

Clinical And Histological Presentation After Plexr Application, Needle Shaping (Vibrance) And O.F.F

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ABSTRACT

This study was written after three years of implementation of the innovative techniques Plexr, Needle Shaping (Vibrance) and O.F.F (lipolysis) where it was found these devices is the latest technology for Blepharoplasty and Non Invasive Eye Lid Surgery, body reshaping and lipolysis. These techniques have been applied to hundreds of patients who were completely happy with the results (treatments on the face or body). After the desired results in clinical presentation of the patient's, we wanted to test if histology presentation is consistent. Therefore we took biopsies (human tissue) for each of the techniques which were examined by the Laboratory of Forensic Medicine and Toxicology in Athens Medical School.

Keywords: Plexr, Needle Shaping, Vibrance, O.F.F, lipolysis, biopsy, elastic fibres, histological, clinical, staining, skin, tissue.

Introduction

What is Plexr?

Plexr is a cordless micro-surgical hand operated device that transfers concentrated heat to the treated skin tissues. It uses the difference in voltage between the device and the patient's skin. The difference in voltage generates a small electrical arc, similar to a minute lighting. The small lighting causes the sublimation of the fluids contained in superficial part of the skin, without unwanted heat transmission to the adjacent tissues. Additionally it acts on the superficial layer of the skin preserving the lower layers; this will reduce drastically any potential permanent skin damage that could be caused by the misuse of conventional lasers.

What is Needle Shaping (Vibrance)?

Needle Shaping is the only microsurgery technique which is able to perform a subcutaneous micro trans-plant and at the same time a bio stimulation. With this microsurgery technique it is possible to increase the volume of the lips, the cheekbones and sunken scars without injecting any kind of material or chemical. This is an autotransplantation of tissue by traction, though it might be more appropriate to speak of it as an acupuncture, through which high tension and limited galvanic current are passed. The mixed currents, strengthened by their synergic action, regulated at such intensity so as to not be perceived by the patient, except in particularly sensitive parts, slightly dehydrate the elastic fibres of the derma and this way they hook onto the needle and principally bind to each other creating a lasting effect. At this point they

are delicately wound up into a sort of spindle of autologous material which is visible when moving the needle. The traction exercised must be such as to obtain a certain volume of fibres without these tearing. Liquids are eliminated by osmosis due to the saline deprivation caused by the currents to prevent the fibres and the collagen from unwinding.

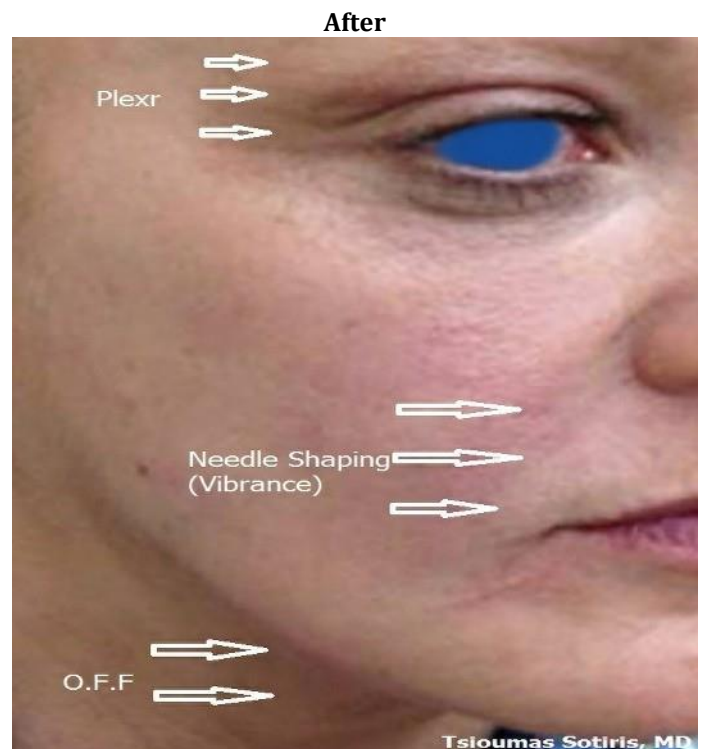
What is O.F.F?

O.F.F is an electromedical apparatus that uses sinusoidal wave with a fixed frequency of 1230 kHz fractional flow of emission. This frequency was chosen because it produces a series of biological effects that are perfectly suitable for treating a great variety of skin blemished otherwise not treatable by other apparatuses. This same frequency is used for both therapeutic ultrasound and for radio frequency, but in this case only one active electrode is used without the relative earth, departing thus from the effects of ultrasound and radio frequency. We only use the thermal effect of this programmed flow current to selectively increase the temperature of the tissues without the earth electrode, the programmed electric currents supplied by the O.F.F radiate along the external surface of the treated body. This apparatus is totally autonomous from electric mains and this makes it handy to use and not subject to routine annual servicing.

