Cellulite Treatment Using Endoscopic Scissors

Nour Alharthi, Mohammed A. Alsufyani

INTRODUCTION

Cellulite is a common problem affecting 85% of all women over the age of 20 years from all races. Cellulite is defined as a localized metabolic disorder that causes herniation of the subcutaneous fat within the fibrous septa, leading to dimpling and nodularity of the skin. It is usually found in the hips, thighs, and abdomen. The etiology is not well understood. Several predisposing factors are well known to worsen the condition, such as hereditary, sedentary life style, pregnancy, hormonal influence, and ethnicity, more often in white women. Cellulite is classified to four grades according to Nurnberger-Muller cellulite classification, as shown in Table 1. Stage zero has no dimpling when the subject stands and lies down, and the pinch test reveals folds and furrows but no mattress-like appearance. Stage 1 has no dimpling, but the pinch test reveals the mattress-like appearance. Dimpling that appears spontaneously when standing is seen only in stage 2. Stage 3 dimpling is spontaneous and seen when both standing and lying down. The treatments for cellulite include noninvasive and invasive therapies. We report a new surgical technique that we found to be effective in treating cellulite.

DESCRIPTION OF THE TECHNIQUE

The patient is positioned in a standing posture with overhead lighting to exaggerate the cellulite and locate it better. It is marked with any color the surgeon feels comfortable with; we prefer red for its convenience (Figure 1). The patient is brought into the operating room and prepped, and the areas to be treated are sterilized in the usual manner. A standard Klein’s tumescent anesthesia is infiltrated into the region, ensuring adequate infusion of both superficial and deep fat layers. If the patient was scheduled for liposuction in the same area, cellulite treatment is undertaken first to ensure that the...
Cellulitic bands are still under tension; this helps capture and release the bands, analogous to someone holding a string tight while you cut it with scissors. Given the length of the endoscopic scissors, the entry wound may be placed in a concealed region, even if some distance from the cellulite. The choice of using straight versus curved-tip scissors is entirely up to the surgeon; they both work. We opted to use curved ones simply because we feel they offer more control over the orientation of the tip direction in relation to the location of the cellulitic band (Figure 2). The endoscopic scissors are introduced with the tips closed and oriented superiorly. When the surgeon reaches the cellulitic band, the scissors are opened to hook the band and secure it between the blades of the scissors. The band is released with the scissors; this may require one to three snips. The procedure is demonstrated in the video link. (https://youtu.be/x96GuqcTrW).

**DISCUSSION**

The tremendous demand by woman of all ages for cellulite therapy has resulted in several studies to find the best cellulite treatment.

Both noninvasive and invasive techniques have been described in literature. However, the treatments in these studies lacked long-term efficacy and longevity\[^1\]. In fact, no one treatment is completely successful\[^1\].

Noninvasive therapies, such as endermologie, phosphatidylcholine, mesotherapy, radiofrequency devices, extracorporeal shock wave therapy, and several topical therapies may show some improvement, but all these therapies need multiple sessions, have questionable long-term sustainability, and are not cost effective\[^1\].

Invasive therapies for cellulite have been shown to be more efficacious when compared to noninvasive therapy. Liposuction is considered outdated according to recent reports indicating that manual liposuction results in poor cosmetic outcome\[^2\] and actually might cause exaggeration of cellulite. Another modality of treatment, ultrasound-assisted liposuction, was found to be safe and less destructive to the connective tissue than the conventional liposuction technique\[^3\]. To date, it is unknown whether to consider the preservation of such connective tissue in ultrasound-assisted liposuction superior. Laser-assisted liposuction was suggested as superior to manual liposuction in treating small surface areas of cellulite, but supporting evidence is absent in the literature\[^4\].

Currently, cellulite treatment is performed to destroy fat selectively with skin tightening. ND-YAG (1064 nm) laser treatment in combination with fat transplant has been found effective with additional skin tightening, with a more than 80% patient satisfaction rate\[^5\]. Minimally invasive pulsed 1440 nm Nd: YAG works by heating the dermis from the inside out to increase dermal thickness and skin elasticity by stimulating neocollagenesis and collagen remodeling\[^6\]. This indicated significant improvement; however, more randomized, controlled studies are required to assess the degree of improvement.

Radiofrequency has achieved tissue tightening by heating the skin to mediate a reaction in dermis and collagen denaturation thermally. High- and low-radiofrequency devices have been used. Combining radiofrequency with suction (750 mmHg negative pressure) in published randomized controlled trials (RCTs) showed no statistically significant improvement compared to monotherapy\[^7\].

Haxsel et al\[^8\] showed up to 78% patient satisfaction by using subcision, which improved skin dimpling by severing the septae\[^9\] that hold fat lobules resulting in skin dimpling. Subcision was found to be effective in treating cellulite but with controversial long-term results. The technique to achieve the result used a 16- or 18-gauge needle inserted in subcutaneous fat in a direction parallel to the epidermis, shearing the septae.

Cellfina, an FDA-approved for cellulite treatment, targets the fibrous bands under the dimpled skin. By using the Cellfina suction device on the skin, locally infiltrated with anesthetic agent, a sharp instrument releases the band. It is considered the most effective for the dimple type of cellulite\[^10\]. Cellfina has shown high patient satisfaction rate, almost no downtime, and long-lasting results\[^11\].

In recent updates, a dramatic improvement was achieved by combining therapies. Brandi et al. reported a significant improvement in skin irregularity by using carbon dioxide therapy 3 weeks after liposuction, administered two times a week for the treatment period. Transcutaneous carbon dioxide also can be used as a monotherapy and has been associated with improvement in skin elasticity by disrupting adipocyte tissue and altering microcirculation\[^12\].

In our technique, we report a new cellulite treatment technique by using surgical endoscopic scissors to release cellulitic bands. We included 12 healthy females with no known comorbidity, ages 29 to 36 years old, who had cellulite grade III and higher on the
Numberger-Muller cellulite classification. The Global Aesthetic Improvement Scale (GAIS) was used as well to measure the patient satisfaction rate (Table 2). Ten of the patients achieved a score of 4 by GAIS, and two patients achieved a score of 3 (Table 3). The side effects observed in the trial were limited to bruises, paresthesia, and swelling all resolving within three weeks. The mean follow-up period was four months. The advantage of this procedure is that only one concealed access wound is made in the skin rather than multiple access wounds, which can increase the risk of scars and post-inflammatory hyperpigmentation, which are very common in our region (the Middle East) due to our skin type, which ranges from 3 to 5 Fitzpatrick’s skin type. In addition, the endoscopic scissors are autoclavable, so there are no consumables with frequent usage, and this is very cost effective in both the short and long term. The final results are usually appreciated after 3 to 4 months after one session (Figures 3 and 4).

CONCLUSION

Cellulite is common, affecting most females; much effort has been expended to find the best treatment. Reported noninvasive and invasive measures have varied in efficacy and longevity. Compared to those, our technique has the advantage of the possibility of performing the procedure under tumescent anesthesia while the patient is conscious, and requiring only one or two access wounds, with fewer side effects and high satisfaction rates. Despite these findings, more randomized controlled studies are advised to evaluate the efficacy of our technique objectively.

REFERENCES