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Use of Endolaser Dual Wave in the Treatment of Large Abdomen: Case Reports

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Abstract:

Introduction: The endoscopic laser application known as "Endolaser" or "Endolift" is an innovative approach to the reduction of large abdomens, a cosmetic condition that often requires surgical intervention to alleviate complaints and improve patients life quality. With aesthetic Technologies improvements, the endolaser assisted procedures has gained prominence due to its several bennefits such as minimall damage to surroundig tissues, shorter downtime, and comfort during and after the procedure. Endolaser uses a laser beam with a wavelength from 980 and/or 1470 nm emitted by specific equipment and conducted through an optical fiber inserted into the subcutaneous tissue, aiming to tone the skin through neocollagenesis and/or reduce subcutaneous fat.

Objective: The aim of this study was to report four cases of large abdomen treatment in a single session using Endolaser with a wavelength of 1470 nm.

Methodology: Four cases of large abdomen were reported, utilizing only Endolaser as treatment resource. The procedure consisted in applying a laser with a wavelength of 1470 nm conducted through a 600-micron cannulated optical fiber inserted into the subcutaneous tissue to reduce abdominal measurements. Each patient received a single treatment session.

Results: In the reported cases, all patients were seen after seven days presenting satisfactory reduction in measurements without any complications or adverse events.After eight weeks results have improvised significantly.

Conclusion: Within the limits of this study authors concluded that the Endolaser techinique was extremely effective in large abdomen treatment, as a innovative procedure that presentes satisfatory results with, safety and minimall side effects or complications.

Keywords: Large abdomen, Endolift, Endolaser, laserlipolysis, laser therapy, lipodystrophy, cellulite, skin laxity, and aesthetics.

Introduction

Fat removal treatments to improve body shape and contours have been improved by the use of several technlogies. Among then is endoscopic laser “Endolaser”. Until recently, few techniques were relatively effective for this purpose, with traditional surgical liposuction being the gold standard for reducing localized fat, yielding very satisfactory results but also carrying the risks of conventional surgery, postoperative pain, and longer recovery time. These consequences have driven the search for new alternatives and technologies with fewer risks, no general

anesthesia, greater comfort, less pain, and shorter downtime.

The origin of Endolaser lies in laser-assisted liposuction or "laserlipolysis," where a laser wave was originally transmitted through an optical fiber inserted into a cannula directly into the subcutaneous tissue to stimulate collagen and emulsify fat, facilitating the aspiration of fatty content by perforated cannulas already used in traditional liposuction. The laser, through its photothermal action, breaks the adipocytes membrane , causing their definitive destruction and thermo-coagulation of blood vessels, reducing bleeding and bruising, providing less downtime, skin retraction, and improvement of fibrosis in previously operated areas.

The Endolaser technique uses a laser beam with a wavelength from 980 nm to and/or 1470 nm, emitted by specific equipment and conducted through an optical fiber inserted into the subcutaneous tissue to tone the skin (Skin Tightening effect) through neocollagenesis and/or reduce subcutaneous fat. The Endolaser is considered a minimally invasive or non-invasive technique. In addition to treating the abdominal region, Endolaser is indicated for the periorbital eye region, nasolabial and labiomental folds, mandibular contour, acne and acne scars, thighs, knees, ankles, back, flanks, buttocks, aesthetic lipodystrophies throughout the body, including the abdomen, and cellulite, among other facial and body regions.

Given the above, this study justifies itself with the objective of reporting four cases of large abdomen treatment using the Endolaser technique in the subcutaneous tissue with specific equipment emitting wavelengths of 980 and 1470 nm.

Methodology

We will describe four cases of large abdomen treated with Endolaser performed in the city of Santa Rosa-RS (Brazil) between August and September 2023. The patients were treated with the Elyon® device (Cromatic Brasil) with wavelengths of 980 and 1470 nm. The laser was applied continuously with a total power of 15 W, with 7.5 W of 980 nm and 7.5 W of 1470 nm (accumulated energy: 40,000 to 60,000 Joules) using a 600-micron optical fiber. We performed the passes in the affected area with the laser on, accumulating the energy determined for each abdomen.

