

# PUNCH GRAFTING IN THE TREATMENT OF STABLE VITILIGO

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## Introduction

Vitiligo being a melanocytopenic disorders of pigmentation, therapy should be aimed to replenish the melanocyte population. A lack of response to conventional medical treatment indicates that the melanocyte reservoir within the hair bulb is no longer available. Under these circumstances, melanocytic repopulation of the vitiliginous areas is not possible unless a new source of pigment cells is placed within the depigmented lesions by surgical methods. Stable vitiligo is a term coined for such cases where the disease is inactive and no new patch has developed in past 1 year. Out of the various surgical methods, punch grafting has been used by many dermatologists<sup>1,4,9,11</sup> with great success. In this study, we are reporting our experience with punch grafting in the treatment of 40 lesions of stable vitiligo, occurring in 25 patients.

## Materials and Methods

The criteria for selection was based on patients having stable vitiligo not responding to medical modalities of treatment tried for minimum period of 1 year.

Based on this criteria a total of 25 patients (6 males and 19 females; age above 15 years) were selected for punch grafting (Table I.)

All patients had taken medical treatment in past in form of PUVA (Oral or local),

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**Table 1.** Age and sex distribution of patients.

Sl. No.	Age in Years	Sex		Total	Percentage
		M	F		
1.	15 - 19	2	8	10	40.00%
2.	20 - 24	2	6	8	32.00%
3.	24 - 29	1	3	4	16.00%
4.	30 and above	1	2	3	12.00%
Total		6	19	25	100.00%
		(24%)	(76%)		

corticosteroids (Oral, Local or intralesional), melagenina, levamisole or combination therapies, and had shown little response to it.

A total of 40 lesions were grafted in these 25 patients. In maximum number of patients (64%) a single lesion was grafted, while 2 lesions were grafted in 4 patients (16%), 3 lesions were grafted in 2 patients (8%) and 4 and 5 lesions were grafted in one patient each (4%). If necessary multiple sittings were carried out in few patients.

Out of these 40 lesions, 21 (52.5%) were present since 1-3 years, 14 (35%) were present since 4-6 years and 5 (12.5%) were present for above 6 years.

Majority of the patients (12=48%) had localised type of vitiligo (10 focal + 2 segmental), while 7 (28%) patients had mixed type of vitiligo and 6 (24%) patients had generalised (1 acrofacial and 5 vulgaris) type of vitiligo (Table II).

The locations of these lesions were on face (4 lesions), neck & shoulder (5), trunk (7) proximal upper extremity (9), proximal lower extremity (11) and distal part of extremities (4). The sizes of the lesions varied from 0.5 cm in diameter to 8 x 6 cms in size.

Informed consent was obtained from each of the patients. Their BCG scars or old scars were examined for keloidal tendency. Main instrument used were skin biopsy punches of size 3 mm and 4 mm diameter, atraumatic forceps, scissors and sterile petridish filled with normal saline.

dressing was done. The doner site was also dressed. Elastocrepe bandage was applied on the recipient site to keep firm pressure on the grafts. At the recipient site, dressing was changed once in first 24 to 48 hours. The upper layer of framycetine tullae was gently lifted off after soaking it with spirit. If any of the grafts were found shifted they were put

**Table II.** The all over cosmetic result as compared to the type of vitiligo.

Type of Vitiligo	Cosmetic result expressed in percentage					Total No. of Patients	Grand Total	Percentage.
	Excellent 91-100 %	Good 76-90 %	Fair 51-75 %	Moderate 31-50 %	Bad Below 30 %			
Number of Patients								
<b>Generalised</b>							6	24.00%
Acrofacial	0	0	0	1	0	1		
Vulgaris	2	2	1	0	0	5		
Universal	0	0	0	0	0	0		
<b>Mixed</b>	2	3	2	0	0	7	7	28.00%
<b>Localised</b>							12	48.00%
Focal	4	4	1	1	0	10		
Segmental	2	0	0	0	0	2		
<b>Total</b>	10	9	4	2	0	25	25	
<b>Percentage</b>	40%	36%	16%	8%	0%			

The donor site was selected preferably over the normal skin of inner aspect of thigh or the gluteal area. Both donor and recipient sites were prepared and draped and were anaesthetized locally by using 2% Xylocaine injection. The depigmented skin from the recipient site was punched out as one punch per cm<sup>2</sup> using 3 mm biopsy punch device and then the area was compressed to control bleeding. The required number of 4 mm punch grafts were taken from donor site and were implanted over the recipient punched out sides. Edges of the grafts were ironed out and they were then secured by firm pressure with moist gauze till complete haemostasis was achieved. The recipient site was then covered with double layer of framycetin tullae and

back in their original position and the area was dressed back in a similar way. This dressing was removed by 7th to 10th day. All the patients were covered with a broad spectrum antibiotic orally for 1 week. The patients were advised to avoid movements and water soaking of the grafted area. All cases were subjected to PUVA therapy (oral or local) following successful take of the grafts. Some cases were also prescribed local steroids. All cases were followed up every weekly for first 2 weeks, every fortnightly for next 2 months and every monthly thereafter.

