Louisiana State University Medical Center - Regional Burn Center Shreveport, LA

The Management of Face and Neck Scars With Silon-STS®

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THE MANAGEMENT OF FACE AND NECK SCARS WITH SILON-STS®

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Abstract

Pressure application devices have and continue to be used to reduce hypertrophic scars and keloids. Rigid thermoplastic materials are commonly used for this purpose, particularly for transparent face masks. More recently, the use of silicone sheeting has been shown to reduce scarring. This is the first study of a newly developed composite material, Silon-Silicone Thermoplastic Sheeting (Silon-STS), which combines a surface of silicone sheeting with a thermoplastic substance. Silon-STS was custom formed into face masks, neck or mandibular inserts for patients who received facial-neck burn injuries. The original randomized control protocol was abandoned for ethical reasons based on the improvement observed with the first several patients. Each patient was assessed at commencement of the study (day 0) and approximately on days 14, 30, 60, 90, 180, 270 and 360 days or at the closure of the patients therapy. Scars were assessed using the Vancouver Scar Scale and range of motion was measured when appropriate. Patients completed subjective evaluation forms regarding comfort and scar softness and were pleased with their appearance. Overall, the scars showed marked improvement in height, vascularity, and pliability.

Methods

Eleven patients have been included in this study thus far. The patient population is diverse in regard to age, sex and race. Study sites include areas which have healed spontaneously or have been skin grafted.

Each patient receives a custom, molded face mask (partial or full), or neck or mandibular insert composed of Silon-STS. The treatment has commenced two weeks after wound closure and is discontinued when scars are mature and compression is no longer indicated. Face masks or inserts are held in place with straps or under compression garments. Adjustments are made if necessary at each clinical visit. New molds are made as patient growth dictates or scar reduction occurs.

Patients are evaluated at the commencement of the study (day 0) and approximately on the following days 14, 30, 60, 180, 270, and 360. Patients are photographed at each clinic visit and scar assessment, range of motion and patient evaluation data are collected.

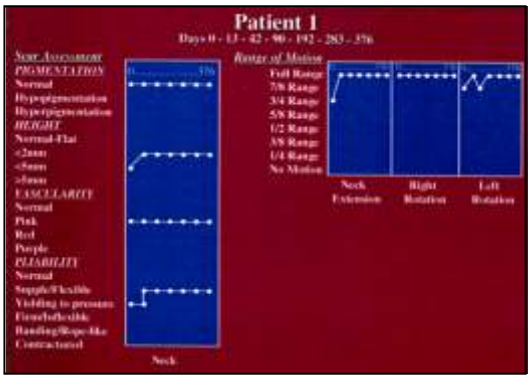
Each patient was asked a series of subjective questions designed to ascertain their opinion of the Silon-STS treatment. Answers to each question were charted on a linear scale with a score ranging from 1 to 5. A “Positive Outcome” was randomly set at either 1 or 5 for each question. The average numerical scores for each question on day 270 has been used for an overall evaluation for the product for six patients (see chart 1).

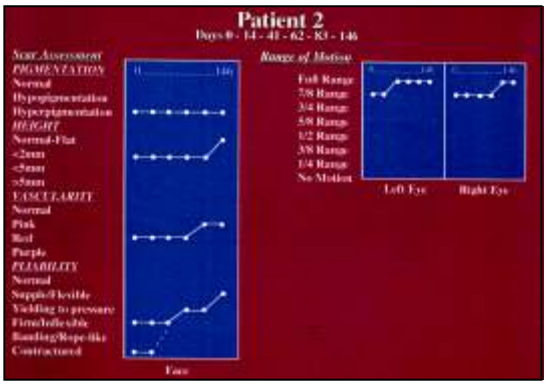
Discussion

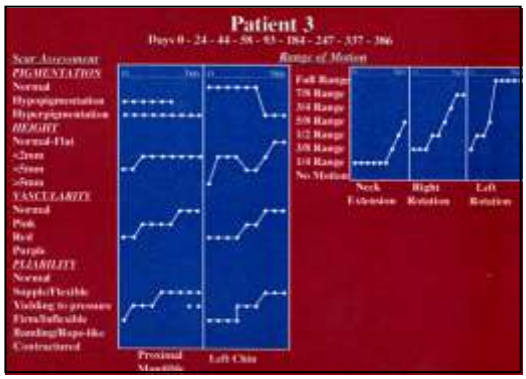
Height of the scars on the 15 landmarks evaluated improved in ten cases and three remained the same. Due to noncompliance; one patient showed a negative result in one landmark on day 165. The patient became compliant with compression therapy and at present scar height has decreased. Erratic scar results occurred in patient #3 due to graft placement secondary to surgical removal of a growing keloid on the left mandible. When the patient was able to continue with compression therapy scar reduction resumed, and to date remains stable.

