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ARTISTRY IN HAIR TRANSPLANT BY MICRO-GRAFTING WITH FUE TECHNIQUES

Summary. Hair transplant in cosmetic surgery is no less than an art in which slitting is done with concentrating on proper depth and angulation of hair follicle. The most important aspect is to maintain proper angulation and direction of hair follicles while performing graft implantation and trying to achieve as much density as possible to give most natural results.

Key words: Hair Loss, Androgenetic Alopecia, Hair Transplant, Follicular Unit Extraction, PRP, Micro-grafting, Artistic Hair Transplant.

Background. Hair loss is a widespread non-malignant pathology with varying severity, age of onset, and scalp location. This disease affects more than 21 million people worldwide and by the age of 70 years, 80 % of the population will probably develop some type of hair loss. Alopecia is more prevalent in men than in women (70 % and 40 %, respectively). The loss of hair can have profound effects on one's self esteem and emotional well-being, as one's appearance plays a role in the work place and interpersonal relationships. Severe psychological disturbance has been reported in both genders including psychiatric symptoms such as

depression and anxiety that lead to a reduction in the quality of life.

Hence, providing an appropriate treatment which gives durable and natural results against follicular degeneration is of paramount importance. It is therefore not surprising that Hair transplant surgery (HTS) with micro-grafting with FUE techniques has become increasingly popular, and the results that we are able to create today are quite remarkable, providing a natural appearance when the procedure is performed well.

Introduction. Hair transplantation has become a well-established procedure for the treatment of hair loss

due to androgenetic alopecia (AGA) as well as for hair loss due to trauma and some forms of inflammatory hair disorders. Hair grows from the scalp in groupings called follicular units, which contain 1 to 4 terminal hairs, sebaceous unit, and supporting structures. On average, a person has approximately 100,000 to 150,000 hairs at a density of about 2 hairs/mm² and alopecia is perceptible when hair density diminishes by 50 %.

In the last few years, refinements in the technique have been developed with the introduction of individual follicular unit removal thanks to small punch excisions rather than single strip method. This minimally invasive surgery, also known as follicular unit extraction (FUE), is nowadays the gold standard of hair transplantation as excellent esthetic results are achieved with barely undetectable postoperative scar. In this study, the author treated 42 male patients with hair transplantation by micrografting with FUE technique and their results evaluated after a period of 6 months.

Pathophysiology of Hair Loss. Androgenetic alopecia (AGA) is the most common form of hair loss in both men and women. By the age of 40 years, half the male population is affected to some degree by this type of hair loss. Women are affected by this type of hair loss as young as 20 years old.

In men, hair loss follows a progressive and stereotypical pattern. It begins with hair loss in the bitemporal regions and then progresses to the vertex. The occipital hair is usually spared. The reason for this pattern is due to the different sensitivities of the hair follicles to dihydrotestosterone (DHT) which is a more potent form of testosterone.

Objective. The present study aims to assess the effectiveness of micro-grafting with Follicular Unit Extraction technique on 42 male patients and providing them more aesthetic and natural appearance after hair transplant

Method. The study was performed by Cosmetica India on 42 male patients and written consent was taken from all the patients before starting the procedure. Between October and December 2018, Hair transplantation was carried out in 42 patients. The patients with beard and/or moustache transplantation, multisession transplantation, female patients were excluded. The essential steps of hair transplantation were followed which include: planning, preparation, anaesthesia, graft harvesting, securing of harvested grafts, graft transplantation and dressing.

Planning. Planning of the pt. consisted of essential blood tests like Pt/INR, viral markers and a thorough medical history

Preparation and Anaesthesia. The patient's head was shaved to 1-2 mm of hair length and scalp was sterilized with antiseptic solution. All the procedures were carried out under local anaesthesia. When sufficient anaesthesia was established, a tumescent solution was injected both to the donor and recipient area. This enabled expansion of the tissues to harvest the follicles in donor area and graft them easily.

Graft Harvesting. The follicular units were harvested from the occipital and temporal scalp (androgen insensitive areas) (**Figure 1**). The hair was cut 1-2 mm in length. Follicular unit extraction method with micromotor system was used in harvesting of the hair follicles. This system consists of punches attached to the hand-piece of the micromotor system (1500-3000 rpm). Punches were chosen according to the diameter of the follicles ranging between 0.8 and 1.2 mm. Harvesting of follicles was handled in supine position. With the aid of a sharp punch attached to the motorized system, the follicle was detached from the surrounding tissue (approximately 3-4 mm in depth=deep dermis layer). Later on it was released manually with fine curved forceps especially made for this purpose. After harvesting a dressing is made with sterile saline coated gauze to the donor area.



Figure 1(harvesting of follicle grafts from occipital area which is androgen insensitive).

Securing of Harvested Grafts. The harvested grafts were aligned in petri dishes with a cold solution with temperature ranging from 4° to 10° Celsius (**Figure 2 & 3**). Some holding solutions include normal

saline, lactated ringer's solution, cell culture media e.g. Dulbecco's Modified eagle Williams E and hypothermic holding solutions e.g. Hypo Thermosol, BioLife Solutions, Bothell, WA. Recently PRP

(Platelet Rich Plasma) has emerged as a good alternative for holding the grafts. It causes activation of the harvested grafts thereby increasing their survival rate.



Figure 2(harvested grafts neatly aligned in a Petri dish in a holding solution).



Figure 3(a close up of harvested grafts in petri dish at temperatures between 4° to 10° Celsius).

