



## STUDY OF OUTCOMES OF MESOTHERAPY IN STRIAE RUBRA IN ONE OF THE TERTIARY CARE CENTRE OF GUJARAT

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**ABSTRACT** **Introduction:** Mesotherapy has emerged as a separate medical specialty that deals with introduction of various therapeutic agents in different forms such as natural extracts, synthetic products and other useful substance in small quantity for therapeutic and cosmetic purposes. The natural evolution of striae is for the red to purple, raised wavy lesions (striae rubra, SR) to fade and leave white atrophic lesions with a wrinkly surface (striae alba). Though various modalities are available but no single modality has been far more consistent than the rest. We have conducted this study to assess the efficacy of mesotherapy for stretch marks (Striae rubra, SR)

**Aim & Objectives:** Evaluation of effectiveness of mesotherapy in striae rubra patients.

**Material & Methods:** 20 patients of striae rubra were divided in three different group and treated with different treatment options including mesotherapy. Causes of SR, etiologies, patient's satisfaction evaluated at various intervals.

**Results & Observations:** The majority of the patients belonged to females in the 3rd decade. Majority of the patients seek treatment in 1-2 yrs. Sudden gain in weight was a major cause in most patients. Itching was a major factor associated with stria rubra. Topical tretinoin proved to be the least satisfactory, also requiring the longest duration of response.

**KEYWORDS :** Mesotherapy, Striae rubra, Global assessment, Stretch marks

### Introduction:

Mesotherapy has emerged as a separate medical specialty that deals with introduction of various therapeutic agents in different forms such as natural extracts, synthetic products and other useful substance in small quantity for therapeutic and cosmetic purposes. It is gaining more acceptability due to less training required, minimal untoward effects and limited dose insertion. Mixtures of various agents are commonly used for dermal injections which called Mesococktails. These cocktails are introduced by using the mesogun under local anesthesia.<sup>(1)</sup>

Mesotherapy, commonly known as "biorejuvenation" or "biorevitalization", is a technique used to rejuvenate the skin by means of a transdermal injection of a multivitamin solution and natural plant extracts that are thought to improve the signs of skin aging.<sup>(2)</sup> Mesotherapy involves the use of multiple intradermal or subcutaneous injections of a mixture of compounds in minute doses, by means of very fine needles, directly over/near the affected sites. Originally invented in France to manage painful medical conditions, it is presently the buzz word in the field of cosmetic dermatology, chiefly to get rid of disfiguring fat.<sup>(3)</sup>

Another treatment for localized fat reduction, which was popularized in Brazil and uses injections of phosphatidylcholine, has been erroneously considered synonymous with mesotherapy. Despite their attraction as purported "fat-dissolving" injections, the safety and efficacy of these novel cosmetic treatments remain ambiguous to most patients and physicians.<sup>(4)</sup>

Mesotherapy, a technique involving injections of medications directly into the skin, was first described by a French physician, Dr. Michel Pistor. He coined the term "mesotherapy" in 1976. The term mesotherapy was coined to denote "treatment of the mesoderm"<sup>(5,6)</sup> The drug delivered through skin in dermal mesotherapy has to be hydrophobic and its molecular weight has to be less than 500 Daltons.<sup>(7)</sup>

Hundreds of years ago the striae distensae were described as clinical entity in medical literature in 1889 with histological descriptions. The natural evolution of striae is for the red to purple, raised wavy lesions (striae rubra) to fade and leave white atrophic lesions with a wrinkly surface (striae alba).<sup>(8)</sup> Striae distensae are characterized by linear, smooth bands of atrophic-appearing skin. Excessive steroid activity, genetic and mechanical factors and inherited defects of connective tissues are the most frequent causes of this disease.<sup>(9)</sup>

The pathogenesis of striae is unknown but probably relates to changes in the components of extracellularmatrix, including fibrillin, elastin and collagen.<sup>(10)</sup> Striae are predominantly located on the arms, thighs, abdomen and lumbosacral area, but may involve other regions, including the face, and flexures in case of striae induced by Cushing's syndrome or steroid therapy. In pregnancy, they occur most commonly on abdomen and breasts.<sup>(8)</sup>