To tolerate the procedure, Klein's solution (0.9% saline 1000 ml + 2% lidocaine without vasoconstrictor 50 ml + epinephrine 1:1000 1 ml + 8.4% sodium bicarbonate 12,5 ml) was infiltrated using a 60 ml syringe + 18G100mm Klein needle, distributing approximately 1500 ml homogeneously in the entire abdominal area to be treated with the technique.

Case Reports:

Case 1*:* A 47-year-old female patient with a diagnosis of a large abdomen underwent a single Endolaser session following all safety parameters. The Elyon® equipment (Cromatic Brasil) with synchronized wavelengths of 980 nm and 1470 nm was used, enhanced to 7.5 W for 980 nm and 7.5 W for 1470 nm, totaling 15 W. 1500 ml of Klein's solution was infused using a 60 ml syringe coupled to an 18G 100 mm cannula, distributed evenly in the abdominal area to be treated. A total of 50,000 Joules of energy was accumulated, with 30,000 Joules in the lower abdomen and 20,000 Joules in the upper abdomen. At the end of the procedure, manual drainage was performed, and an elastic compression garment was applied. Lymphatic drainage was recommended twice a week for at least 4 weeks, and the elastic compression garment was to be worn for at least 30 days. Four hours after the procedure, the patient complained of mild discomfort in the treated area, persisting for 72 hours, but chose not to use analgesic medication post-procedure. The puncture sites were advised to be cleaned twice a day with iodinated alcohol and closed with microporous tape for 7 days. In Figures 1, 2, and 3, the treatment result can be evaluated 45 days after the Endolaser procedure, showing a significant reduction in abdominal volume in photographic comparison.

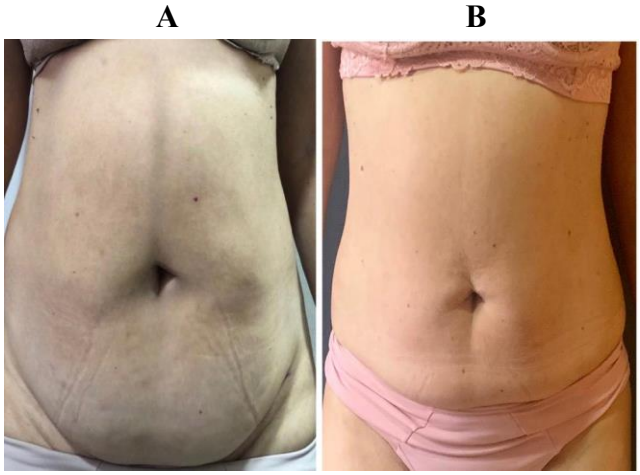

Figure 1. Frontal view (A) before and (B) forty-five days after a single Endolaser session.

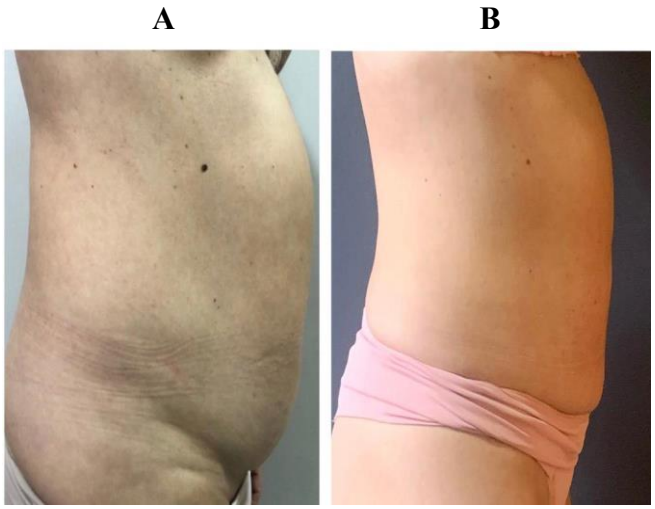

Figure 2. Right lateral view (A) before and (B) forty-five days after a single Endolaser session.

