxide laser appears to provide ease and versatility in approaching this condition without permanent matrixectomy. A subtotal matrixectomy is performed to ablate the majority of the nail plate, eliminate existing fungus from the underlying nail bed, and remodel the deformed matrix. A series of 50 mycotic toe nails with a follow up of four to ten months resulted in reduced recurrence and morbidity. The carbon dioxide laser when added to one's armamentarium for management of onychomycosis may provide a successful method for restoring normalcy.

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THE USE OF CO₂ LASER IN MICROSURGICAL ONCOLOGY. G. Bandieramonte, F. Chiesa, S. Andreola, G. Riboldi, G. Fava, H. Emanuelli. National Cancer Institute, Milano, Italy.

CO₂ Laser freehand resection technique vs microsurgical resection, and both resection techniques vs vaporization procedure were compared in a series of 136 surgical operations for the treatment of dysplastic and initially invasive lesions of the periorificial mucosae. The results of the prospective study showed advantages and limitations of these methods from technical and biological standpoints. Since an average of 11% discordance was found between pre-and-postoperative diagnosis, vaporization procedure was recognized as an unsuitable treatment because of the need of the entire operatory specimen available for pathologic examination and confirmation of radicality, which is provided only by excisional technique. Also, a constant plane of tissue removal, especially in depth, can be easily maintained with the resection in a procedure faster than vaporization technique. Moreover, the potential danger of cell dissemination in the fumes or through some lymphatics was eliminated by resection procedure conducted in healthy tissue. The magnification of the operatory field offered by the association of the operating microscope coaxial with the micromanipulated Laser beam led to additional resolution of the lesion borders for conservative radical managements. The orthogonal plane of incision in most of the anatomic regions, facilitated by the microscopic procedure, avoided high burning effects on the surface borders, frequently observed after freehand oblique resections. Therefore, maximum obtainable surgical precision can be achieved for the studied lesions with proper spot, focal length and power density of the Laser beam delivered through microscopic instrumentation.

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CANCER DIAGNOSIS AND TREATMENT BY LASERS IN JAPAN

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Recently, Japanese government started to support research and development on laser surgery and laser diagnosis to challenge for cancer protection and treatment.

For this purpose, 150 CO₂, 80 Nd-YAG and 30 Argon (except ophthalmology) laser surgical units have been installed and used in hospitals and medical facilities.

Laser spectral analysis, laser endoscopic holography, laser fluorescence excitation etc. have been investigated as the methods of cancer diagnosis developing new instrumentations and new methodologies.

Various kinds of laser surgery have been prevailed to destruct cancers in clinical fields and laser endoscopic therapy for early stomach, lung and bladder cancers, photoradiation therapy combined with HpD for lung, oesophagus, stomach, bladder, vagina cancers also have been applied for several hundreds cases with good follow-up results.