Slitting. Extracted grafts are then transferred to the bald area of the scalp. Lateral slit technique is used for opening lateral slots for the placement of transferred hair follicles. On the front line we make a slit in the zigzag fashion to achieve natural looking frontline (**Figure 7**). A 21 or 20 gauge cannula was used to create nests for the frontal hairline and 19 or 18 gauge cannula was used for parietal or vertex regions.

Graft Transplantation. The nests for the grafts that are to be implanted were created via a sharp punch

needle or cannula in selected sizes. The grafts were then placed into the recipient sites manually with forceps. The normal hair density is around 100 units/cm². On the front line, we prefer to make transplantation in a zigzag fashion to achieve a natural looking frontal hairline (**Figure 4**). A 20 gauge cannula was used to create nests for the frontal hairline and 60-75 follicles/cm² were implanted so as to achieve a dense hairline. For the parietal, mid-scalp, and vertex area, a 19 gauge cannula was used and 50-60 grafts/cm² were implanted.



Figure 4(a natural looking Frontline drawn for transplantation).

Special attention was paid to the angle of follicle insertion and to achieve a natural result the hair follicles were implanted according to the natural direction of hair growth. For scalp hair, over the frontal to mid-scalp area, the hairs are in an anterior or forward direction with acute angulation. Over temples and parietal areas, the direction is more inferoposterior with very acute angle especially over the temple points and sideburn areas, which have angles almost flat to the skin. The

vertex area can be a complicated area to transplant because hairs may follow a whorl pattern.

Dressing. After the entire implantation was established (figure 5), the patient was dressed with antibiotic coated, moisturized gauze to both donor and recipient areas. It was removed after 3 days when the first head wash was carried out. The patient was advised to have first haircut after 15 days (Figure 6).

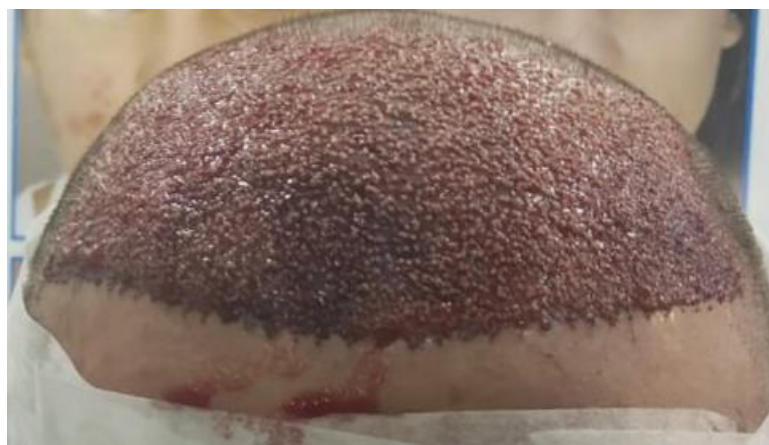


Figure 5 (picture after establishment of entire implant. Look at the zigzag line of implant for a natural looking hairline).



Figure 6 (picture taken after 15 days after first haircut)

Report: All the 42 males enrolled for the study were evaluated at day 3 of the surgery and then followed-up for a period of 6 months (**Figure 7**) to assess the success of FUE and micrografting.



Figure 7 (Picture taken after 6 months of Hair Transplant surgery)

Conclusion. Hair transplant surgery is has become an excellent means to treat hair loss especially male pattern baldness or androgenetic alopecia. Micrografting with FUE technique has emerged as the

Gold standard technique for hair transplant which not only protects the donor area but also provides very natural looking results with good density in the recipient area with (**Figure 8**).

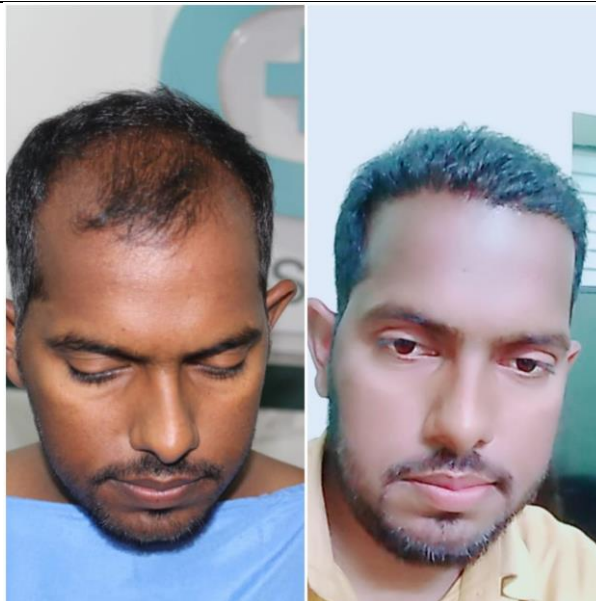


Figure 8 (Micrografting with FUE technique provides very natural looking results with good hair density, as depicted in this picture)

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ВЛИЯНИЕ ПРИРОДНЫХ АНТИОКСИДАНТОВ В ПИЩЕВОМ РАЦИОНЕ БЕРЕМЕННЫХ С ЭКСТРАГЕНИТАЛЬНЫМИ ЗАБОЛЕВАНИЯМИ НА ВОЗНИКНОВЕНИЕ ОСЛОЖНЕНИЙ БЕРЕМЕННОСТИ И АНТИОКСИДАНТНЫЙ СТАТУС СЫВОРОТКИ КРОВИ

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INFLUENCE OF NATURAL ANTIOXIDANTS IN THE FOOD PREPARATION OF PREGNANCY WITH EXTRAGENITAL DISEASES ON THE EFFECTS OF PREGNANCY COMPLICATIONS AND THE ANTIOXIDANT STATUS OF THE BLOOD SERUM