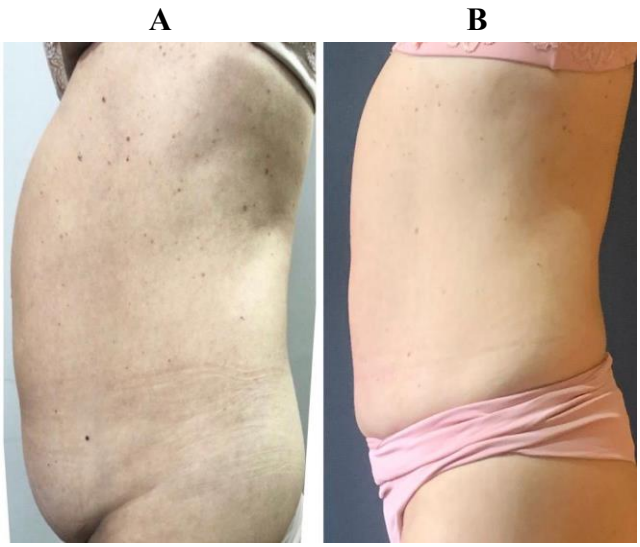

Figure 3. Left lateral view (A) before and (B) forty-five days after a single Endolaser session.

Case 2

Patient B., a 45-year-old female with a diagnosis of a large abdomen, underwent a single Endolaser session following all safety parameters for the technique. The Elyon® equipment (Cromatic Brasil) with synchronized wavelengths of 980 nm and 1470 nm was used, enhanced to 7.5 W for 980 nm and 7.5 W for 1470 nm, totaling 15 W.

A total of 1,500 ml of Klein's solution was infused using a 60 ml syringe attached to an 18G 100 mm cannula, evenly distributed across the abdominal area to be treated. An accumulated energy of 55,000 Joules was applied, with 35,000 Joules to the lower abdomen and 20,000 Joules to the upper abdomen.

Manual drainage was performed at the end of the procedure, and an elastic compression garment was applied. The patient was instructed to undergo lymphatic drainage twice a week for at least 4 weeks and to wear the elastic compression garment for at least 30 days.

Six hours after the procedure, the patient reported mild pain throughout the treated area and took 1 g of Dipyrone orally every 6 hours for 3 days, with the pain subsiding within the first 24 hours. The puncture sites were advised to be cleaned twice a day with iodinated alcohol and closed with microporous tape for 7 days.

In Figures 4, 5, and 6, the treatment result 45 days after the Endolaser procedure can be evaluated. A significant reduction in abdominal volume is noted in the photographic comparison.

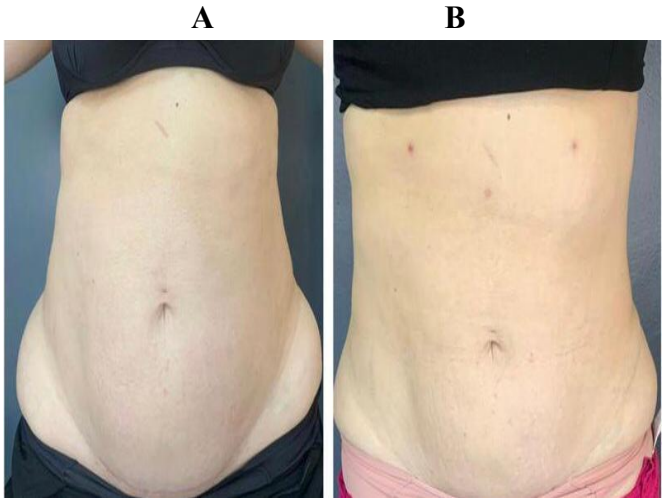

Figure 1. Frontal view (A) before and (B) forty-five days after a single Endolaser session.