The histology of stretch marks is that of a scar, and the development of SD has been likened to that of wound healing or scar formation. In the early stages, inflammatory changes may be conspicuous, but later the epidermis is thin and flattened. SD are two and a half times as frequent in women and affect up to 90% of pregnant women.<sup>(11)</sup> 585 pulsed dye laser nm had a moderate beneficial effect in reducing the degree of erythema in striae rubra but no apparent clinical change on striae alba.<sup>(12)</sup> Intense pulsed light is also useful, and has minimal side effects. Short pulsed carbon dioxide laser has been tried as well.<sup>(8)</sup>

Treatment of striae rubra must be optimal. Though various modalities are available but no single modality has been far more consistent than the rest. Optimal treatment modality should be carefully selected to avoid any exaggeration of the problem or complications.<sup>(11)</sup> We have conducted this study to assess the efficacy of mesotherapy for stretch marks (Striae rubra, SR)

### Material & Methods:

This open, prospective controlled study was carried out in the department of Dermatology, Venerology and leprology during the period from July, 2011 to December, 2013. Twenty patients with striae rubra were enrolled for the study after informed consent and proper explanation of modality i.e. mesotherapy. 20 patients with stria rubra were selected and divided into 3 groups: G (A)-10: mesotherapy given with mesogun using meso HSR solution alternately with meso SB solution, G (B)-5: treatment with Yellow peel (consisting of microdermabrasion followed by 25% salicylic acid peel; then application of yellow peel under occlusion) and G (C)-5: topical tretinoin (0.05%) cream once a night application.

In group A and B, treatment was done weekly for 4weeks, then every 15days for 3months, then monthly for 4 months and then twice or thrice monthly for a year. They were followed up at every sitting for one and a half years. Detailed history record was maintained of relevant facts and on investigations if any complaint was found that was treated accordingly.

Response to treatment was assessed by clinical improvement in % at 3months, 6months and 1year after treatment based on physician evaluation of the serial photographic documentation. Subjectively based on patient satisfaction or VAS scale of 1 (no improvement) to 10 (maximum improvement) and improvement in QOL scale of 7 (bothered at all times) to 1 (not bothered at all). Subjectively through Physician's global assessment by Quartile grading system( Grade I : Slight improvement, barely noticeable (up to 25%), Grade II : Moderate improvement, noticeable (25-50%), Grade III : Obvious improvement (51-75%), Grade IV : Marked improvement (>75%). They were followed up at every sitting for one and a half years. On first visit, after a detailed history regarding the patient's occupation, lifestyle, diet, drug intake, addictions, they were examined for any other associated complaints and investigated accordingly.

**Results & Observation:**

The majority of the patients belonged to females in the 3<sup>rd</sup> decade who constituted 60% while 40% were males. Their mean age was 29.6years. Younger generation is more concerned aesthetically so they seek the treatment. Majority of the patients seek treatment in 1-2 yrs, while only 5% of the patients seek the treatment within 6 months of developing scars.

Abdomen (35%) and buttocks (25%) were the commonest site of involvement. Majority (80%) of the patients had grade 3 and 4 scarring at the time of presentation. Sudden gain in weight was a major cause in most patients. Stretch marks following pregnancy are traditionally / culturally considered to be a normal phenomenon, hence not many females from the lower socioeconomic strata seeked treatment for the same. No specific cause could be determined in 25% of the patients.

Itching was a major factor associated with stria rubra. Stria rubra treated by mesotherapy showed grade 3 and 4 response in the majority of the patients after an average of 8 sittings. This was followed by MDA with yellow peel showing a maximum response of grade 2 (mild to moderate) in 60% of the patients. In our study, topical tretinoin cream (0.05%) showed improvement while taking the longest time. Patients treated with mesotherapy in group A were found to be maximally satisfied and showed the greatest improvement in their QOL. Topical tretinoin proved to be the least satisfactory, also requiring the longest duration of response.

