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Laser techniques described for treatment of onychomycosis

A New York City podiatrist is using the carbon dioxide laser to successfully perform subtotal matrixectomies in patients with onychomycosis -- or fungus nails -- and he explained the details of the procedure at the recent meeting of the American Society for Laser Medicine and Surgery in Salt Lake City.

JOHN E. MANCUSO, DPM, said the laser technique is saving nails that would otherwise have been permanently removed.

Several treatment methods described

Several different methods of treatment have been attempted, Mancuso noted, with varying degrees of success. Some researchers have first removed the entire nail, then swept over the nail bed with between five and 10 watts of continuous power using a defocused spot. The laser vaporizes the fungus, and its precision allows the podiatrist to reach mycosis in otherwise inaccessible areas. However, the technique also increases the risk that the matrix -- which must be left partially intact for the nail to grow back -- will be inadvertently damaged by the beam, Mancuso noted.

Others have attempted to leave a very thin layer of the nail intact, lasing superficially above the nail matrix "to try to thin out the matrix a little bit and to try and remove any mycosis that might be in that particular area," Mancuso said. The nail bed and matrix are then swept over, again with five to 10 watts of power, until the area "looks nice and clean." The procedure results in less pain for the patient, but with severely mycotic nails is not extensive enough to permanently rid the area of infection, he added.

Still others use what Mancuso termed "the beehive technique," which involves thinning out the nail first with mechanical debridement, then using "impact bursts" of 20 watts with the laser to pop holes in the nail plate. Antifungal medications are then applied with the hope that the new channels created by the laser result in a more direct exposure to the mycosis.

'Radical' technique more successful

"My procedure is a little more radical," Mancuso said. With a completely infected nail, he first performs a distal avulsion at the eponychium using 10 watts of power in a sweeping fashion, leaving the proximal nail and matrix intact "just to ensure that I do not do a [total] matrixectomy and that it will grow back."

Cutting back to five watts of power, Mancuso then sweeps over the nail bed, both vaporizing the mycosis and coagulating any bleeding vessels. He proceeds to the nail borders, alternately lasing and using a curette to clean the area of debris, and -- still at five watts -- he takes "three or four sweeps" under the matrix, cleaning and thinning the area.

"The next phase is the eponychial area," Mancuso explained. "You want to lase superior to the nail plate into the cuticle area and destroy any fungus that might be there. Then you want to thin it out from superior to inferior."

He stressed that "the matrix is still intact" and noted that, on the average, laser-treated nails "take about six months to a year" to grow back.