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Source: Tsioumas Sotiris, MD

Methodology

Mr. Chorozidis Ioannis (Dermatologist-Venereologist) took biopsy from the brachial region: a) we did xylocaine and adrenaline anesthesia around the area that is painted, without going into the dots of which will take biopsies (photo 1). b)

At the bottom of the rectangle (photo 2) we took a sample for biopsy without applying any of the devices. In the middle spot, biopsy was taken immediately after application of Needle Shaping (Vibrance) in which we observe intense hyperemia. At the top (first spot) biopsy was taken immediately after applying Plexr (microspots).

Photo 1

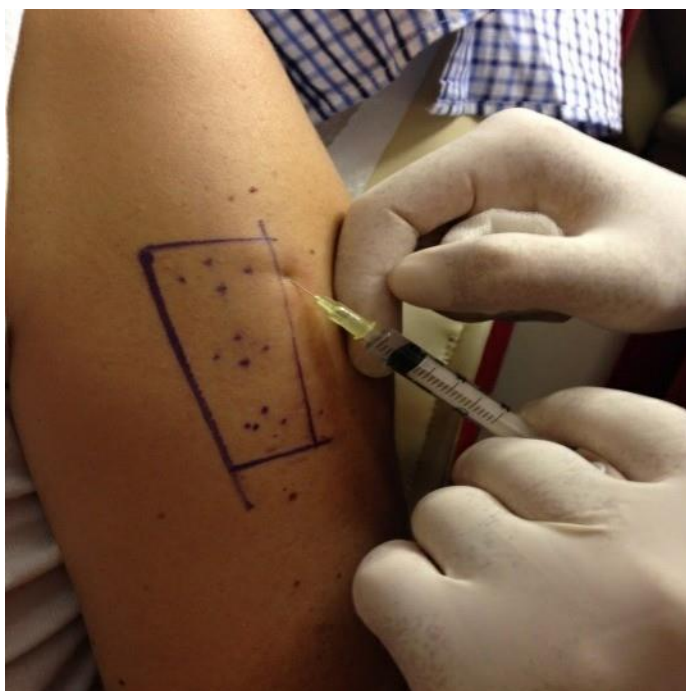


Photo 2



Source: Tsioumas Sotiris, MD

We observe the stitches after five days and the withdrawal of crusts (photo 3). After 15 days while the stitches are not cut, the crusts have left (photo 4). At the point which was applied Plexr, we notice a pinkish color. In the middle of the same

photo (photo 4) second biopsy was taken after application of Needle Shaping, because of intense hyperemia in the first biopsy. We stitched the second scar after taking the biopsy (photo 5)

Photo 3**Photo 4****Photo 4**

Source: Tsioumas Sotiris, MD

Biopsies were also taken from the abdomen after applying the OFF (lipolysis). Technique of lipolysis was applied (photo 6) and immediately after, doctor took biopsy (photo 7).

Photo 6**Photo 7**

Source: Tsioumas Sotiris, MD

Stitching of the scar after taking the biopsy (photo 8).

