

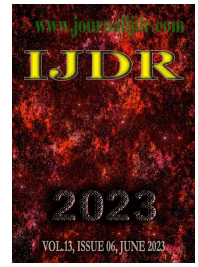


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RESEARCH ARTICLE

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## ENDOLASER FOR TREATING ROSACEA: CASE REPORT

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### ABSTRACT

**Introduction:** Rosacea is a chronic inflammatory skin disease characterized by persistent facial redness, telangiectasias, papules/pustules and skin lesions. Endolaser technique (also known as Endolift) uses a laser beam with a wavelength of 980 or 1470nm emitted through an optical fiber inserted into the subcutaneous tissue in order to tone the skin through neocollagenesis and/or reduce subcutaneous fat. **Objective:** This study aimed to report three cases of rosacea treatment using the endolaser with a wavelength of 980 nm. **Methodology:** Three cases of rosacea affecting the face of women who used the endolaser as the main treatment resource were reported. The procedure consisted of the application of a laser emitted through a 600 micron fiber optic, directed subdermally to treat dilated blood vessels and reduce the inflammation associated with rosacea. Each patient received a single treatment session. **Results:** In the reported cases, patients initially reassessed 30 days after the procedure, it was found a satisfactory decrease in rosacea, and free of interurrences or complications. In the final reassessment, 8 weeks after the procedure, it was confirmed that there was no recurrence of the condition in this period and the final result remained extremely satisfactory. **Conclusion:** Finally, it is possible to conclude that the endolaser technique is effective for treating rosacea, showing itself as an innovative procedure, once through its photothermal action it has a great power of anti-inflammatory action, strongly contributing to the remission of clinical condition, and can also be associated with other therapeutic resources when there is another joint condition.

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## INTRODUCTION

Rosacea is a chronic inflammatory disease that is characterized by many facial skin expressions, mainly localized redness, erythema, papules/pustules, telangiectasia and phymatous changes, and may also show with itching, burning or stinging. The latest advances in rosacea treatment include skin care and cosmetic treatments, topical therapies, oral therapies, laser and light-based therapies, injection therapy, treatments for specific types of rosacea, treatments for systemic comorbidities, and combination therapies (1). Rosacea usually starts between the ages of 30 and 50, but it can occur at any age, affecting both men and women. And, this kind of condition may cause embarrassment, low self-esteem, anxiety, depression and stigmatization. Furthermore, it has an adverse impact on quality of life, social and psychological well-being (2).

The endolaser technique, also known as endolift uses a laser beam with a wavelength of 980 or 1470nm emitted through an optical fiber inserted into the subcutaneous tissue in order to tone the skin through neocollagenesis and/or reduce subcutaneous fat (3). Authors (1, 4) reported that laser therapy is one of the resources able of treating rosacea in its most varied forms. However, it was not found reports on the use of the endolaser technique for the treatment of rosacea. Thus, this study aimed to report three cases of rosacea treatment using the endolaser with a wavelength of 980 nm, approaching its innovative character of using this type of laser therapy in cases of rosacea.

## METHODOLOGY

In this work, it is described as follows three cases of rosacea treated with endolaser in Santa Rosa-RS (Brazil), from January to April 2023. Patients were treated with the Delight® device

(Vyndence Medical, Brazil) with a wavelength of 980nm. Continuous laser emission mode was used, power of 3 W (accumulated energy: 1,000 Joules), 600 micron optical fiber without cannula. Three turns for continuous laser were performed on the affected site with the laser in activated emission, in back-and-forth movements. The treatment area was highlighted with the creation of a site for the orifice, as well as the fan of vectors to serve as a guide for the introduction and passage of the optical fiber (3). For supporting all procedure, anesthetic was applied (Lidocaine 2% without vasoconstrictor) with a 22G cannula, distributing it in each line of the array of vectors in retroinjection, depositing 2 ml in each line, totaling 7 lines.

## CASE 1

Patient M.A.N, 32 years old, female, diagnosed with rosacea in the bilateral face region with onset of the current episode 5 days ago and associated melasma. The patient reported she was diagnosed with hereditary rosacea a few years ago and has occasional episodes of persistent facial redness, especially on her cheeks and nose. This redness is usually along with a feeling of heat and displeasure in the skin. She further reported that the symptoms worsen after exposure to the sun, in hot environments or during times of emotional stress. He also mentioned the presence of small dilated blood vessels visible on the skin of the face from a young age, with the presence of papules and pustules being less common, but recurrent. She was treated with endolaser in a single treatment session. Clinical treatment was associated with home management where a topical cream composed of Ferulic Acid 0,5% + Desonide 0,05% was used, applied at night for 20 days for the purpose of treating melasma. After the procedure, the patient complained of slight discomfort at the site where the infiltrative anesthesia and retroinjections were performed. However, she did not use analgesic medication after the procedure. Manual lymphatic drainage treatment after the procedure was not recommended. In figure 1, it may be noticed result of the treatment 30 days after procedure with endolaser. There was an important attenuation of the reddish aspect of the skin, as well as of melasma. Eight weeks after the treatment, the patient was reassessed and it was found that the remission of the lesion was kept.



