Non-Invasive Treatment Of Contour Irregularities Combining Higher Fluence Dual-Wavelength Energy With Vacuum In Small Anatomic Areas

Kenneth Beer Kenneth Beer MD, Medical, Surgical and Cosmetic Dermatology

BACKGROUND

Contour irregularities are one of the most common complaints patients present to plastic surgeons and dermatologists. These alterations may be the result of cellulite or they may follow a liposuction procedure. Present treatment modalities are less than optimal for a variety of reasons including low patient satisfaction, risks associated with the procedures and lack of objective efficacy of many of them. These treatments include topical preparations, mesotherapy, radiofrequency and ultrasound devices, and midinfrared wavelength lasers coupled with pneumatic suction. This report details a pilot study performed using non invasive laser technology combined with vacuum to decrease the appearance of cellulite. Patients in this trial had high satisfaction and low adverse events. We present this data as initial observations with the hope of further exploration into this technology.

OBJECTIVE

The purpose of this study is to evaluate the safety and efficacy of a new high powered dual wavelength device handpiece for the improvement in the appearance of contour irregularities in small challenging anatomic areas that are prominent in petite women with a low BMI.

STUDY

10 female subjects between the age of 36-70 and presenting with contour irregularities were enrolled in the study. Fitzpatrick skin type was I and II with an average BMI of 22. Nine subjects completed treatments. The subjects were treated with a lowlevel, dual wavelength laser (650nm and 915nm) and massage device (SmoothShapes XV™ with Petite laser handpiece, Cynosure, Westford, MA) utilizing a new Petite handpiece. Patients received 8 treatments over a 4 week period for 20 minutes. Treatment areas included the knees, arms, and stomach. At each treatment session, the patient rated the sensation of the treatment and the clinician rated any adverse events. Standard photographs were taken at baseline and at 1 month and 3 month follow-ups. At three months efficacy was assessed by clinician and patient satisfaction based on a 6 point scale of 1=extremely dissatisfied; 2= dissatisfied; 3=slightly dissatisfied; 4=slightly satisfied; 5=satisfied; 6=extremely satisfied.

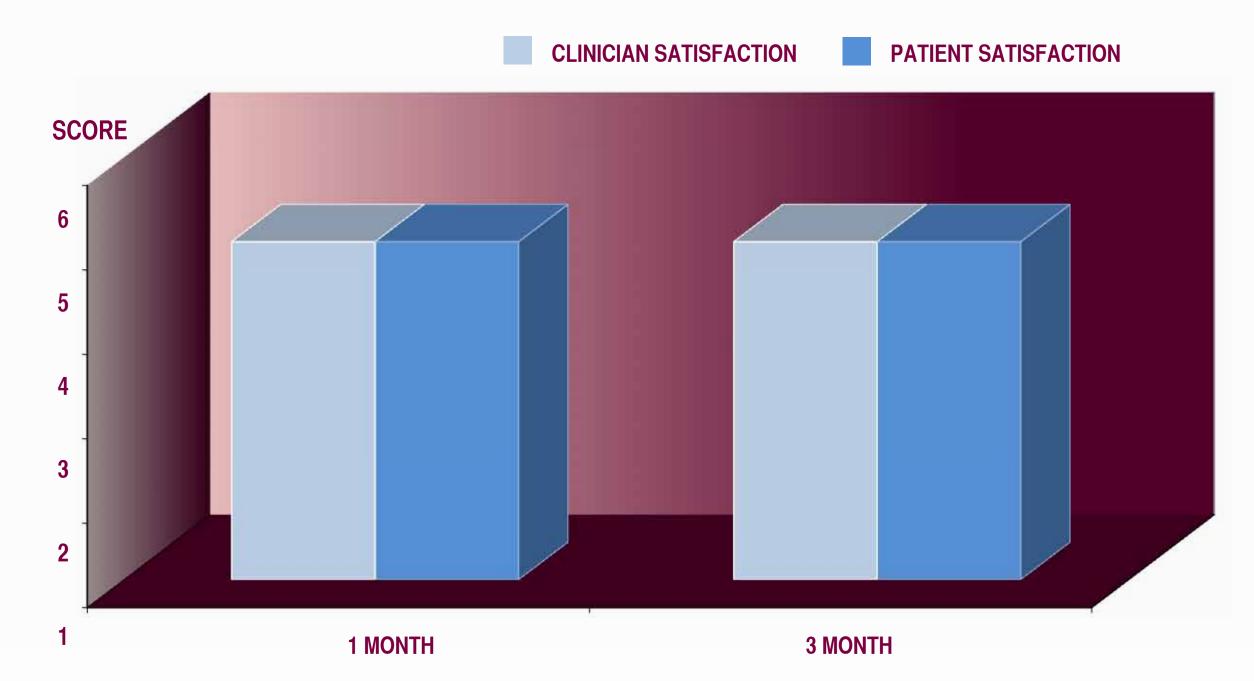
RESULTS

Significant improvement was reported by both patient and physician. Subjects were evaluated at month 1 and month 3 following treatment. Minimal adverse effects were reported. This included mild edema and ecchymosis. 80% of patients were satisfied with the treatment and noted improvement according to patient survey. Physician and subject satisfaction was high and correlated with level of clearance. The median patient satisfaction ratings at both month 1 and 3 were constant suggesting the treatment effect was consistent.