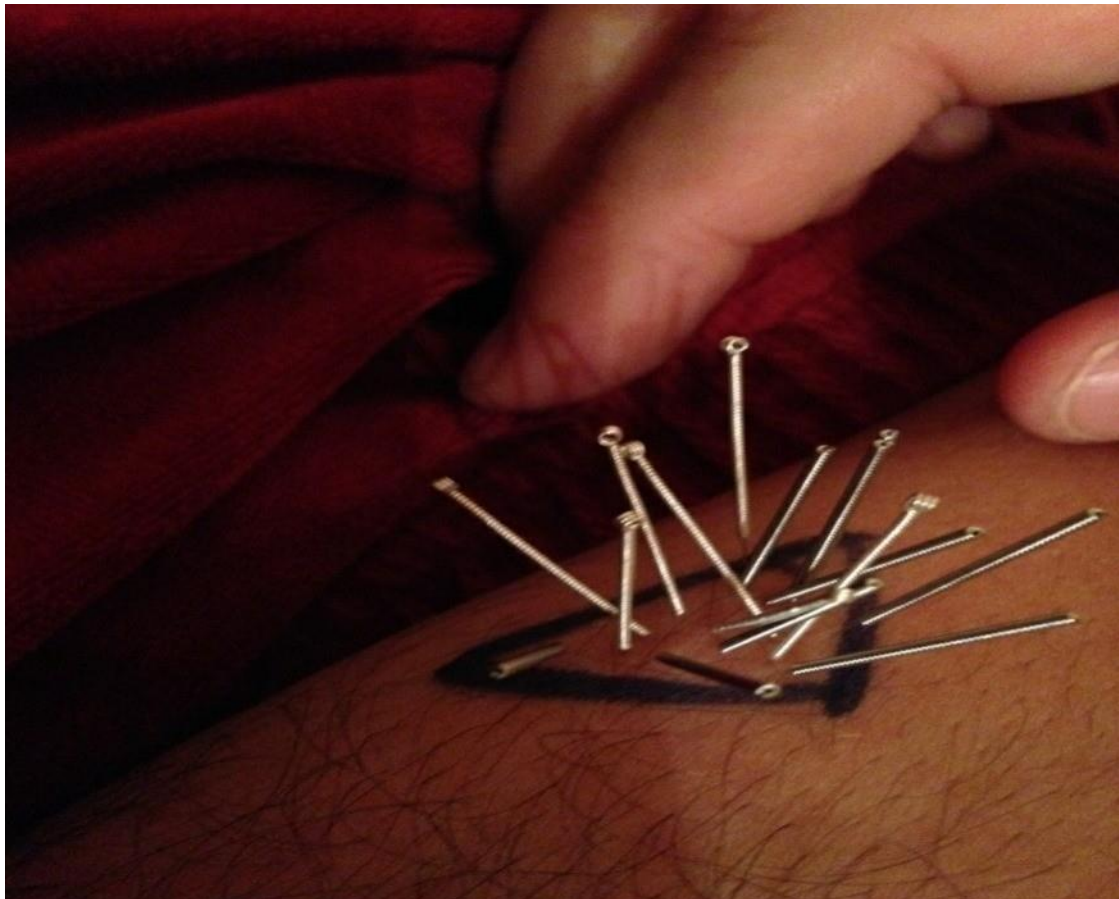
Photo 8



Source: Tsioumas Sotiris, MD

Resumption of lipolysis (OFF) after one week (photo 9)

Photo 9



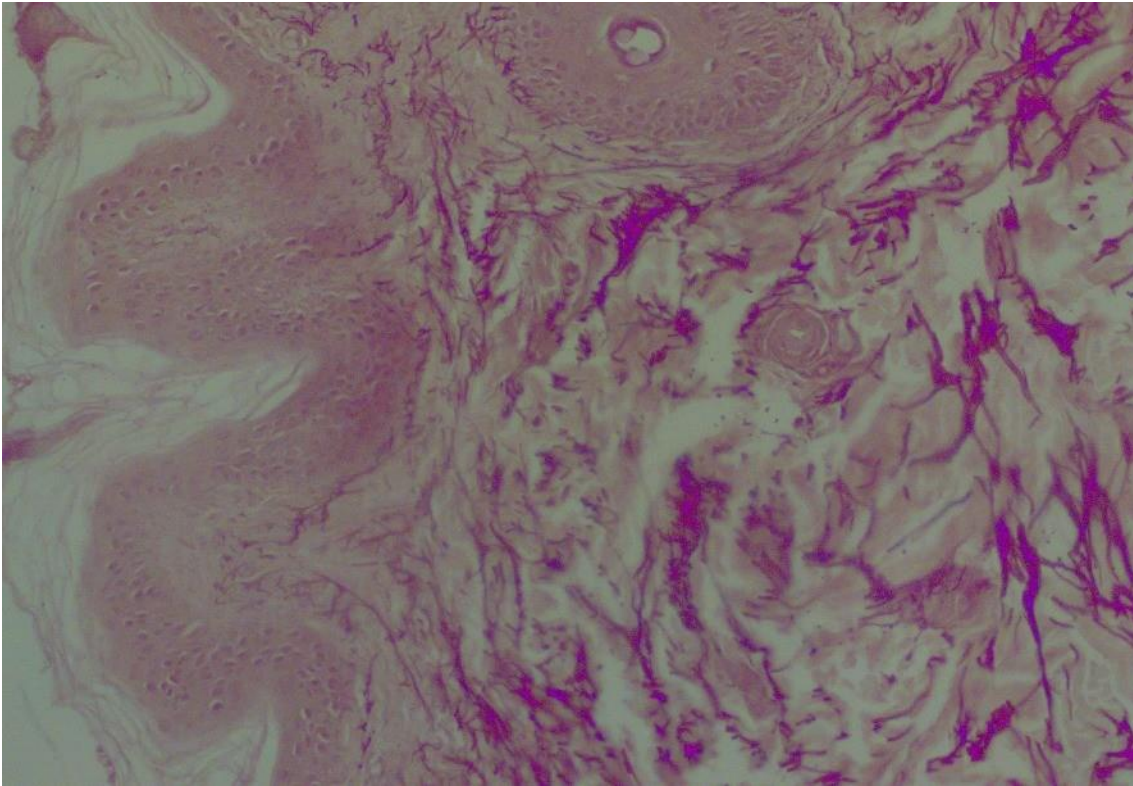
Source: Tsioumas Sotiris, MD

Results/Findings

Plexr:

Normal skin: Elastic fibers stain x200. (photo 10)

