Updates in Dermatological Research

Original Article

Onychomycosis treatment with Erbium laser

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Abstract

Fungal nail infections are produced by various fungal organisms (fungi). Often the cause of the disease is a type of fungus called "dermatophyte". Yeasts and molds can also cause infections. The infections can occur at any age but are more common in older people. As the nail ages, it can become brittle and dry out. The cracks, porosity that are present in the nails is the reason to allow the entry of fungi. Other factors, such as decreased blood circulation to the feet do because diabetes is present and a weakened immune system, can also play a role. An inflammatory infection of the toenails can start changing the nail color in athlete's foot (foot fungus) and can extend from one nail to another. However, getting an infection from another person can occur if they employ the same nail cuter. There is a traumatic factor also due to accident or shoes to tight.

Erbium laser have been a very successful treatment in our patients with these diseases. Is apply weekly in all the nails, infected or not.

Introduction

Onychomycosis is the disease that can most frequently affect the nails of humans (50%), being responsible for more than half of the cases of nail infection. Studies show prevalence figures between 2% - 18% of the population.

Onychodystrophy or alteration of the normal appearance, color, and texture of one or more fingernails or toenails is the disease manifestation. Toenails are affected more often than fingernails. It is very common for several nails to be affected at the same time. Clinically there may be onycholysis, subungual hyperkeratosis with scaling, dyschromia from yellowish or greenish to brown or black.

The treatment of onychomycosis may require taking oral antifungal medications (undecanoic acid, azoles and sometimes allylamines) combined with long-term treatment (2 to 18 months), they can cause liver damage, kidney failure, anemia, thrombocytopenia, neutropenia, gastrointestinal disorders, and alopecia among other diseases.

In addition, other treatments can be performed, ranging from surgery (laminectomy, matrixectomy), onychoabrasion, to the use of new therapies such as: photodynamic therapy, iontophoresis, and lasers today.

By applying the Erbium: Yag Laser with smooth-mode technology to the entire nail plate, we can eradicate any fungus or germ lodged in the nail by means of heat irradiation. No side effects, fast, simple and 100% safe.

Erbium: Yag laser treatment

The laser has disinfection properties offering superior clinical results, thermally and selectively affects the deeper skin and tissue structures.

Once the treatment is finished the natural growth of the nail and the immune system itself will restore the nail and between 6 to 8 months after the procedure, the nail will regain its natural and healthy appearance.

Advantages: no side effects are not a painful treatment, is fast and safe. Patients immediate return to daily activities and results are much better compared to traditional treatments specs.

Long-pulse Nd: YAG lasers with a wavelength of 1064 nm are used, with fluences ranging from 35 to 40 J/cm squared. A spot size of 4 mm in diameter, a pulse duration of 35 ms, and a frequency of 1 Hz. Applying to the entire nail plate in a spiral fashion, a two-minute pause is made, and the treatment is repeated. The pause is repeated twice more until completing a total of three passes.

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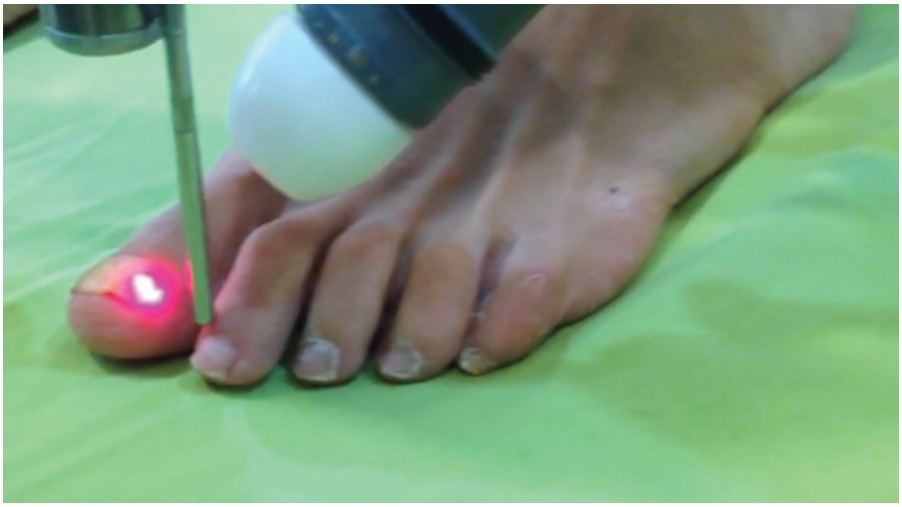
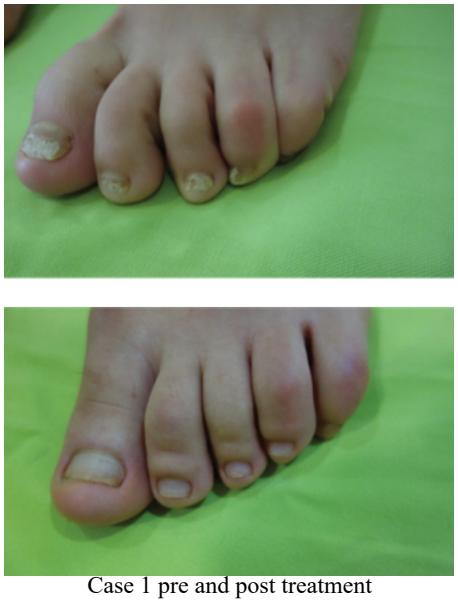
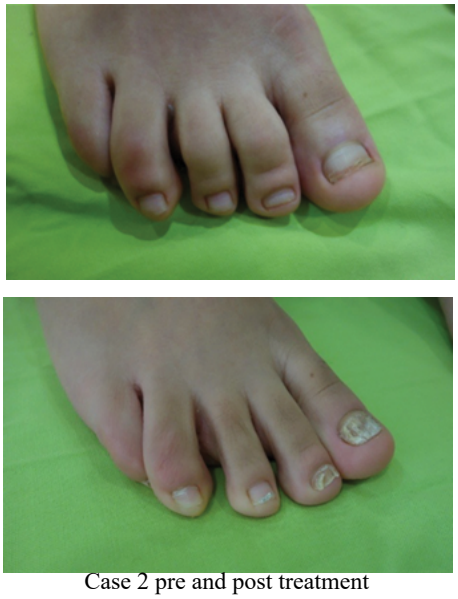


Figure 1. *Long-pulse Nd*



Case 1 pre and post treatment
5 sessions



Case 2 pre and post treatment
5 sessions

Each session lasts approximately 15 minutes. 1 session per week is established during a 5-week cycle to achieve the best possible results. However, it will be the patient evolution who determines exactly the number of sessions appropriate for each case.

This procedure does not require any type of anesthesia, antibiotic, or post-treatment analgesic.

Finally, with the intention of preventing reinfection in susceptible patients, forbearing must improve the hygiene and footwear habits (plastic shoes for example must be avoid) chiropody, pedicure treatments and acrylic nails are forbidden. Patients need to apply deodorants and fungicides for local use in powder or spray form.

Conclusion

Erbium Laser treatment is a fast and successful treatment that brings to the patient and the physician the security that the infection is going to be control in five or six sessions. In four years developing this procedure only two patients need to do more sessions. Probably do because patients did not follow the indications.

References

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