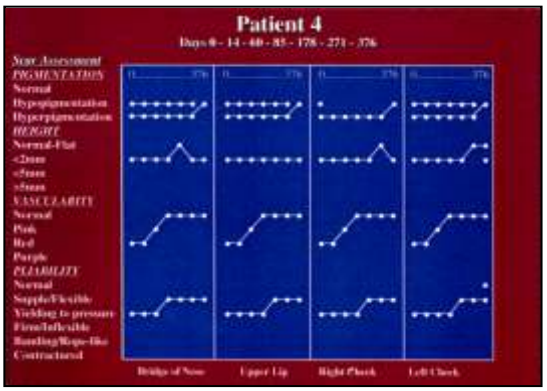
Vascularity was evaluated in 14 landmarks. One was not evaluated secondary to scar coloration. Positive results were found in 12 cases and two remained the same.

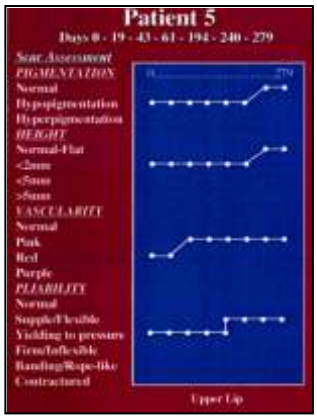
Pliability of scar tissue improved in all cases. Range of motion was measured in three patients and eight landmarks were evaluated. Seven showed improvement and no change was noted in one. Pigmentation showed improvement over a period of time in patient #5. Changes in pigmentation from normal to hyper pigmentation occurred in patient #3 secondary to keloid removal and graft placement. Patient evaluation forms indicated a positive result in all areas. Minor discomfort was noted in the heat retention qualities of face masks and inserts.