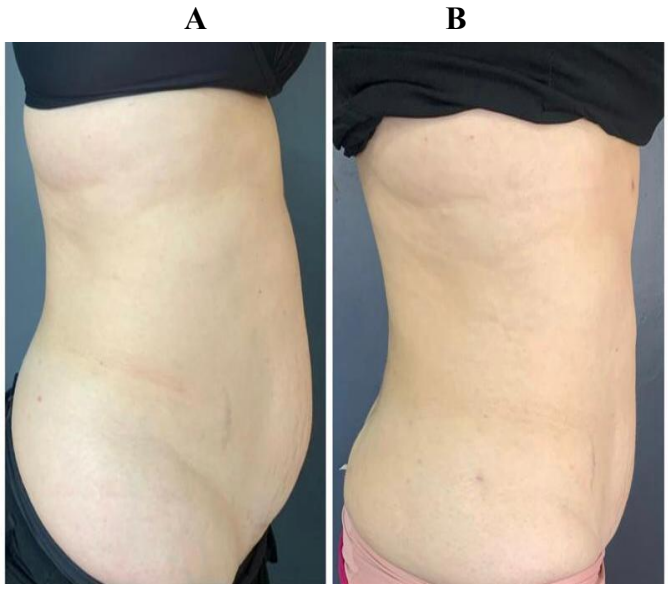

Figure 2. Right lateral view (A) before and (B) forty-five days after a single Endolaser session.

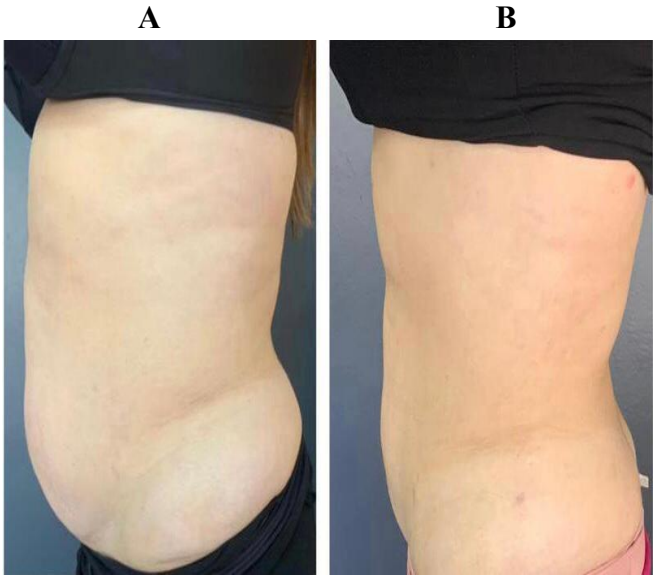

Figure 3. Left lateral view (A) before and (B) forty-five days after a single Endolaser session.

Case 3

Patient: T.C, 45 years old, female, diagnosed with a large abdomen. She underwent a single session of endolaser, following all safety parameters for the technique. The Elyon® equipment (Cromatic Brasil) with synchronized wavelengths of 980 nm and 1470 nm was used, enhanced to 7.5 W for 980 nm and 7.5 W for 1470 nm, totaling 15 W.

A total of 1,500 ml of Klein solution was infused using a 60 ml syringe attached to an 18G 100 mm cannula, distributed evenly across the abdominal area to be treated.

A total of 55,000 Joules of energy was applied, with 30,000 Joules focused on the lower abdomen and 25,000 Joules on the upper abdomen.

At the end of the procedure, manual drainage was performed, and an elastic compression band was applied.

The patient was advised to undergo lymphatic drainage twice a week for at least 4 weeks and to use the elastic compression band for a minimum of 30 days.

Six hours after the procedure, the patient reported mild pain throughout the treated area and was prescribed Dipyrone 1 g orally every 6 hours for 3 days, with pain subsiding within the first 24 hours. For the puncture sites, the patient was instructed to maintain hygiene twice a day using iodized alcohol and to cover the sites with microporous tape for 7 days. Figures 7, 8, and 9 show the results of the treatment 45 days after the endolaser procedure, demonstrating a significant reduction in abdominal volume, as seen in the photographic comparison.

