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Elevalift: office-based, non-surgical laser scrotoplasty

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ABSTRACT

The aging process and certain pathological conditions can result in scrotal skin laxity, redundancy, and aesthetic concerns. Epidemiological evidence suggests that scrotal laxity is more common in men over 50 years of age and affects up to 25-30% of patients after significant weight loss. Current treatments are limited; scrotoplasty remains the standard surgical option, but it is associated with scarring, recovery time, and potential complications. Endolift®, a protocol developed by Eufoton® (Trieste, Italy) and applied as the Elevalift protocol for the genital area, is a minimally invasive, laser-assisted technique that has demonstrated efficacy in inducing collagen remodeling, skin tightening, and tissue retraction in various anatomical regions.
This publication reports on the first clinical experience conducted at the San Isidro Central Hospital "Melchor Angel Posse" (Buenos Aires, Argentina), evaluating the application of Endolift®/Elevalift in scrotal tissue, with a focus on the mechanisms of action, tissue characteristics, ethical compliance, safety profile, and preliminary results. All procedures were performed in accordance with the Declaration of Helsinki, and written informed consent was obtained from all patients. Approval was granted by the Institutional Bioethics Committee.

Key words: laser scrotoplasty; scrotal laxity; minimally invasive treatment.

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Introduction

Scrotal ptosis and redundant skin are common conditions, often associated with aging, weight loss, or congenital laxity.[1] While generally benign, these changes may cause discomfort, hygiene issues, or aesthetic dissatisfaction.[2]

Although the exact prevalence of scrotal laxity has not been comprehensively studied, clinical experience suggests that it is more frequent in men over the age of 50,[3] with an increasing incidence due to age-related collagen degradation and loss of dermal elasticity.[4] In men undergoing massive weight loss, scrotal laxity may affect up to 25-30%,[5] as part of generalized post-bariatric tissue redundancy. In younger populations, congenital or idiopathic scrotal laxity is less common but still reported, particularly in cases of connective tissue disorders.[6]

Traditional surgical correction (scrotoplasty) is effective but may involve complications such as infection, hematoma, hypertrophic scarring, or altered sensitivity, along with significant downtime.[7] Minimally invasive solutions are therefore sought by patients aiming to avoid surgery, scarring, and a long recovery.[8]

The Endolift® protocol (Eufoton®, Trieste, Italy) has been successfully applied to various anatomical regions, including the periorbital region, the submental region, and the inner thighs.[9] Its extension to the scrotum, called Elevalift, offers a novel outpatient, nonsurgical alternative for skin tightening, performed under local anesthesia.[10]

This article describes the first clinical experience with Elevalift for scrotal laxity, conducted at the San Isidro Central Hospital "Melchor Angel Posse" (Buenos Aires, Argentina), and evaluates its feasibility, safety, and preliminary results.

Anatomical and histological description of scrotal tissue

The scrotum is a specialized cutaneous sac that houses and protects the testes, epididymides, and lower spermatic cords. Its structural features relevant to laser-based interventions include:[1]

Skin: thin, highly elastic, and pigmented, with abundant sebaceous and sweat glands. With aging, collagen and elastin fibers degrade, leading to laxity.[11]

Dartos fascia: a smooth muscle and fascial layer beneath the skin, essential for thermoregulation, with loose connective tissue responsive to subdermal laser tightening.

Vascularization: richly supplied by external pudendal, cremasteric, and internal pudendal arteries, ensuring healing but necessitating precise energy control.

Innervation: provided by genitofemoral, ilioinguinal, posterior scrotal, and perineal nerves; sensory preservation is vital for sexual and functional integrity.

Subcutaneous tissue: minimal adipose tissue enhances direct collagen interaction with laser energy.

Histology: the dermis contains a thin collagen-elastin network highly responsive to controlled photothermal remodeling.[2]

Materials and Methods

Endolift® employs a RING ELX fiber (Figure 1), manufactured by Eufoton®, inserted into the subdermal plane. The fiber is powered by the LASEmaR® 1500 diode laser (Figure 2) at 1470 nm, a wavelength with high selectivity



Figure 1. Optical fiber used in the study (Eufoton®).



Figure 2. Device used in the study: LASEmaR® 1500 (Eufoton®).

for water and fat, enabling controlled photothermal effects with minimal collateral damage.[7]
The mechanisms of action are: i) induction of neocollagenesis and elastogenesis; ii) remodeling of the extracellular matrix; iii) dermal tightening and tissue retraction.[9]

Results (preliminary observations)

Three patients with scrotal laxity were successfully treated at the San Isidro Central Hospital "Melchor Angel Posse" with the LASEmaR® 1500 with RING ELX fibers (Figure 3 and Table 1).[10] This constitutes the first clinical application of Elevalift worldwide, confirming its feasibility and safety, with no adverse effects observed.
Protocol considerations: i) the scrotal skin was marked for the treatment areas, and retraction was measured; ii) the area was aseptically sterilized; iii) local anesthesia with 2% lidocaine was administered using a 22-G cannula; iv) the scrotal skin was carefully separated from the testicles, ensuring superficial application of the laser without risk to deeper structures; v) access was achieved through microincisions, and energy was delivered in a retrograde fan; vi) six treatment areas were addressed, with individualized adjustments and total energy recording; vii) the procedures were performed with minimal recovery time.