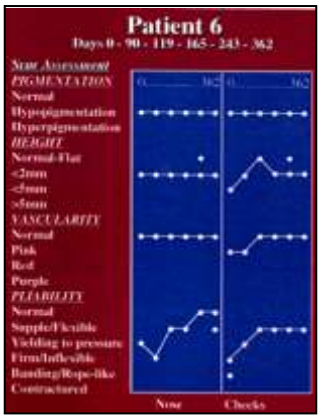


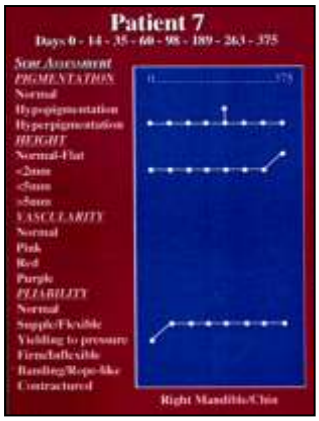


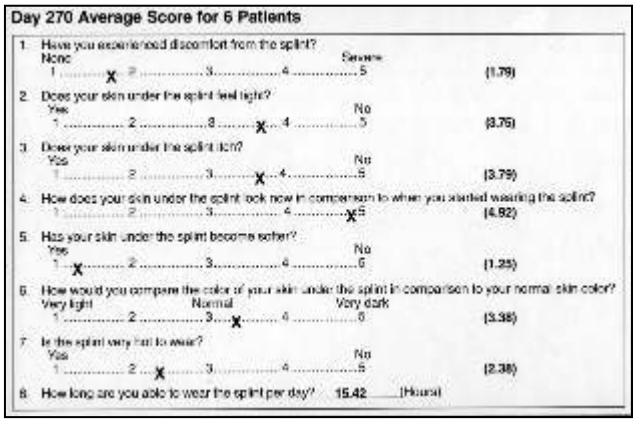












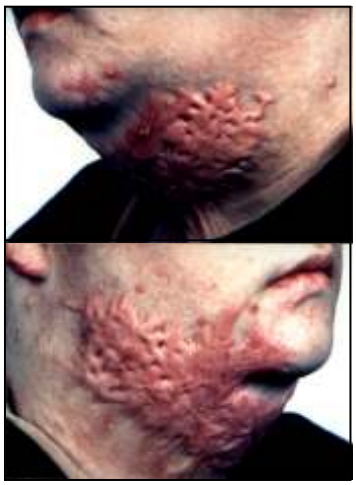
Day 270 Average Score for 6 Patients

1. Have you experienced discomfort from the splint? None ... Severe — X at 1 — (1.78)
2. Does your skin under the splint feel tight? Yes ... No — X at 4 — (3.75)
3. Does your skin under the splint itch? Yes ... No — X at 4 — (3.78)
4. How does your skin under the splint look now in comparison to when you started wearing the splint? — X at 6 — (4.92)
5. Has your skin under the splint become softer? Yes ... No — X at 1 — (1.25)
6. How would you compare the color of your skin under the splint in comparison to your normal skin color? Very light ... Normal ... Very dark — X at 4 — (3.38)
7. Is the splint very hot to wear? Yes ... No — X at 2 — (2.38)
8. How long are you able to wear the splint per day? 15.42 (Hours)

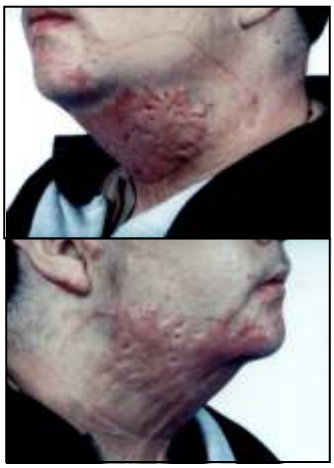
Results

At this time data will be presented on eight patients. All have completed the study. Two of the composite photograph series are presented.

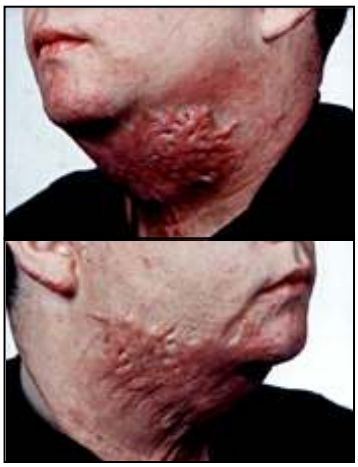
Data on scar evaluation from Patient #1 through #8 are shown in individual graphs. Range of motion was studies where applicable.



