LIPO INJECTION VIA V-SHAPED 3MM SUCTION CANNULA FOR THE TREATMENT OF BURN SCARS (P026)

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**Introduction:** Today burn scar and contracture are still a major obstacle. This study was planned to investigate a recent therapy option for burn patient, subcutaneous tunnel formation and lipofilling, to verify previous results of lipofilling and to investigate if tunnel formation augments treatments benefit.

**Method:** 9 adult patients with varying areas of burn were selected randomly. Tunnelization and lipofilling was performed on the facial and hand burns to see the aesthetic and functional outcomes, postoperative tissue biopsy was taken to compare the results. The adipose tissue was harvested according to Coleman’s technique. The target tissue was tunnelized at the dermal-hypodermal scarred layer with 3mm V shaped dissector liposuction cannula from multiple entry points towards diffusely divided angles destructing some of the subdermal fibrotic tissue and inorganized collagen nodules; creating subdermal pocket for the adipose tissue to be injected. Harvested and processed adipose tissue was injected diffusely to these tunnels. Postoperative patient’s subjective analysis was compared with histological analysis of the pathologist.

**Results:** The subjective aesthetic feeling and clinical appearence were improved in all patients. Patient observer scar assesment scores were higher correlated with the literature. None of the 9 patients showed abnormal collection of adipose tissue or contour differences during physical examination. Compared to the local intrascarral injections performed in other studies, the subdermal pressure and the effect was diffuse in this technique resulting in a diffuse smooth textured skin in the burned area. The negative part of this technique is the risk of perforation of the skin causing new scar and loss of fat graft. As we became more experienced this complication’s rate decreased.

**Discussion:** Lipofilling has been showned to be subdermally healing the extracellular matrix and increasing its production; thus inhibiting deep dermal fibroblast; improving dermal scar, and increasing the adipose layer that was damaged. In scar tissue superficial (papillary) dermal fibroblasts are necrotized, and the healing process continues with the deep (reticular) dermal fibroblasts which stimulate other processes. MMP TIMPS are increased, TGF levels are high, intense signaling between cells are observed (miRNA). Aim of the V shaped lipofilling cannula is to destroy scar tissue, decreasing intercellular signaling. Our result is correlated with other studies showing increase in elastic fibers and decrease in inorganized type 3 and 5 collagen histologically after treatment. In our study the patients had scars from 3 months to 5 years old thermal trauma, but there was still considerable improvement in such old scars confirming that the healing process arrested at proliferative phase. There are still improvements to be made with lipofilling and adjunct therapies to modify fibroblast proliferation and collagen formation.
References:

* Superficially regular epidermis with coarse, irregular collagen and fibrosis formation in deeper layers. (Figure 1)
** Tunnel formation described macroscopically can be seen at dermal level with thicker superficial layer. The superficial layer has more elastic fibers and natural texture. Inorganized collagen bundles are decreased, more organized and located deeper postoperatively. (Figure 2).

Figure 1

Figure 2