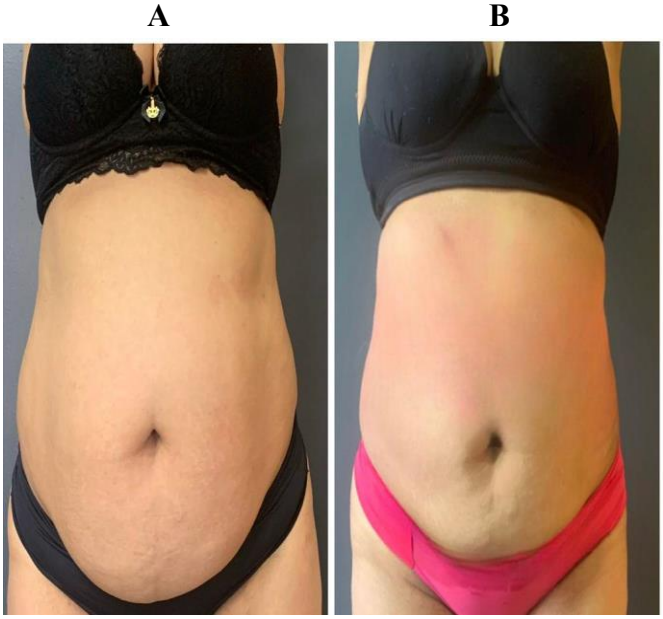

Figure 1. Frontal view (A) before and (B) forty-five days after a single Endolaser session.

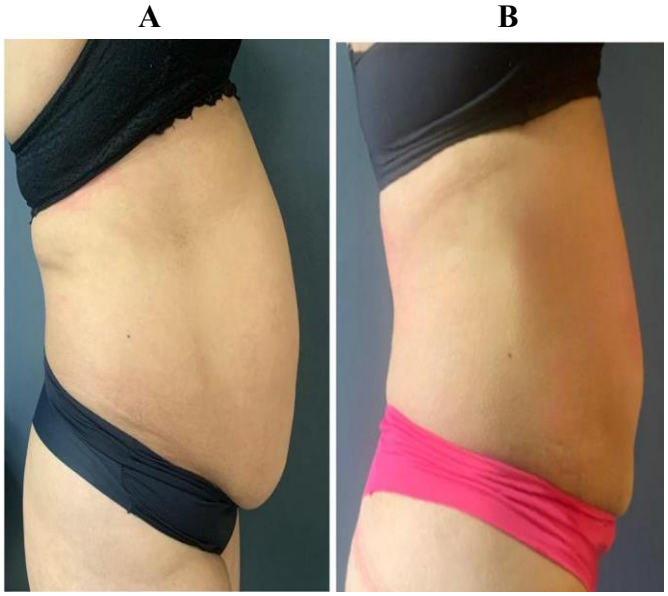

Figure 2. Right lateral view (A) before and (B) forty-five days after a single Endolaser session.

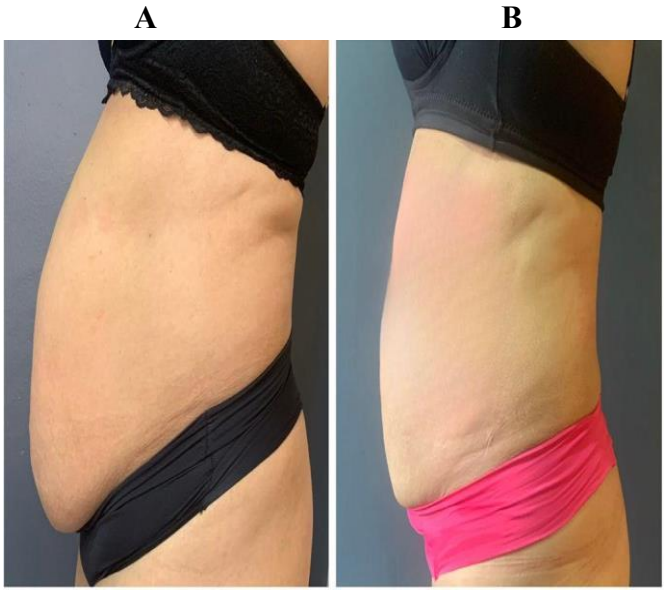

Figure 3. Left lateral view (A) before and (B) forty-five days after a single Endolaser session.

