Case Report

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Scar Management by MAVE

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Abstract

Chicken pox scar is one of the common causes for facial scarring. Facial scars have been found to have a significant impact on their psychological well-being and have been associated with depression. Multiple treatments are available for chicken pox scars, which include dermabrasion, microdermabrasion, laser treatments, dermal fillers, chemical peels, micro needling and the combination therapy. We report our experience with chicken pox scar treated by volume enhancement with autologous fat injection followed by microdermabrasion.Depressed part of the scar was taken care by adding Volume (lifting) with fat grafting and pigmentation component of the scar was taken care by microdermabrasion.

Keywords: Chicken Pox Scar; Microdermabrasion; Nano Fat Grafting.

Introduction

Chickenpox (varicella) is a common viral disease caused by the Varicella zoster virus. It is considered as a self-limited disease with few complications and sequelae. Commonest complication following chicken pox is post-inflammatory scarring [1]. These scars are usually atrophic and can be associated with other complications such as hyperpigmentation and hypopigmentation [2]. Patients with facial scars will suffer from significant mental and emotional trauma, impairment of social life and deterioration of quality of life [3]. Like other atrophic scars, varicella atrophic scars are difficult to treat.

Any significant injury to the deep dermis, such as burns and other trauma, inflammation, or surgery, may result in wound healing that presents clinically with the formation of a scar. Even clinically benign-appearing scars may cause a patient physical, psychological, and social comorbidities leading to mild to severe impairment in the quality of life [3].

Management of scars include intralesional steroids, intralesional 5 FU, autologous fat transfer, laser therapy, dermabrasion, microdermabrasion, micro needling, chemical peels, dermal fillers, surgical excision etc. [2,4,5,6]. Combination therapy also can be used to improve the outcome. Literature for the treatment of chickenpox scars are less. We have used nano fat grafting followed by microderm-abrasion as a combination method to treat chicken pox scar.

Case Report

Twenty five years aged male, graduate, working as an administrator presented to plastic surgery OPD (Figure 1), as having unaesthetic scars over the right side of face following chicken pox (6 years before). On examination the patient was having Fitzpatrick type V skin with 3 grade II atrophic, round to oval depressions with sharply defined vertical edges, hyper pigmented scars of size 0.5x0.5cm over the right malar region with no evidence of keloidal tendency and no other associated co-morbidities. Plan was to treat the depressed component of the scar with autologous fat grafting and the hyperpigmentation component to be dealt with microdermabrasion.

Patient was treated on day care basis for autologous fat grafting. Autologous fat was harvested by Coleman's technique and pure fat obtained by

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centrifuge @ 3000 rpm for 3 minutes (Figure 2). Pure fat converted to nano fat by mechanical emulsification (Figure 3). 2ml Nano fat injected sub dermally (Figure 4) into the scars using a 24 G needle followed by 6 sittings of microdermabrasion (Figure 5) with aluminium hydroxide crystals at weekly interval. He was treated with sunscreen lotion >30SPF during the treatment course.To assess the improvement, close visualization including comparison with preoperative photographs and clinical data were used, patient satisfaction questionnaire was also used to assess treatment outcome. Scar elevation and smoother appearance of scars were attention points. Patient was assessed after 2 months (Figure 6) showing significant improvement.