**Results**

All grafts took successfully except for rejection of grafts in 4 lesions (10%), due to

**Table III.** Rate and extent of pigment spread around each minigraft compared with the duration of follow-up.

Duration of Follow Up in Month		Extent of Pigment Spread Around Each Minigraft in mm.					Total No. of Lesions	Percentage	
		0	1-4	5-8	9-12	13-16			18
		Number of Lesions							
Below	3	0	3	1	0	0	0	4	10.00%
3	- 6	0	2	5	1	0	0	8	20.00%
7	- 9	0	2	6	3	0	0	11	27.5%
10	- 12	0	1	3	5	0	0	9	22.5%
13	- 15	0	0	2	2	1	0	5	12.5%
Above	15	0	0	0	1	1	1	3	7.50%
Total		0	8	17	12	2	1	40	
Percentage		0%	20%	42.5%	30%	5%	2.5%		

improper immobilisation (2 lesions) or secondary infection (2 lesions). These lesions were regrafted, after treatment of infection and with proper immobilisation, which then took successfully. Pigment started spreading around each graft within 1 month of take. It was observed that the extent of pigment spread was directly proportional to the duration of follow up (Table III).

A pigment spread of 5-8 mm diameter around each minigraft was seen in maximum number of lesions (42.5%) followed by a pigment spread of 9-12 mm (30% lesions) and 1-4 mm (20% lesions). 5% lesions showed a pigment spread of 13-16 mm while maximum

pigment spread of 18 mm diameter was noted in one lesion (2.5%) (Table III). In many of our patients, the colour of white hairs on the lesions also reverted to normal after a follow up of about 8-12 months. It was also observed that patients having dark complexion showed more pigment spread as compared to the patients having fair or wheatish complexion (Table IV).

It was noticed that the lesions situated on face, neck and shoulder showed the best pigment spread while the lesions situated on the distal parts of extremities (hand, feet, finger digits, malleoli) showed the least pigment spread. Lesions situated on the trunk

**Table IV.** Extent of pigment spread compared with the complexion of patient.

Duration of Follow Up in Month		Extent of Pigment Spread Around Each Minigraft in mm.					Total No. of Lesions	Percentage
		1-4	5-8	9-12	13-16	18		
		Number of Lesions						
Fair		5	4	1	0	0	10	25.00%
Wheatish		3	9	6	1	0	19	47.5%
Dark		0	4	5	1	1	11	27.5%
Total		8	17	12	2	1	40	

and proximal parts of extremities also showed good pigment spread.

We classified the cosmetic response obtained, in different grades, depending upon the percentage of repigmentation of lesions and the colour match with the adjoining skin. The various grades used were: Excellent (91-100% response), good (76-90% response), fair (51-75% response). Out of the 25 patients treated by us, we got excellent response in 10 (40%), good response in 9 (36%), fair response in 4 (16%) and moderate response in

disease as compared to males due to the social and matrimonial problems. This point was again substantiated by the fact that out of the 25 patients taking part in this study, 22 patients (88%) were of 15 to 29 years age group i.e. the matrimonial and pre-matrimonial age group. One more significant finding observed in this study was that, not a single patient was lost during the follow-up. This also points to the fact that how keen are the patients to get rid of this disease, which has got a devastating aesthetic impact and a serious social stigma attached to it, more so in

**Table V.** Complication

Sl. No.	Complications	No. of Lesions	Percentage
1.	Superficial scarring at donor area	40	100.00%
2.	Cobblestoning	9	22.5%
3.	Variegated appearance of pigment	8	20.0%
4.	Sinking pits	4	10.0%
5.	Contact dermatitis to framycetin	2	5.0%
6.	Rejection of graft due to movement	2	5.0%
7.	Rejection of graft due to secondary infections	2	5.0%

2 (8%). None of our patients gave bad response. Thus it is obvious that, out of the 25 patients in our study, 23 (92%) showed fair to excellent response. When we compared the cosmetic results obtained in various types of vitiligo, fair to excellent results were seen in almost all types of vitiligo except for acrofacial type of vitiligo. Segmental type of vitiligo gave the best results (Table II).

The various complications seen are summarised in Table No. V.

## Comments

In our study, we noted that females significantly outnumbered the males, with the male to female ration being 1:3.17. This reason for this finding may be the fact that females are under more stress due to this

our backward tribal areas of Chotanagpur and Ranchi.

As in most of the studies,<sup>1,2,4,6-9</sup> we also got excellent cosmetic response and a pigment spread 5-12 mm in most (72.5%) of our patients. Maximum pigment spread of 18 mm was observed in one dark female after a follow up of 17 months.

Up-to-date, to our knowledge, there has been no systematic study which has compared the effect of complexion of patient on the rate and extent of pigment spread around each minigraft. In our study we have proved the fact that the degree of melanization of skin, definitely affects the degree and rate of pigment spread around the grafts, with the patients having dark complexion showing more pigment spread as compared to the

patients having fair and wheatish complexion, confirming the observations made by Orentreich (1972)<sup>4</sup> and Sawant (1992).<sup>6</sup>

In our study we also came to the conclusion that punch grafting is effective in almost all types of vitiligo except for the universal and acrofacial types, where other methods should be tried. Segmental type of vitiligo gave the best results.

Thus, it can be concluded that punch grafting is a simple, cheap, effective and a least aggressive surgical method for the treatment of stable, resistant vitiligo, giving fair to excellent cosmetic results in almost 90% of the lesions treated, without any major complication.

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