Photo 10

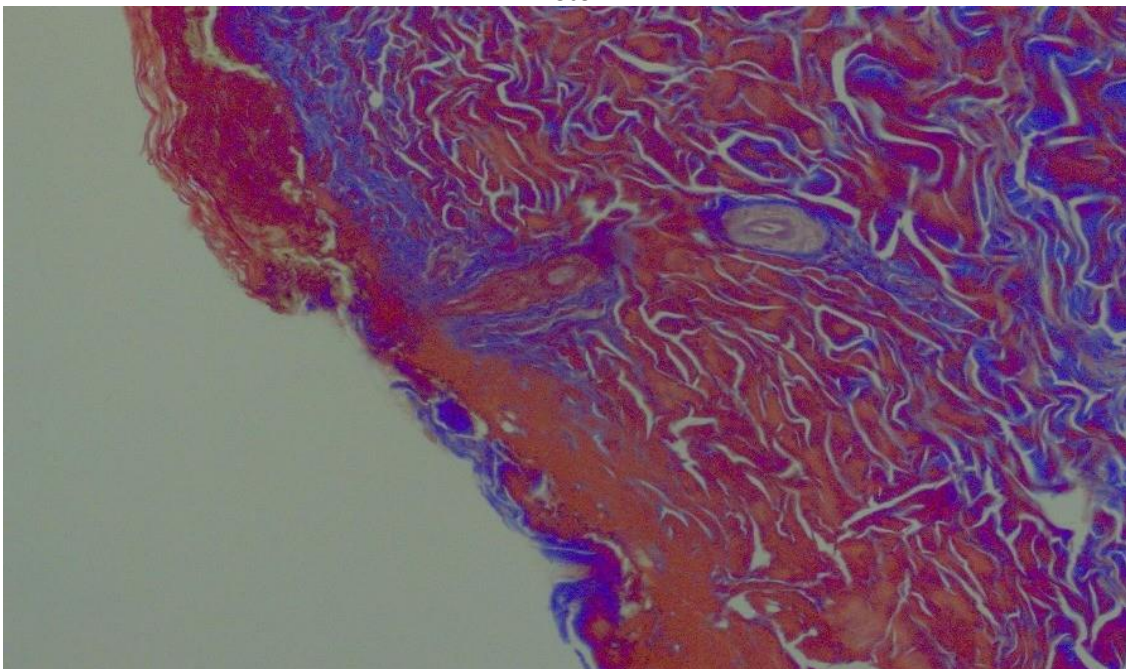


Source: Vlachodimitropoulos Dimitrios, MD

It is the area in which the technique of Plexr was applied. In the left lower part (photo 11) is observed loss of the epidermis, but not the basal membrane and increased presence of fibrous tissue (acidophilia of the dermis due to

heat, which produced protein denaturation), so injury is reversible. Respectively in the left upper part, skin is maintained (x200).

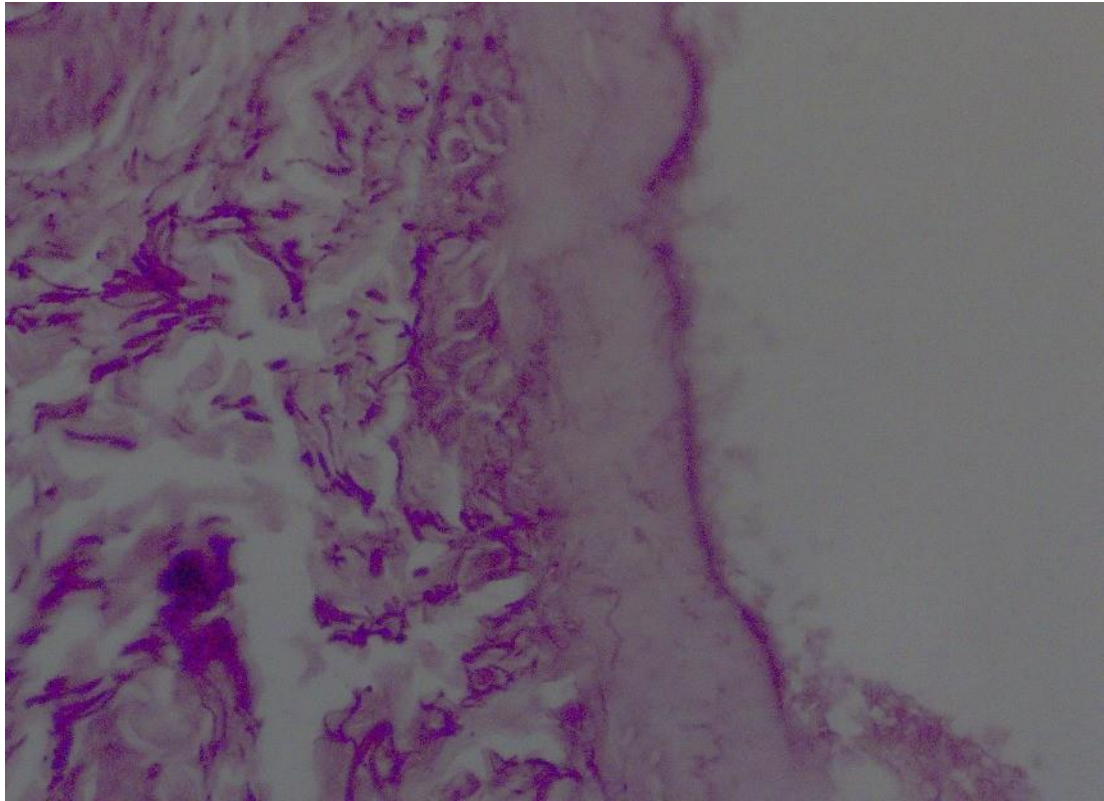
Photo 11



Source: Vlachodimitropoulos Dimitrios, MD

The same area showing **fuzzyfication** and shrinkage of the elastic fibers x 200 (photo 12).