Fig. 1: At presentation

Fig. 2: Centrifugation machine

Fig. 3: Mechanical emulsification

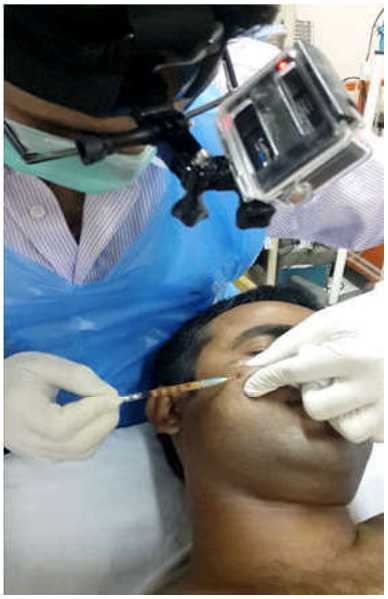

Fig. 4: Nano fat grafting

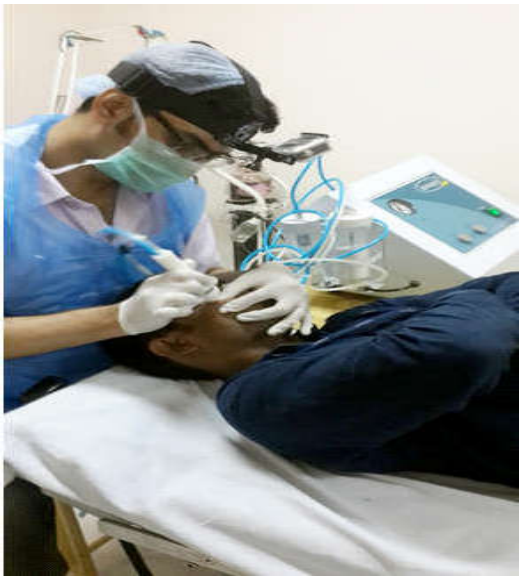

Fig. 5: Microdermabrasion being done

Fig. 6: After 2 months

Discussion

Post chickenpox scars are more common in adults and its treatment represents a major challenge for cosmetic surgeons and dermatologists. Several treatment methods have been described for the treatment of chicken pox scars. These treatments include surgical techniques (punch graft, punch excision, and subcision), resurfacing techniques (dermabrasion, ablative fractional or non-fractional laser treatments, and chemical peels), autologous fat transfer, and injection of dermal fillers [2,4,5,7,8,9]. Each of these treatment modalities have their own advantages and disadvantages and may produce varying results. And they can also be used as combination therapy or sequential therapy.

Autologous fat grafting (lipofilling) is currently used for various clinical applications such as volume correction due to malformations, pathological scars and after oncologic and/or aesthetical procedures [10-13]. Even though classic fat grafting is mostly used to build up large volumes, nano fat does not have the capacity to build up a significant fat volume. Main effect of nano fat injection is probably due to stem cell activity [10-13]. The effect of nanofat usually appears with a delay of 4 weeks to 6 months. There are reports which showing significant improvements of dermal elasticity, scar stiffness and thickness, skin hardness, scar colour, mobility, vascularization, pigmentation, pliability in patients undergoing autologous fat grafting [10-13].

Microdermabrasion technique is used to improve sun-damaged skin, fine rhytides, age spots, and facial scars [14]. Microdermabrasion acts by stimulation of basal layer of epidermis and dermis, which leads to epidermal thickening, smoothening of rete pegs and increased deposition of collagen and elastic fibres in dermis which leads to improved scar/skin appearance [14]. Aluminium oxide crystal microdermabrasion has the advantages of less bleeding, fewer complications, better compliance, no requirement of anaesthesia and high surgical skill when compared to traditional dermabrasion [15]. Other crystal materials used for microdermabrasion include sodium chloride crystals, sodium bicarbonate crystals, zinc oxide crystals and magnesium oxide crystals. Crystal free diamond tipped devices with various sizes and coarseness are also available for microdermabrasion [16]. It is also has been used as a combination therapy along with lasers, chemical peels etc [17, 18].

In this case we used sequential/combination therapy of nano fat grafting for depressed component of scar and aluminium oxide crystal microdermabrasion for hyperpigmentation component of scar,which produced good aesthetic result by elevation of the scar crater and improvement in the pigmentation. It is a novel treatment method for the treatment of chicken pox scar.

Conclusion

In our case with facial chicken pox scars the novel combination/sequential therapy of nano fat grafting and microdermabrasion has provided good outcome. Large trials are required to confirm the same.

Conflicts of Interest: Nil

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