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Micropigmentation: Tattooing for the treatment of lip vitiligo

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Summary *Background:* Vitiligo of the lips is a common concern of great psychological consequence. Medical therapies are often ineffective mainly due to the absence of hair follicles. Tattooing implants pigment into the skin. For treatment of vitiligo, tattooing works best in the lip area, particularly in a dark skin.
Aims and objectives: To assess the effectiveness of medical tattooing for lip vitiligo.
Material and methods: Fifteen patients with localised stable lip vitiligo patients (10 women and 5 men; age range: 30–55 years; mean age: 42 years) from the outpatient department were included in the study. The period of follow-up was from 2 to 3 years. The procedure was performed under local anaesthesia on an outpatient basis, unless carried out in conjunction with other procedures. An electric tattooing machine with cluster needles was used.
Result: Cosmetically acceptable results were seen in all patients. In dark-complexioned patients, pigmentation was better as compared to fair subjects. No allergic reactions to the pigment or koebnerisation of the vitiligo were noted.
Conclusion: Tattooing is relatively easy, safe and effective option for lip vitiligo. It is cosmetically more acceptable; sensations are well maintained and are generally devoid of any significant adverse effects.

Tattooing has been performed all over the world since prehistoric times, as indicated by numerous ancient relics. The significance of tattoos has varied over times and in different civilisations (as means of communication, social identification mark and religious origin). Presently, it is commonly being used aesthetically to camouflage various medical conditions.

Vitiligo is a common pigmentary disorder of the skin. Widespread prejudices, ignorance, taboos, lack of scientific appraisal and confusion of vitiligo with leprosy, all make it a social embarrassment for the patient.[1] Vitiligo is a disfiguring medical disease whose cause is unknown. The disease causes destruction or loss of function of melanocytes in the skin, mucous membranes, eyes, inner ear and

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occasionally in hair bulbs. Melanocytes produce the pigment that gives skin its colour. Loss of melanocytes alters both structure and function of these organs and results in the absence of pigment.

Vitiligo of lips is a common concern of great psychological consequence. Medical therapies are often ineffective due to complete lack of pigment cell reservoir in the lips. Medical management often fails to re-pigment the achromic lip. Melanocytes are stimulated during photochemotherapy in vitiligo. They migrate from hair follicle reservoir, spread centrifugally from the infundibulum to the basal cell layer and recolonise the epidermis with functional pigment cells. This does not occur on the lips as there are no hair follicles, explaining why medical management often results in a slow or poor response. Thus, transplantation of melanocytes by any of the surgical modalities and tattooing are the most logical procedures in these cases. Only a few surgical modalities have been successful in this difficult-to-treat site. Biologically more or less inert, a white patch is a social taboo in India. When a white patch is localised and remains static in spite of conservative treatment, it can be dealt with by tattooing as a camouflage procedure. Inert pigments of skin colour match are impregnated into the intradermal plane. The procedure is simpler than melanocytes transfer and serves the purpose of hiding a white patch.

Materials and methods

From January 2000 to January 2005, 15 patients (10 women and 5 men; age range: 30—55 years; mean age: 42 years) with localised stable lip vitiligo were selected from the outpatient department for cosmetic tattooing. A patch of vitiligo was considered to be stable if it did not show any increase or decrease in size for a period of 2 years and was free of new lesions. Out of these patients, four cases had upper and 11 cases had lower lip involvement. The period of follow-up was from 2 to 3 years. Diagnoses of vitiligo in all these cases were made based on the clinical features alone. All the patients were interviewed for a detailed history and a meticulous examination of each case was carried out and recorded. The procedure was performed under local anaesthesia on an outpatient basis, unless carried out in conjunction with other procedures. The medical-grade tattooing dye was selected during the initial consultation in order to match the skin colour in a natural light ambience. An electric tattooing machine with disposable, 26-gauge, cluster needles (Spaulding and Rogers, USA) was used. The pigments for tattooing were procured from Spaulding and Rogers, USA.

The pigments were autoclaved prior to every procedure. The right shade for the lip was prepared by mixing the basic pigments, yellow, brown and white, until the shade closely matched the area surrounding the site of lesion. The composition of different pigments used was as follows: brown (iron oxide and clay), white (titanium dioxide; TiO_2) and yellow (cadmium yellow). The purity percentage of the tattoo pigments was 100% medical grade. The area to be tattooed was marked and strict sterile technique was observed. Lidnocaine hydrochloride (1%) with epinephrine (1:100 000) was infiltrated into the area. With the gentle traction—counter traction of the skin, more uniform penetration can be produced. The cluster needle should penetrate the skin at an angle of approximately 45° to increase the potential for visibility of the pigment on each individual needle entry. Subsequently, a layer of antibiotic ointment (Neosporin) was applied. No dressing was required; discomfort was minimal; and pain medication was not necessary. The patients required 2—3 sessions of tattooing in the lip to achieve the most aesthetically pleasing result. During the initial session, a general pigmentation pattern was obtained. This was then refined in the later sessions and attempts were made to make the pigmentation appear uniform.

Results

After complete clinical evaluation, cosmetic tattooing was performed on the patients, and they were followed up for 2—3 years. Results were graded as percentage of colour matching with surrounding area of the lip.

G0 = No pigment retained
G1 = Poor colour matching (25—50%)
G2 = Good colour matching (50—75%)
G3 = Excellent colour matching (75—100%)

As a result, 11 cases had excellent colour matching (Figures 1—3) and two cases had good colour matching.

Tattooing offers the following advantages: (1) the patient remains free from pain in the postoperative period; (2) the procedure does not keep the patient away from work; (3) it does not require hospitalisation or general anaesthesia; and (4) it can be dealt with as an office

Figure 1 A) Patient with lip Vitiligo. B) 2 yrs follow up after tattooing.