Photo 12



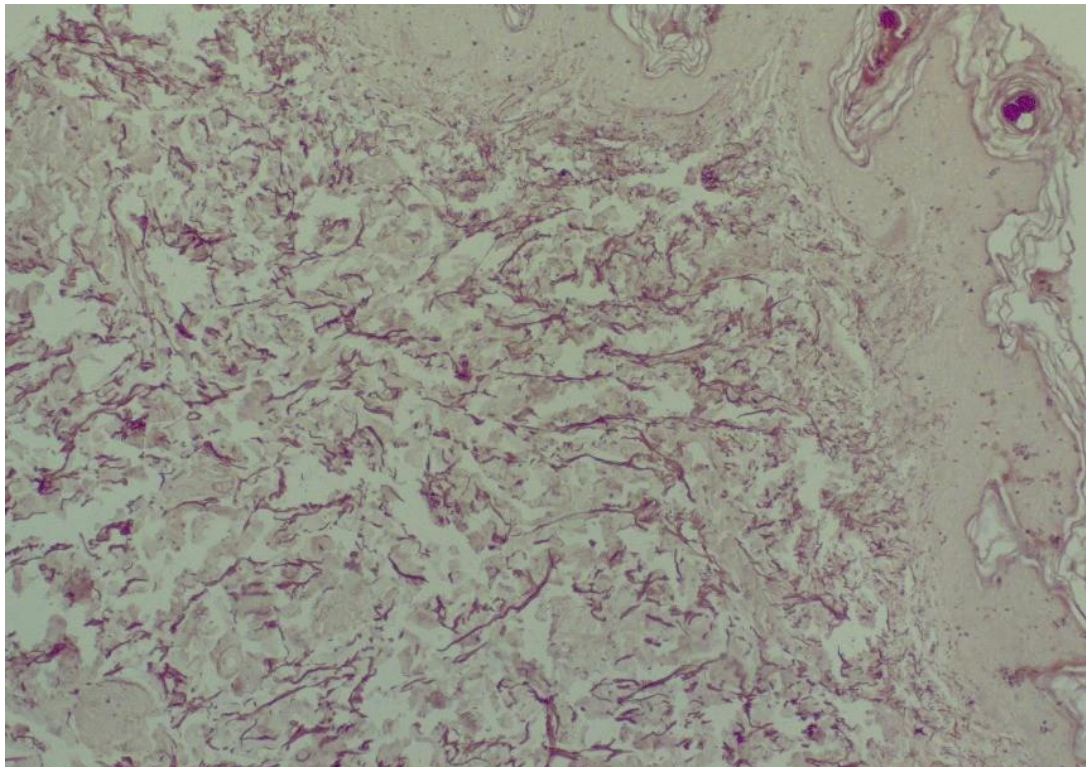
Source: Vlachodimitropoulos Dimitrios, MD

Needle Shaping (Vibrance)

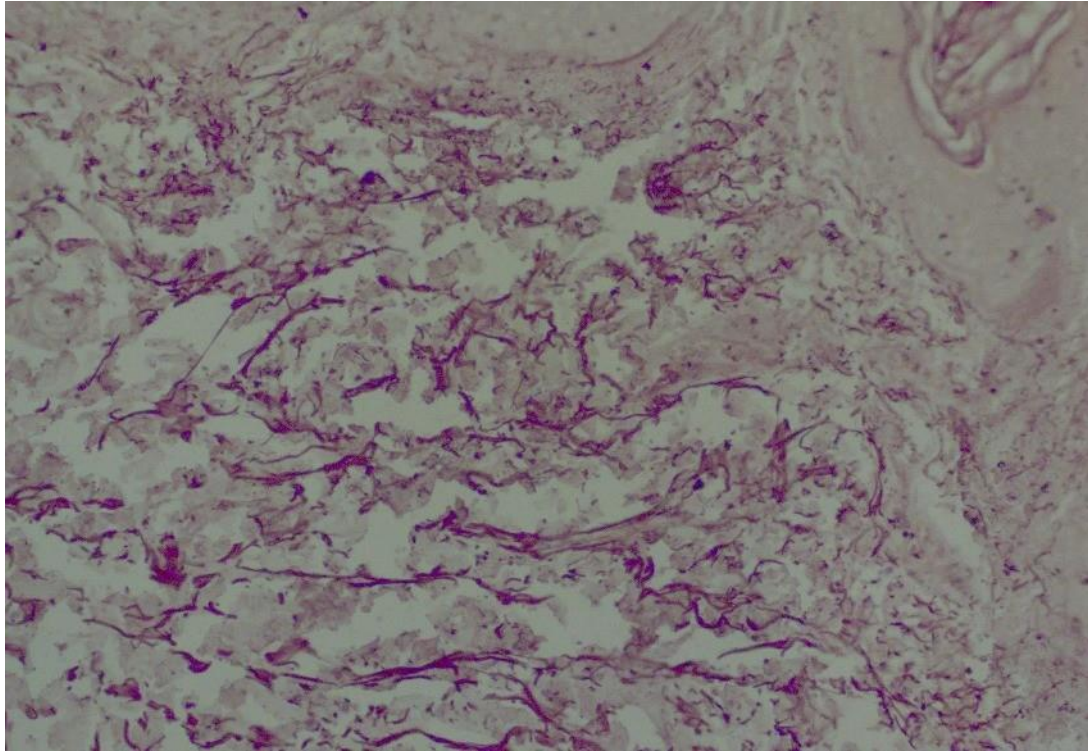
First picture (photo 13) is by staining of elastic fibers x100, the second (photo 14) x200 (enlarged), shows the change of

