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Case study

Progressive Lipodystrophy: topical laser treatment with Endolift® procedure using Eufoton® LASEmaR®1500 1470-nm wavelength

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DISCLOSURE: **ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE**

ABSTRACT

Lipodystrophies are a group of rare disorders of diverse aetiology characterised by variable body fat loss. The loss of body fat may affect nearly the entire body (generalised), only certain body regions (partial) or small areas under the skin (localised). Body fat loss can result from underlying genetic defects, autoimmune mechanisms, or drugs. Progressive lipodystrophy is a chronic, inflammatory, degenerative disease of the connective tissue. It leads to the blockage of the circulation and lymphatic drainage, followed by an accumulation of toxins, which promote hyperplasia of the fat cells. As a consequence, connective tissue rigidity promotes skin dimpling or orange skin. This study was designed to evaluate the efficiency of Endolift®, a novel minimally invasive outpatient laser procedure, for the treatment of Progressive Lipodystrophy. 30 women showing cellulite, in the range of 20 to 55 y-o, were enrolled for this study. Patients have undergone a single treatment under tumescent anaesthesia. Treatment was performed using the Endolift® procedure, consisting of the device Eufoton® LASEmaR® 1500. In addition, a 1470-nm wavelength laser was utilised, lead by micro-optical fibres of different calibres directly inside the skin. This treatment aims to destroy and remove degenerative connective tissue and promote neocollagenesis. Optimal results were obtained by 23 patients, 5 had good results, and 2 reported moderate results. No side effect was recorded. Adipocytolysis was performed on 6 patients and we removed 50 to 350 ml of fat. Even after 3 years, 80% of patients maintain significant results. These data show that Endolift® laser treatment represents one of the most effective treatments for removing Progressive Lipodystrophy.

INTRODUCTION

Lipodystrophies are a group of rare disorders of various aetiology. They are characterised by variable loss of body fat, which may affect nearly the whole body (generalised), only some of its regions (partial) or small areas (localised). Depending upon the severity and extent of body fat loss, patients may be predisposed to metabolic complications associated with insulin resistance (1, 2). These metabolic complications include early-onset diabetes mellitus, hypertriglyceridemia and hepatic steatosis (1-3). Lipodystrophies can result from underlying genetic defects (genetic) or autoimmune mechanisms (acquired) or drugs (1-3). Not all lipodystrophy syndromes can be classified into the cited categories (4, 5), given the heterogeneity of manifestations. Genetic, lifestyle and hormonal influences are important causes of lipodystrophy.

In particular, this work deals with Progressive Lipodystrophy (PLD). PLD is a chronic, progressive, inflammatory, degenerative disease of the connective tissue. As a result of the degenerative changes of connective tissue, circulation and lymphatic drainage blockage occurs. As a result, there is an accumulation of toxins, which promote hyperplasia of fat cells. Therefore, rigid connective tissue cannot stretch, promoting skin dimpling or “orange skin”. Women are prone to PLD development mainly because of the different anatomical distributions of the connective tissue. Almost every woman has PLD, which is not related to body weight. Physical activity can prevent cellulite development, but when PLD development is present, it can be removed only with treatments. This study was designed to evaluate the efficiency of Endolift®, a novel minimally invasive outpatient laser procedure, for treating PLD.

MATERIALS AND METHODS

Thirty women aged 20 to 55 were enrolled on this study. Patients have undergone a single treatment under tumescence anaesthesia. Treatment was performed using the Endolift® procedure, which consists of the device Eufoton® LASEmaR® 1500. This device uses a 1470-nm wavelength laser lead by micro-optical fibres with different calibres: 400, 600 and 1000 microns. Fibres are characterised by 360° radial irradiation. Laser parameters were set as follows: power 8 to 9 Watts, pulse duration 25 ms to 75 ms. After that, patients were prophylactically treated with antibiotics per oral administration.

Optical energy fibre irradiation performed laser sub-incision to remove skin dumplings; at the same time, energy irradiation was able to destroy adipocytes excreted through urine. Moreover, optical energy promotes the direct destruction and removal of degenerative connective tissue allowing the newly synthesised collagen to replace it.

RESULTS

Of the 30 females enrolled, the age range was 20 to 55 y-o. All of them were affected by cellulite. Twenty-three patients reported optimal results, 5 had good results, and 2 had moderate ones. Five women developed small haematomas, which vanished after 3 to 7 days. No side effects were recorded. After the treatment, oral prophylactically antibiotic was administrated. Six women underwent adipocytolysis (50 to 350 ml of fat was removed) (Fig. 1). The first results were seen a few weeks after the treatment and improved over the next 11 months. Anticellulite treatment needs multiple sessions, mostly with mild to moderate improvement.