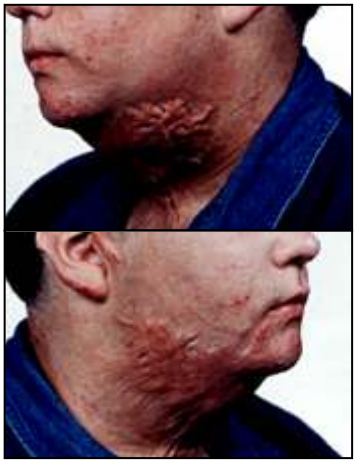
DAY 0



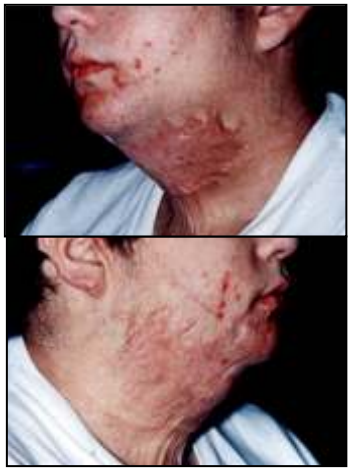
DAY 42



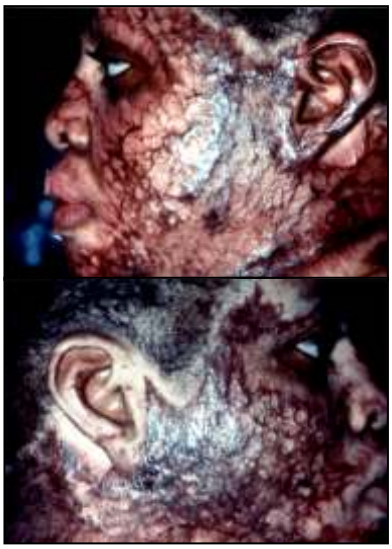
DAY 192



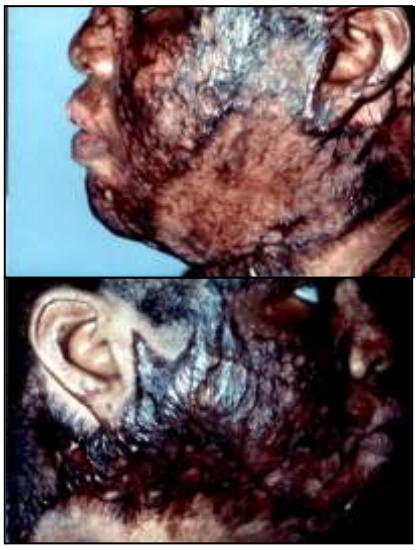
DAY 283



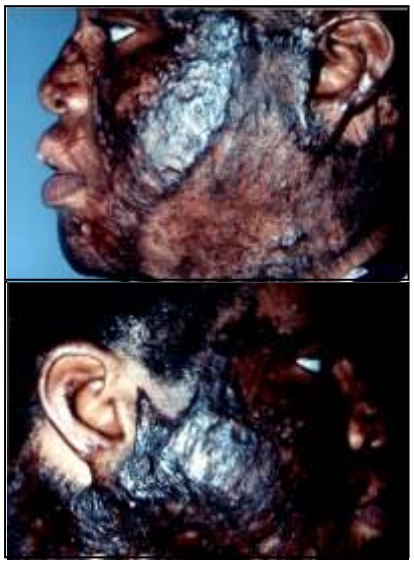
DAY 375



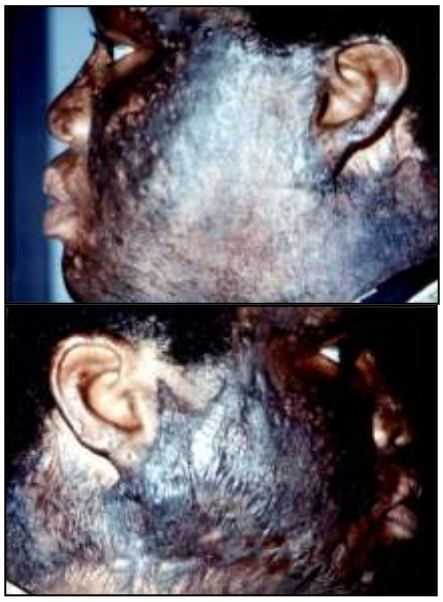
DAY 0



DAY 50



DAY 85



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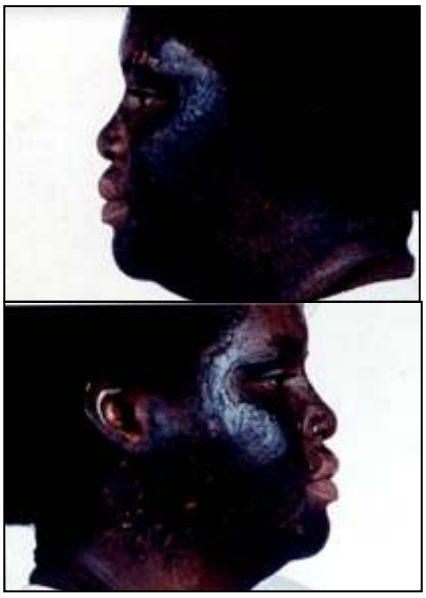

DAY 375

Conclusion

Improvement was seen in all areas of scar evaluation except pigmentation where little change was noted. Range of motion increased in most areas where assessed. Patients were pleased with overall appearance and found the treatment beneficial.

No undue discomfort was noted in the use of Silon-STS. We have found very positive results with the initial participants; therefore, the study will continue at our institution.

The data presented herein is based upon a poster created by the study authors for Bio Med Sciences, Inc.