CONCLUSION

The SmoothShapes XV laser with Petite handpiece is a unique combination of laser and light wavelengths and gentle vacuum which have been successful at improving the appearance of contour irregularities including cellulite and post liposuction irregularities. It has a high degree of patient satisfaction and success and its non invasive nature makes it uniquely suited for cosmetic practices.

Chart 1 MEDIAN SATISFACTION SCORE (1-6)



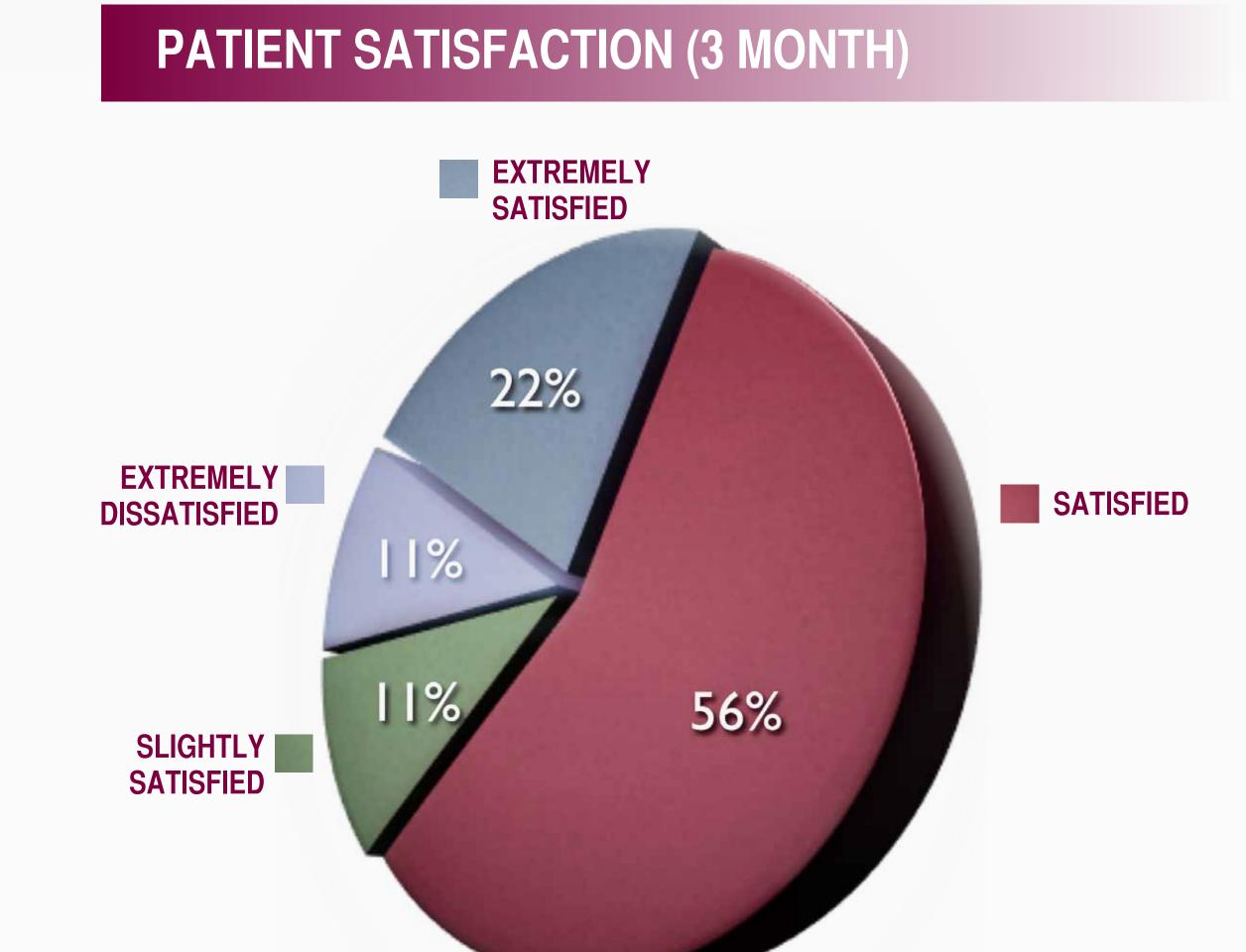
Both Clinician and Patient reported a consistently high satisfaction score at both one month and three months

Before and 3 months post series of 8 SmoothShapes XV with Petite treatments.