**Figure 1.** Before (A, C) and thirty days after a single endolaser procedure (B, D) and cosmetic association for melasma treatment. There was a significant decrease in the reddish appearance of the skin, as well as in melasma

## CASE 2

Patient T.M.A, 34 years old, female, diagnosed with rosacea in the bilateral face region with onset of the current episode 20 days ago. The patient reported a history of nervous rosacea, where symptoms are usually triggered by emotional stress and anxiety. She noted that persistent facial redness is accompanied by feelings of heat and discomfort, and occurs mainly during periods of high emotional tension at work and some stressful events in her personal life. During the medical consultation, diffuse facial redness was observed, especially on the cheeks and nose. In addition, the patient reported the occurrence of inflamed lesions such as papules and pustules, during episodes of rosacea. The patient had already tried different treatment approaches over the years, including topical and oral medications prescribed by dermatologists. However, she reported that noticed a limited response to conventional treatments. Based on the patient's history and preferences, a treatment plan was developed, including stress and anxiety management through cognitive behavioral therapy and relaxation techniques such as meditation and breathing exercises. She was treated with endolaser in a single treatment session. There was no association with another technique or drug/cosmetic. After the procedure, the patient complained of slight discomfort at the site where the infiltrative anesthesia and retroinjections were performed. However, the patient did not use analgesic medication after the procedure. Manual lymphatic drainage treatment after the procedure was not recommended. In figure 2, it is possible to evaluate the result of treatment 30 days after the endolaser procedure on the right cheek. There is an important attenuation of the inflamed appearance of the skin and the appearance of rosacea. Eight weeks after the treatment, the patient was reassessed and it was found that the remission of the lesion was maintained.

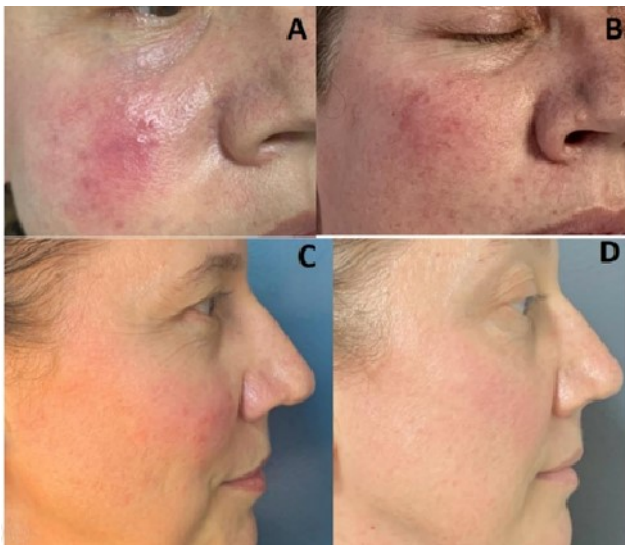


**Figure 2.** Before (A) and thirty days after a single endolaser procedure (B). There is an important attenuation of the inflamed appearance of the skin and the appearance of rosacea

## CASO 3

Patient A.C.F, 46 years old, female, recognized with rosacea in the bilateral face region with onset of the current episode 10 days ago. The patient had chronic rosacea, with a history of persistent facial redness, especially on the cheeks, for more than three years. In addition, she experienced episodes of skin sensitivity and burning, especially after exposure to the sun, consumption of alcoholic beverages or spicy foods. She also reported the presence of small dilated blood vessels visible on

the skin of her face, as well as occasional papules and pustules, which added to her concern for the aesthetic part of her face. She noted that these symptoms have a significant impact on her self-esteem and quality of life. During the evaluation, sensitive and reddened skin was observed in the affected areas. The patient did not inform a history of acne, but reported that she underwent treatments during active crises with medication and the use of High Frequency equipment, as well as hydration with magistral products. Finally, it is important to note that there were no signs of other underlying skin diseases. She was treated with endolaser with a single treatment session. There was no association with another technique or drug/cosmetic. After procedure has been done, the patient complained of slight discomfort at the site where the infiltrative anesthesia and retroinjections were performed and, therefore, used analgesic medication in the post-procedure for 3 days having been indicated the use of Paracetamol 750 mg, via orally every 8 hours. Manual lymphatic drainage treatment after the procedure was not recommended. In figure 3, it is possible to be evaluate the result of the treatment 30 days after the endolaser procedure. There is an important depletion of the skin injured appearance and rosacea appearing too. Eight weeks after the treatment, the patient was reassessed and it was found that the remission of the lesion was maintained. In the three cases reported, there were no reports of any type of complication or more serious interurrences.