direction and the vertical integration in comparison with the epidermis. Biopsy that we received after 15 days, showed us that the elastic fibers are organized and fatten.

Photo 13



Source: Vlachodimitropoulos Dimitrios, MD

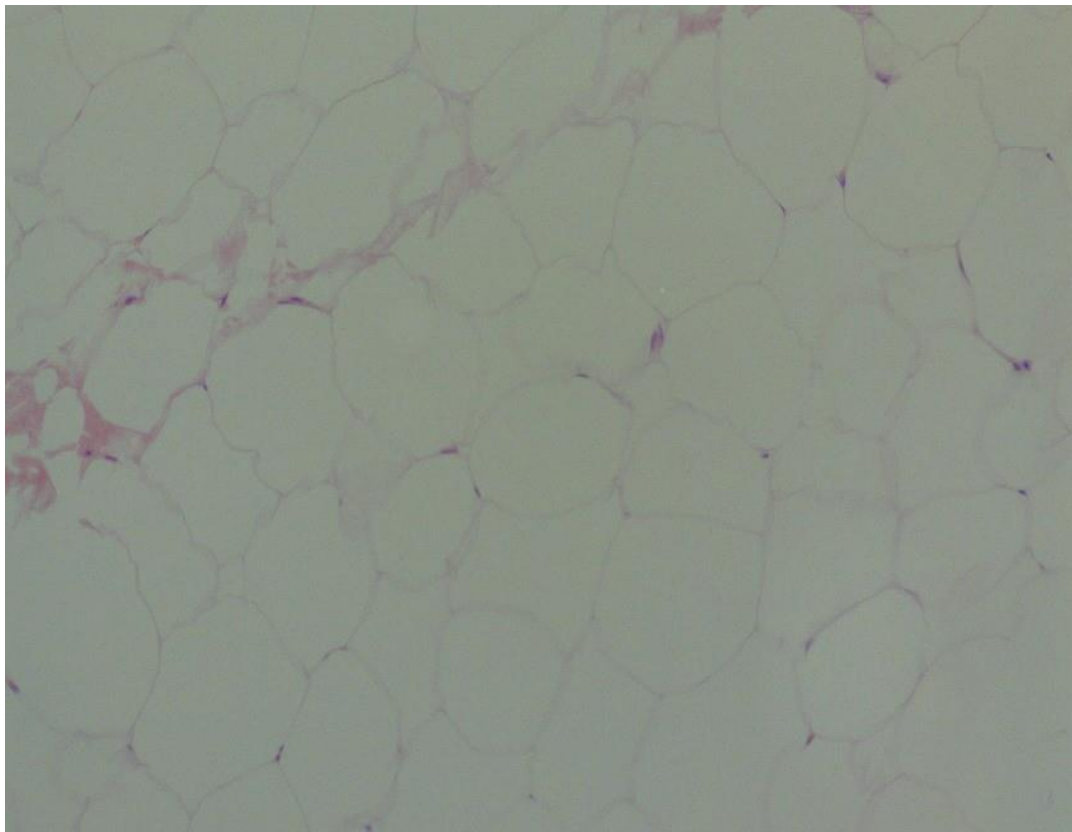
Photo 14

Source: Vlachodimitropoulos Dimitrios, MD

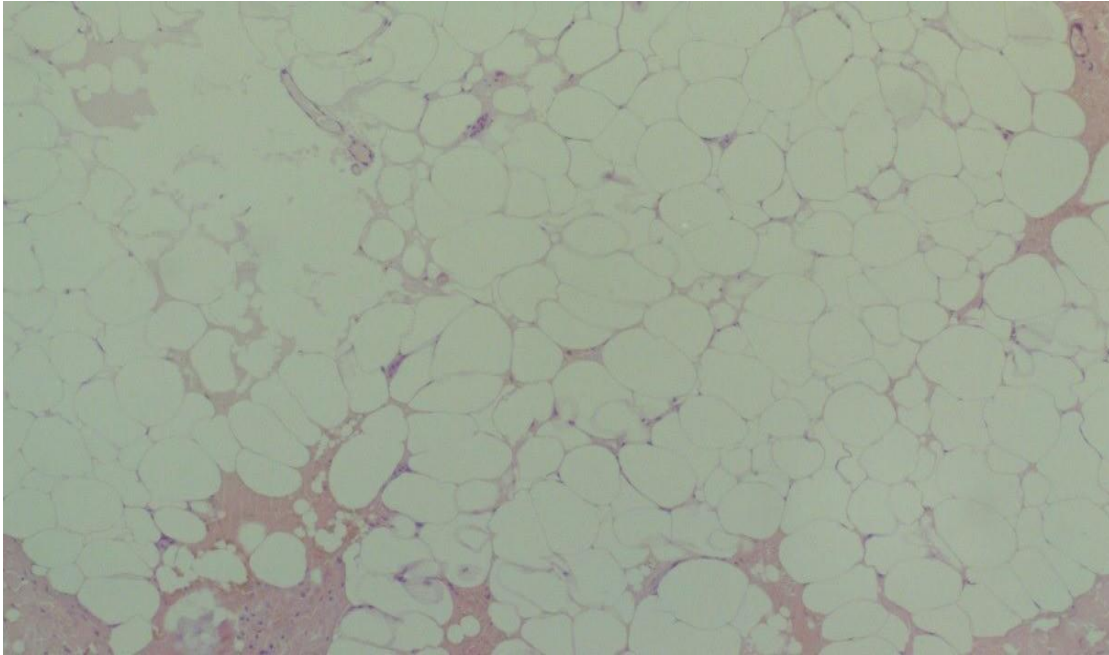
Lipolysis (O.F.F)