Case 4

Patient: F.M, 40 years old, female, diagnosed with a large abdomen.She underwent a single session of endolaser, following all safety parameters for the technique. The Elyon® equipment (Cromatic Brasil) with synchronized wavelengths of 980 nm and 1470 nm was used, enhanced to 7.5 W for 980 nm and 7.5 W for 1470 nm, totaling 15 W. A total of 1,500 ml of Klein solution was infused using a 60 ml syringe attached to an 18G 100 mm cannula, distributed evenly across the abdominal area to be treated. A total of 55,000 Joules of energy was applied, with 30,000 Joules focused on the lower abdomen and 25,000 Joules on the upper abdomen. At the end of the procedure, manual drainage was performed, and an elastic compression band was applied.The patient was advised to undergo lymphatic drainage twice a week for at least 4 weeks and to use the elastic compression band for a minimum of 30 days.

Six hours after the procedure, the patient reported mild pain throughout the treated area and was prescribed Dipyrone 1 g orally every 6 hours for 3 days, with pain subsiding within the first 24 hours. For the puncture sites, the patient was instructed to maintain hygiene twice a day using iodized alcohol and to cover the sites with microporous tape for 7 days.

Figures 10, 11, and 12 show the results of the treatment 45 days after the endolaser procedure, demonstrating a significant reduction in abdominal volume, as seen in the photographic comparison.

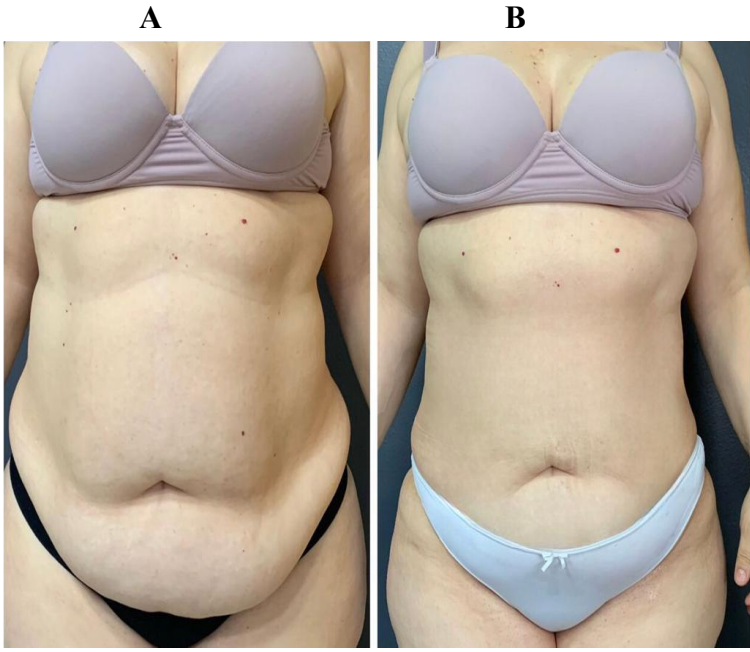

Figure 1. Frontal view (A) before and (B) forty-five days after a single Endolaser session.