**Figure 3. Before (A, C) and thirty days after a single endolaser procedure (B, D). There is an important attenuation of the inflamed appearance of the skin and the appearance of rosacea**

## RESULTS AND DISCUSSION

Although rosacea is common in the world population, using endolaser for its treatment had not yet been reported in the literature until the publication of this study. This highlights the originality of this case report. Despite the lack of publications about this matter, the results of remission of rosacea in treated patients 8 weeks after the procedure was justified mainly due to the anti-inflammatory character provided by the endolaser technique described by some authors (5, 6). Li et al. (5) treated inflamed keloid scars with endolift and attested that the technique may reasonably improve inflamed keloids well, decreasing their inflammation and stabilizing the collagen composition. Medhat et al. (6) treated thirty patients with hidradenitis suppurativa, also known as inverse acne which

usually has a chronic inflammation condition. The authors verified that treating with endolift provided a strong anti-inflammatory effect, promoted neocollagenesis, and favored the remission of the condition. The reason for having the anti-inflammatory action regarding the endolaser may be supported by the photothermal effect produced by the laser beam at the end of the optical fiber. Authors (7, 8) reported that the endolaser can increase internal temperature (subcutaneous tissue) from 48 to 55 degrees Celsius, and external temperature (at skin level) from 41 to 47 degrees Celsius. Therefore, based on the reports by Jorge et al. (9), who reported that heat might generate an anti-inflammatory effect, it is supposed to be concluded that the benefits produced by endolaser in the patients reported in this clinical trial may be associated with the photothermal effects of laser radiation producing remission of this inflammatory condition.

After the procedure, all patients complained of slight discomfort at the site where the procedure was performed. This is in agreement with the reports of some authors (10) who described a report of pain after the endolift procedure, however the pain felt by the patients was considered mild to moderate (mean score of 3,1 out of 10). On the other side, authors (3, 11, 12) reported that no adverse effects or residual pain were reported by any patient during studies. The pain described by the patient reported in case 3, although mild, was relieved with the use of analgesic medication. According to some authors (13, 14, 15) after the endolaser, patients may use analgesics and/or antibiotics. Despite the recommendation to perform lymphatic drainage after treatment, which can be performed for 3 to 7 days (14), it was chosen not to recommend it due to the good evolution of the condition (absence of edema) right after the procedure. The patient described in case 1 had melasma associated with rosacea. Authors (16) reported that night workers exposed to the heat of ovens (e.g. bakers) and professionals exposed to high intensity light (e.g. dentists) had great difficulty in treating melasma and reported that there was a worsening of the condition after exposure to work conditions. However, in this case (1), there was no worsening of the melasma after treatment with endolaser. Besides, there was an excellent response to home treatment with a topical product based on Ferulic Acid 0,5 % + Desonide 0,05%. Due to operational issues at the place of care, the follow-up for the final reassessment took place 8 weeks after the treatment, and this is a shorter period than what is usually described in the literature on the endolaser. Authors reassessed their patients 6 months after treatment and found an increase in dermal and epidermal density (17), reduction of lower eye bags (18), wrinkles and flaccidity in the upper eyelid (19), and eyebrow ptosis (11). Nilfroushzadeh et al. (20) chose to reevaluate their patients 3 months after an endolift session in the treatment of chin area and jowls.

## CONCLUSION

Endolaser's action is notorious on the cases of rosacea reported in this work, especially regarding the safety and efficiency of the technique in this type of disorder. In addition to not compromising the associated melasma in one of the treated patients, it did not produce complications or serious adverse effects. It should also be noted that the post-treatment follow-up period could be longer in order to assure that there were no reoccurrences. Finally, it is possible to conclude that the endolaser technique is effective for treating rosacea,

showing itself as an innovative procedure, once through its photothermal action it has a great power of anti-inflammatory action, strongly contributing to the remission of clinical condition, and can also be associated with other therapeutic resources when there is another joint condition. However, we recommend carrying out further studies with a larger sample, as well as a post-treatment period of more than 4 weeks for final reassessment.

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