Chart 2



80% of patients were satisfied with the treatment at three months



REFERENCES

- 1. Body Shaping and Skin Tightening: A Proliferation of New Products, Medical Insight, Inc. September 2010, Web, milnews.com
- 2. Avram MA. Cellulite: a review on its physiology and treatment. J Cosmet Laser Ther. 6: 181-185
- 3. Bacci PA. Anatomy of cellulite and interstitial matrix. In: Goldman MP, Bacci PA, Leischoff G, Hexsel D, and Angelini F (eds). Cellulite: pathophysiology and treatment. Taylor and Francis, New York, pp (29-40)
- 4. Cox, SE, and Finn, JC. (2005). Social implications of hyperdymanic facial lines and patient satisfaction outcomes. Int Ophthalmol Clin, Summer; 45 (3): 13-24.
- 5. Wanner, M., and Avrum, M. (2008). An evidence-based assessment of treatments for cellulite. Journal of Drugs in Dermatology, 7(4), 341-345.
- 6. Querleux, B., Cornillon, C., Jolivet, O., and Bittoun, J. (2002). Anatomy and physiology of subcutaneous adipose tissue by in vivo magnetic resonance imaging and spectroscopy: relationships with sex and presence of cellulite Skin Research and Technology 8: 118-124.
- 7. Rosenbaum, M., Prieto, V., Hellmer, J., Boschmann, M., Krueger, J., Leibel, R.L., and Ship, A.G. (1998). An exploratory investigation of the morphology and biochemistry of cellulite. Plastic and Reconstructive Surgery, 101, 1934-1939.
- 8. Nurnberger, F. and Muller, G. (1978). So-called cellulite: An invented disease. Journal of Dermatologic Surgery and Oncology, 4(3), 221-229.
- 9. Pierard, G.E., Nizet, J.L., and Pierard-Franchimont, C. (2000). Cellulite: from standing fat herniation to hypodermal stretch marks. American Journal ofDermatopathology, 22(1), 34-37.
- 10. R Neira, M.D., J Arroyave, B.S.C.E., T.E.M., S.E.M., H Ramirez, M.V., C Ortiz, M.D., E Solarte, Dr., F Sequeda, Ph.D., M Gutierrez, M.D., M.Sc., Ph.D. Fat Liquefaction: Effect of Low-Level Laser Energy on Adipose Tissue. PLASTIC AND RECONSTRUCTIVE SURGERY, September 1, 2002. Vol. 110, No. 3. Pp 912-921.
- 11. Abergel RP, Lyons RF, Castel JC, Dwyer RM, Uitto J. Biostimulation of wound healing by lasers: Experimental approaches in animal models and in fibroblast cultures. J DermatolSurgOncol. 1987;13:127–33.
- 12. Neira R, Toledo L, Arroyave J, Solarte E, Isaza C, Gutierrez O, et al. Low-level laser-assisted liposuction: The Neira 4 L technique. ClinPlast Surg. 2006;33:117–27.
- 13. Lach, MD. Reduction of subcutaneous fat and improvement in celluliteappearance by dual-wavelength, low-level laser energy combined withvacuum and massage. Journal of Cosmetic and Laser Therapy. 2008; 10: 202–209
- 14. Anderson RR, Farinelli W, Laubach H, Manstein D, Yaroslavsky AN, Gubeli J 3rd, et al. Selective photothermolysis of lipid-rich tissues: A free electron laser study. Lasers Surg Med. 2006;38:913–19.
- 15. Longo L, Evangelista S, Tinacci G, Sesti AG. Effect of diodes-laser silver arsenide-aluminium (Ga-Al-As) 904 nm on healing of experimental wounds. Lasers Surg Med. 1987;7:444–7.
- 16. PankratovMM, StollML,Morrison A, et al., PhotomologyTM- Some experimental evidence in support of postulated mechanism of action. Lasers Surg Med. 2008; 40, S20–55.
- 17. Pankratov MM. Does body countering need to be painful? PhotomologyTM A dynamic combination of dual-band lowintensity light therapy with vacuum and mechanical massage for non-destructive treatment of cellulite and subcutaneous fat reduction. Light-Activated Tissue Regeneration and Therapy, Springer; 2008 (in press).