**Table-1: Distribution according to DEPRezADATO system**

Grade of scars	No. of patients	%
1	-	-
2A	1	5
2B	3	15
3A	3	15
3B	6	30
4	7	35

**Table-2: Etiological distribution of Striae**

Cause of striae	No. of patients	%
Exercises	1	5
Growth spurt	1	5
Pregnancy	2	10
Weight loss	1	5
weight gain	7	35
systemic steroids	1	5
steroid application	2	10
Unknown	5	25

**Table-3: Associated features with Striae**

Positive history or examination	No. of patients	%
Family H/O obesity	7	35
H/O diabetes	4	20
H/O smoking/ alcohol	8	40
Itching	17	85

**Table-4: Physician's global assessment of stria rubra by the quartile grading scale**

Grade	G(A)-10 Meso HSR alternate with SB	G(B)-5 MDA with Yellow peel	G(C)-5 Topical tretinoin (0.05%) cream
I (upto 25%)	-	-	2 (40%)

II (25-50%)	1 (10%)	3 (60%)	2 (40%)
III (50-75%)	5 (50%)	1 (20%)	1 (20%)
IV(>75%)	4 (40%)	1(20%)	-
Average duration	4months (8 sittings)	7months (12 sittings)	12months

**Table-5: Patient global assessment of stria rubra**

Groups	G(A)	G(B)	G(C)
Patient satisfaction (VAS: 0→10)	Upto 7	Upto 4	Upto 3
Improvement in QOL scale (7→1)	Upto 2	Upto 4	Upto 6
Average duration	6months	8months	14months

**Discussion:**

Striae distensae (SD) or stretch marks are common dermal lesions which arise due to the stretching of the dermis. There are two forms of SD; striae rubrae and striae albae. The acute stage (striae rubrae) is characterized by the initial erythematous, red and stretched flat (in some cases appear slightly raised) lesions which are aligned perpendicular to the direction of skin tension and can be symptomatic.<sup>(43)</sup> Treatment of striae distensae is a challenging task. Though the many modalities are available but no single modality is accepted universally. Most of the time the person seeks the treatment for cosmetic purpose. It seems that Younger generation is more concerned aesthetically so they seek the treatment. In our study the majority of the patients belonged to females in the 3<sup>rd</sup> decade who constituted 60% while males, 40%. Their mean age was 29.6years.

In one study by Atwal, G.S. et al <sup>(44)</sup>, of 324 women demonstrated that post delivery, low maternal age, high body mass index, weight gain over 15 kg (33 pounds) and higher neonatal birth weight were independently associated with the occurrence of striae. Teenagers are at highest risk of developing severe striae.

In our study it is found that stria rubra treated by mesotherapy showed grade 3 and 4 response in the majority of the patients after an average of 8 sittings which was followed by MDA with yellow peel showing a maximum response of grade 2 (mild to moderate) in 60% of the patients .The use of 0.1% tretinoin for the treatment of striae rubra has been established as effective for over a decade <sup>(45)</sup> but in our study, topical tretinoin cream (0.05%) showed improvement while taking the longest time.

In our study patients treated with mesotherapy in group A were found to be maximally satisfied and showed the greatest improvement in their QOL. Topical tretinoin proved to be the least satisfactory, also requiring the longest duration of response. Thus the patient's and the doctor's assessment correlated well with each other. There are certain limitations of this study such as despite of availability of various treatment options for striae rubra we have evaluated only three. Additionally the sample size was very small so further studies with larger sample size including other treatment modalities are required to generalized the results.

**Conclusions:**

Our study concluded that striae rubra is more common in females than males. Buttocks and thighs are most common site affected. Female in their third decades are more commonly affected. Itching is the major complaint associated with it. Mesotherapy is more effective in treatment of striae rubra as compared to topical tretinoin.

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