



## Mini Review

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# Vitiligo and Surgical interventions in its treatment

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## Abstract

Vitiligo is not a very uncommon skin disorder in which scientists do not know the cause and eventually the treatment. Although it is a disease with almost no symptoms but the psychosocial impact is so immense that the patient seeks treatment from the very beginning of the white patches over his body. The condition becomes more measurable for women when we talk about third-world countries.

In the Indian context, the prevalence of vitiligo is very high up to 4% in some areas which is a far high ratio than the global occurrence. Fortunately, several options of treatments are available in India especially Unani medicine which successfully cures a large number of patients. Besides drugs, Unani hakims used phototherapy as well. That's why the majority of vitiligo patients seek treatment from Unani hakims. CCRUM (central council of research in Unani medicine) an autonomous body that has pan India presence successfully treated thousands of vitiligo patients.

Nevertheless, many patients are refractory cases that got little or no relief at all. These stable cases go for surgical options. In surgery, several successful methods developed by derma to surgeons. For example, grafting methods and melanocytes transfer. It is just to transplant grafts or cells from the patient normal area to the vitiliginous area. Here in this paper, we discuss such options for stable vitiligo.

**Keywords:** Stable Vitiligo, Grafting, Melanocytes Transfer.

## INTRODUCTION

Vitiligo caused by an unknown etiology is a common autoimmune hypopigmentation or depigmentation disorder characterized by white patches after loss of skin pigmentation and destruction of functional melanocytes. It may affect some or almost all parts of the skin. Most probable cause is considered to be autoimmunization and production of autoantibodies against the melanocytes. This hypothesis is backed by familial history in approximately 20-30 percent of the patients. Milky white patches are common on exposed areas specially on extensor surfaces and around body orifices. In active disease patches grow fast and no other symptom usually persists. Various treatment options are available in the treatment of vitiligo which are effective as well. common methods are non-invasive conservative treatments including phototherapy. As far as noninvasive treatment options are concerned these include PUVA SOL (solar light used after using psoralens), PUVA, NB-UVB, excimer lasers, systemic and topical steroids, topical immunomodulators, and calcipotriol. These treatment options are found to be very effective in large no. of patients. but some time Lack of response to these non-invasive treatments is common in different sites of the body (e.g., hands and feet) also some adverse effects even skin cancers have been reported in last decade. Therefore, over the years, many surgical techniques have become available for achieving depigmentation in vitiligo specially in refractory cases particularly in stable vitiligo. against stable refractory vitiligo some surgical techniques have been developed such as autografting, epidermal grafting with suction blisters, epithelial sheet grafting and transplantation of cultured melanocytes [1,2,6,8,9,10-13].

## Historical perspective

As far as the history is concerned its known very ancient times as its evidences are enormous specially in the religious literature of all world religious communities. Rigveda and Atharva Veda which are considered to be the oldest religious books of Hindus mention this disease by the name of 'kilas' means 'Shweta Koshtha' means white leprosy. Literature of world religions like Bible, Al-Quran and Korean and

Japanese books mentioned this disease. Famous Egyptian papyri, literature of Asturian period (2200 BC) and medical literature of medieval period mentioned it and its treatment with various drugs and sunlight therapy in its treatment [1].

### Treatment options

Various treatment options are available in the treatment of vitiligo which are effective as well. common methods are non-invasive conservative treatments with medicines including phototherapy. Conservative treatments are largely successful in active forms of vitiligo.

However, for vitiligo patches that have been stable for long treatment with drugs not getting response in considerable amount of time surgical intervention is good option considered. The most frequent treatment used for vitiligo is PUVA (psoralen plus ultraviolet A) and topical steroids but against stable refractory vitiligo other surgical techniques have been developed such as autografting, epidermal grafting with suction blisters, epithelial sheet grafting and transplantation of cultured and nonculture melanocytes.

Almost all of the expert who recommends surgery said that it is the option for stable vitiligo for example segmental vitiligo. Opinions about the stability of the lesions are different as some says unchanged lesions four month are 'stable' but some said that lesions which are unchanged up to two years are stable. But most of the dermatologists think if no change occurs in one year it's a type of stable vitiligo. The surgical options are used when no other treatment work. For patch works and cell transfers only autologous donor material used. Koebner's phenomenon must also not be positive [6,7].

### Surgical options

various surgical techniques evolved over time, some are very effective and some are not. Besides this cumbersome procedural pain and discomfort is a sequela. Here are some of the surgical options discussed which are in use contemporarily.

### Punch grafting

It is a popular and older techniques in surgical treatment of vitiligo. For punch grafting several types of grafting methods are used like full-thickness punch grafting, split-thickness grafting and suction blister grafting. Besides these cellular grafts (cultured and non-cultured melanocytes, cultured and non-cultured epidermal cellular grafts) are also used successfully. Earlier methods are said to be more effective.

Small parts (1,5 mm diameter) of full thickness skin are taken from a donor area such as the thighs, buttocks using a device. simultaneously equal sizes of skin punches are removed from recipient area which is vitiliginous area. The punched out tiny parts of skin from the donor area are then transplanted into the recipient area. Thin split thickness grafts are also used where split epidermal thickness taken from donor site and bandaged on derma braded area on recipient site. For less cosmetic damage minipunch grafting also evolved it is also known as immigrating where small 1-125 mm sized punches are taken from donor skin and applied after same size punches taken from the vitiliginous area of skin. A newer technique termed as suction blister grafting where blister is induced and skin from the roof of blisters are taken and applied over derma braded area of recipient skin. parts from donor site taken [2-10,13].

### Melanocyte suspensions

For better outcome gained through autologous non-cultured epidermal cell (melanocytes) suspensions from the non-cosmetic area like buttocks or thighs applied to vitiliginous area after dermabrasion which give excellent results and are gaining popularity around the globe as the treatment of choice for stable vitiligo. Pre-prepared easy to apply kits are also available. The newer surgical techniques used in the treatment of vitiligo named cultured and non-cultured melanocytes transfer techniques. Although Both techniques are safe but effective but non-

cultured melanocytes transfer or transplant are found more effective in trials [2-7,9,10,13].

### Cultured melanocyte suspensions

In this method of cultured melanocyte suspensions, normal tissue is taken and cultured incubated with chemical media trypsin. After segregation of epidermis from melanocytes and keratinocytes put with growth factors and incubated. this suspension is taken to skin of patient after dermabrasion. By this method large vitiliginous areas are being treated.

### Epidermal seed grafting

Scientists have discovered a new method using ultrasonic abrasion, seed grafting and PUVA therapy. the ultrasonic surgical aspirator abrades only the epidermis of recipient sites. this easily and safely removes only the epidermis, even on spotty lesions. epidermal seed grafting can cover more area than sheet grafting and subsequent PUVA treatment can enlarge the area of pigmentation with coalescence of adjacent grafts. Although cellular grafting methods are more cumbersome and time taking but better for larger areas of vitiligo [7,9,10,13].

### CONCLUSION

We can see that surgical techniques made a breakthrough in refractory and stable cases of vitiligo. These should be adopted as better results are the outcome. Surgical techniques are no gaining desired popularity as they are not cost effective. So, to make them choice of masses economic consideration must be included in the development of techniques.

### Conflict of Interest

None declared.

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