Photos 15, 16 & 17 are by staining of elastic fibers x200 (photo 15), x100 (photo 16) and x200 (photo 17), from the first and second application of lipolysis. It is distinguished fuzzyfication

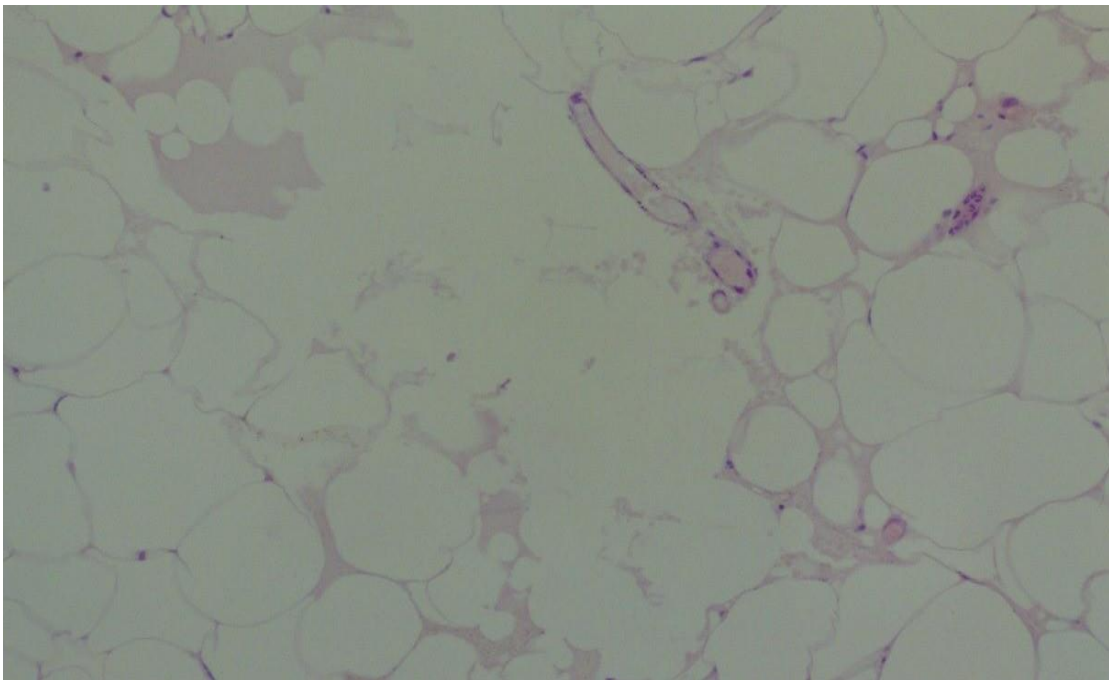
of the cellular membrane and cellular limits which means cell death by apoptosis because we do not see reactive fibrosis or inflammatory population. Therefore the death mechanism is located within the "physiological" death.