Discussion

The scrotum presents specific challenges due to its thin dermis, high vascularity, and crucial role in thermoregulation and sensation.[2] Effective rejuvenation requires a careful balance between retraction and preservation of physiological function.[4]
Alternative treatment options are: i) surgical scroto-plasty, which is the gold standard for severe laxity and is effective but invasive, with risks of scarring, hematoma, infection, sensory loss, and a lengthy recovery period; and ii) barbed threads, with limited experience reported and a relatively long learning curve.[5]

Table 1. Elevalift clinical case summary (scrotal treatment).

Case	Age (years)	Indication	Areas treated	Energy (J)	Follow-up (months)	Outcome	Adverse events
1	65	Scrotal skin laxity	2	100	1	Patient satisfaction	None
2	61	Scrotal ptosis y and redundanc	2	200	1	Marked improvement, improved comfort	None
3	58	Hydrocele	2	400	1	Perfect retraction, progressive redundancy	None

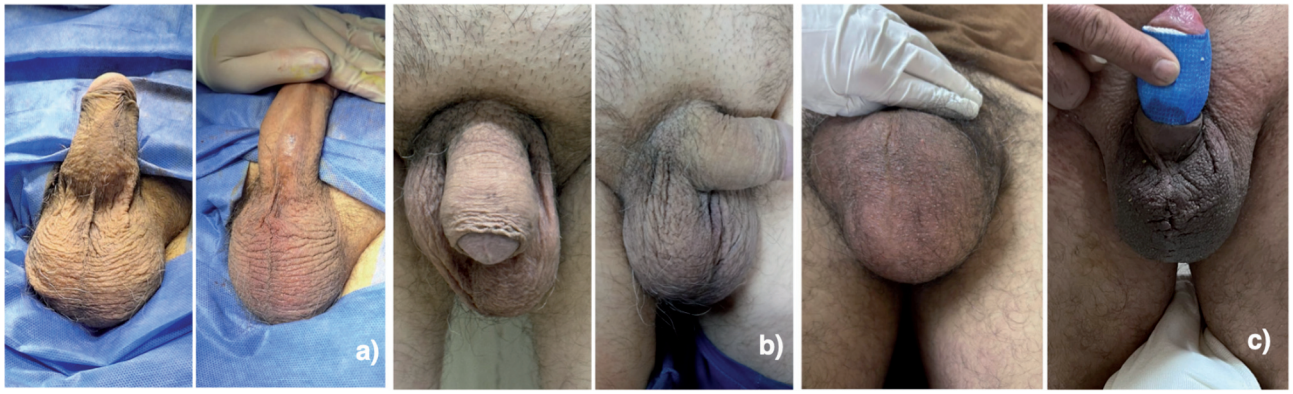


Figure 3. Clinical cases. Before-and-after images at t0 and after surgery: a) substantial reduction in laxity with scrotal elevation; b) major improvement in ptosis and redundancy, with functional and aesthetic gains; c) moderate tightening with remodeling expected to continue.

Compared to these options, Endolift®/Elevalift offers: i) a minimally invasive, scarless solution; ii) precise subdermal energy delivery, superior to the capabilities of radiofrequency; iii) thermal collagen stimulation without the deposition of foreign materials; iv) performance in an outpatient setting under local anesthesia; v) minimal recovery time and lower risk of complications; and vi) the option to repeat sessions for progressive tightening in the office setting under local anesthesia.[6]

Conclusions

Elevalift, the genital-specific adaptation of Endolift® technology, represents an innovative and minimally invasive alternative to surgical scrotoplasty. The application of LASEmaR® 1500 with RING ELX fiber achieves safe and effective tightening of scrotal tissue. This study reports the first clinical experience worldwide, conducted at the San Isidro Central Hospital "Melchor Angel Posse". The initial results confirm the feasibility, safety, and patient satisfaction. Larger prospective studies with long-term follow-up are needed to consolidate these findings.

Conflict of interest: the author has no conflict of interest to declare. Eufoton® had no role in study design, data collection, data analysis, manuscript preparation, or the decision to publish.

Ethics approval and consent to participate: this clinical trial was conducted in full compliance with the Declaration of Helsinki (2013 revision). The protocol received formal approval from the Institutional Bioethics Committee of the San Isidro Central Hospital "Melchor Angel Posse" (Buenos Aires, Argentina). These safety measures ensured that the treatments met strict ethical and clinical standards. All patients signed a written informed consent form before treatment, acknowledging the procedure, outcomes, and potential risks.

Availability of data and materials: the datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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