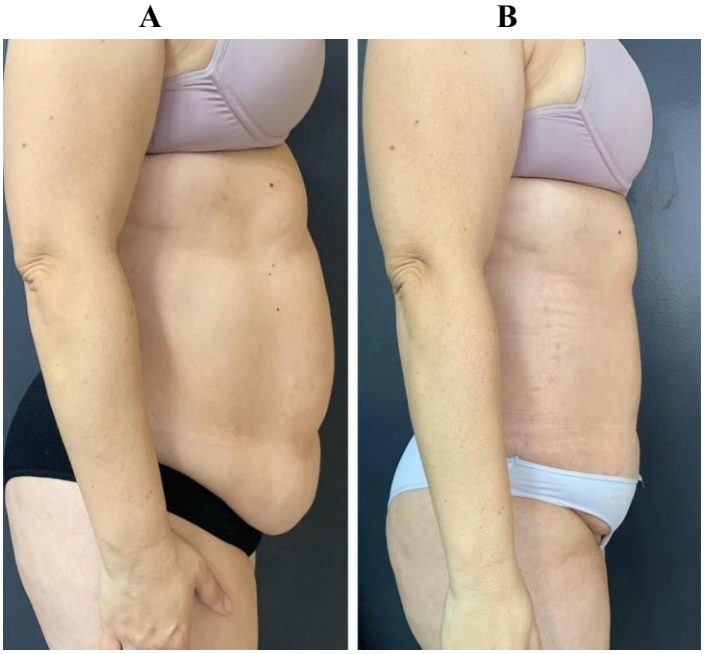

Figure 2. Right lateral view (A) before and (B) forty-five days after a single Endolaser session.

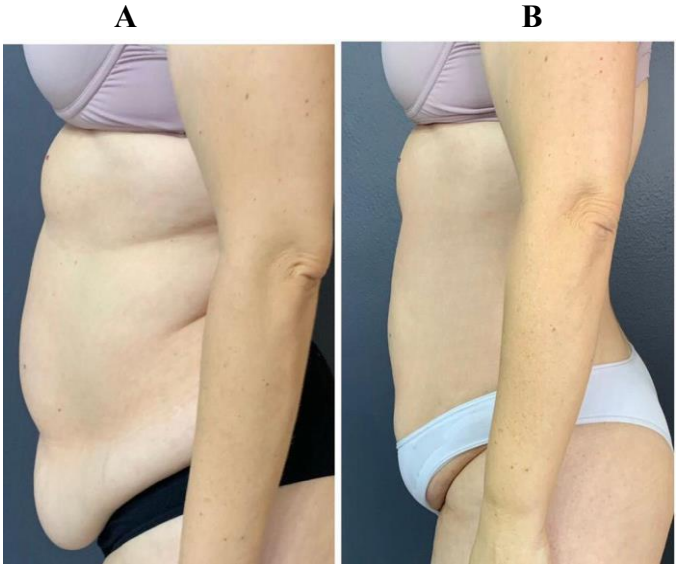

Figure 3. Left lateral view (A) before and (B) forty-five days after a single Endolaser session.

Results and Discussion

In recent years, many technologies and methods have been developed for the treatment of localized fat. The accumulation of fat in large volumes negatively impacts the quality of life of those affected, encouraging the search for aesthetic treatments to minimize this condition. In this context, the subdermal Endolaser technique, a minimally invasive or non-invasive method that uses an optical fiber to transmit a laser beam in the subcutaneous layer, causing adipocyte destruction mainly due to its photothermal effect, has contributed to visibly positive results. The results obtained in this study, based on image comparison and the patient's visual perception on the day of the procedure and 45 days later, show highly promising outcomes with significant reduction in abdominal volume and measurements before and after the Endolaser procedure. Another noteworthy benefit of the subdermal laser is the improvement in skin quality in the treated area. This effect is related to the heat transmission that raises the temperature in the lower reticular dermis, stimulating collagen and elastin, leading to immediate and delayed skin tightening and retraction.

Conclusion: This study demonstrates that subdermal laser with optical fiber transmitting wavelengths of 980 nm and 1470 nm synchronously can be a promising treatment modality for large abdomens. We have shown that it is a safe and effective method when applied under strict technical standards. It is a highly effective fat reduction therapy that can be used as a standalone tool or an addition to the surgical arsenal. However, to confirm these results, further investigations are necessary.

Conflicts of Interest The authors declare no conflicts of interest in the publication of this article.

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