Most women report improved circulation and lymphatic drainage, reduced leg swelling, and development of hematomas; the average downtime was 1 to 3 days. We have observed patients after 1, 3, 6, and 9 months and after 2 and 3 years; even after 3 years, most women had significant results.

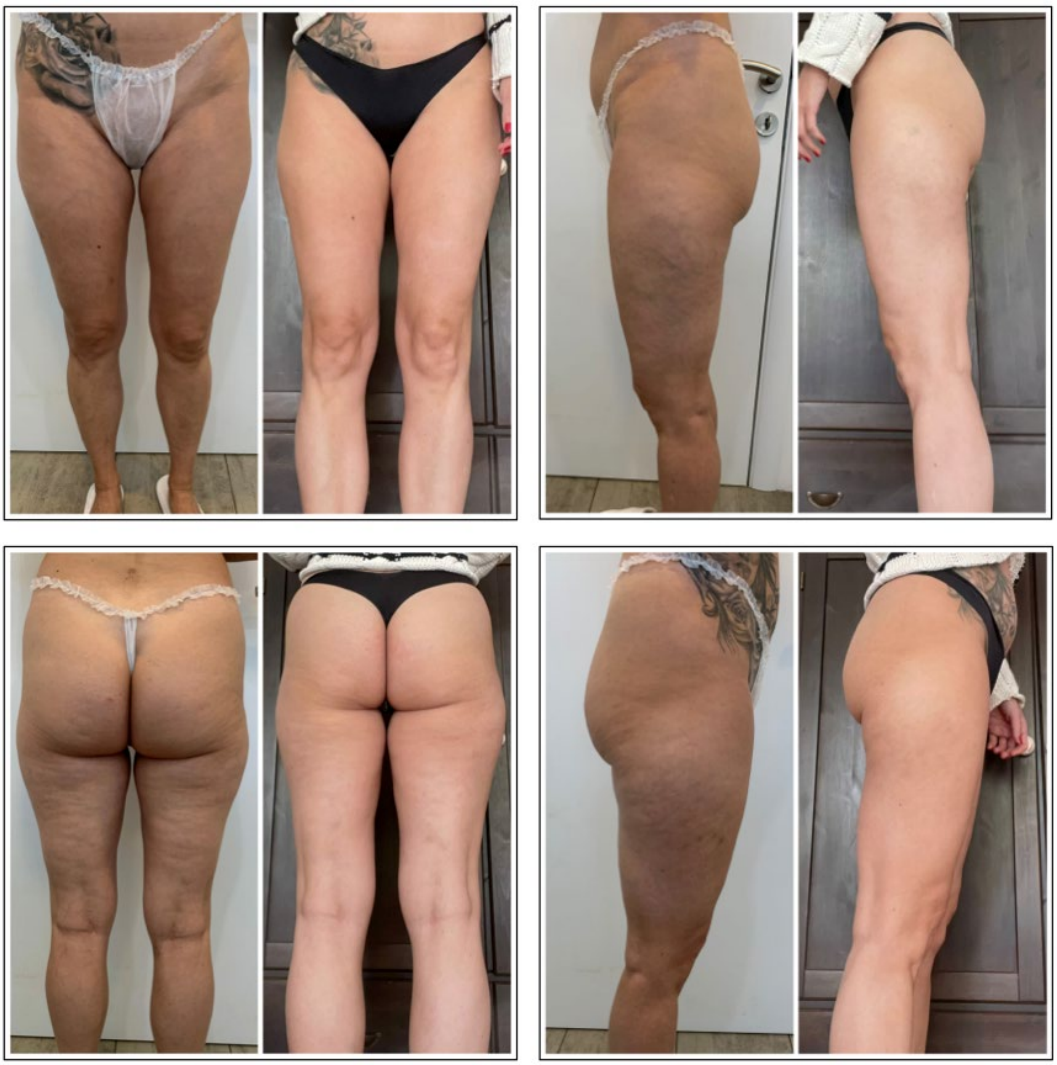

Fig. 1. *Progressive Lipodystrophy treatment. After adipocytolysis, Endolift® procedure (which consists of the use of the device Eufoton® LASEmaR® 1500, 1470-nm wavelength laser) was performed. The figure shows the effect on a 40 y-o woman.*

DISCUSSION

Endolift® efficacy, a novel minimally invasive outpatient laser procedure for treating Hidradenitis suppurativa, was performed on 30 women with cellulite aged 20 to 55. Twenty-three patients reported optimal results, 5 had good results, and 2 had moderate ones. 5 women developed small haematomas, which vanished after 3 to 7 days. No side effects were recorded. These data show Endolift® is a minimally invasive treatment for progressive lipodystrophy removal and represents one of the most effective treatments for this fat disorder.

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