Photo 15

Source: Vlachodimitropoulos Dimitrios, MD

Photo 16

Source: Vlachodimitropoulos Dimitrios, MD

Photo 16

Source: Vlachodimitropoulos Dimitrios, MD

References

1. M. Ceccarelli Invecchiamento generale e cutaneo in medicina estetica
2. Trattato di medicina estetica Professor Alberto Massirone edizioni Piccin.
3. Chang YC, Yang SF, Tai KW, Chou MY, Hsieh YS. Increased tissue inhibitor of metalloproteinase-1 expression and inhibition of gelatinase A activity in buccal mucosal fibroblasts by arecoline as possible mechanisms for oral submucous fibrosis.
4. Denton CP, Abraham DJ. Transforming growth factor-beta and connective tissue growth factor: key cytokines in scleroderma pathogenesis.
5. Jelaska A, Strehlow D, Korn JH. Fibrotic and normal fibroblast of type I and type III procollagen mRNA in cultured fibroblasts of patients with incisional hernia.
6. Leask A, Holmes A, Abraham DJ. Connective tissue growth factor: a new and important player in the pathogenesis of fibrosis.
7. Lesley J, Hascall VC, Tammi M, Hyman R. Hyaluronan binding by cell surface CD44.

8. Lu Y, Luo S, Liu J. The influence of transforming growth factor beta 1 (TGF beta 1) on fibroblast proliferation and collagen synthesis
9. Sato M, Shegogue D, Gore EA, Smith EA, McDermott PJ, Trojanowska M. Role of p38 MAPK in transforming growth factor beta stimulation of collagen production by scleroderma and healthy dermal fibroblasts.
10. Si Z, Rhanjit B, Rosch R, Rene PM, Klosterhalfen B, Klinge U. Impaired balance
11. Fisher GJ (2005). "The Pathophysiology of Photoaging of the Skin." *Cutis*, 75(2S):5-9.
12. Fisher, G.J., Wang, Z.Q., Datta, S.C. et al (1977). Pathophysiology of premature skin aging induced by ultraviolet light. *N. Engl. J. Med.*; 337(20): 419-29
13. G.J., Wang, Z.Q., Datta, S.C., Varani, J., Kang, S., Voorhees, J.J (1997). Pathophysiology of premature skin aging induced by ultraviolet light. *N. Engl. J. Med.*; 337(20): 1419-28.
14. Hackenbrock C.R., Chazotte B., Gupte S.S. (1986), The random collision model and a critical assessment of diffusion and collision in mitochondrial electron transport. *J. Bioenerg. Biomembr.* 18: 331-368.
15. Chan D.C. (2006), Mitochondria: dynamic organelles in disease, aging, and development. *Cell* 125: 1241-1252.
16. Lenaz G., Baracca A., Fato R., Genova M.L., Solaini G (2006). New insights into structure and function of mitochondria and their role in ageing and disease. *Antioxid. Redox Signal.* 8: 417-437.
17. McFarland R., Taylor R.W., Turnbull D.M (2007). Mitochondrial disease--its impact, etiology, and Pathology. *Curr. Top. Dev. Biol.* 77: 113-155.
18. Reeve A.K., Krishnan K.J., Turnbull D.M (2008). Age related mitochondrial degenerative disorders in humans. *Biotechnol. J.* 3: 750-756.
19. Zeviani M., Carelli V (2007). Mitochondrial disorders. *Curr. Opin. Neurol.* 20: 564-571.
20. Hirobe S, Azukizawa H, Matsuo K, Zhai Y, Quan YS, Kamiyama F, Suzuki H, Katayama I, Okada N, Nakagawa S (2013). Development and clinical study of a self- dissolving microneedle patch for transcutaneous immunization device. *Pharm Res*; 30(10):2664-74. doi: 10.1007/s11095-013-1092-6. Epub.
21. Huang X, Cheng H, Chen K, Zhang Y, Zhang Y, Liu Y, Zhu C, Ouyang SC, Kong GW, Yu C, Huang Y, Rogers J A (2013). Epidermal impedance sensing sheets for precision hydration assessment and spatial mapping. *IEEE Trans Biomed Eng.*; 60(10):2848-57. doi: 10.1109/TBME.2013.2264879. Epub.
22. Birgersson U, Birgersson E, Nicander I, Ollmar S (2013). A methodology for extracting the electrical properties of human skin. *Physiol Meas*; 34(6):723-36. doi: 10.1088/0967-3334/34/6/723. Epub.
23. Birgersson U, Birgersson E, Nicander I, Ollmar S, Szele'nyi A, Journe'e HL, Herrlich S, Galistu GM, van den Berg J, van Dijk JM (2012). Experimental study of the course of threshold current, voltage and electrode impedance during stepwise stimulation from the skin surface to the human cortex. *Brain Stimul*; 6(4):482-9. doi: 10.1016/j.brs.2012.10.002. Epub.
24. www.ofthalmoplastiki.gr