

# **Future of Hair Replacement**

Follicular Cloning

## **Pre and Post Surgical Information**

### **Preoperative details:**

#### **Hair Line Planning:**

Generally with Norwood scale hair loss between the Type III to Type VI the hair line is crucial in the appearance and final outcome of the permanent hair transplant. The degree of importance is based on the frontal perception appearance of the individual and first appearance is how the hairline actually frames the face.

For this reason it is up to the skill and artistry of the surgeon meaning it is of equal importance for the surgeon to be up to date in the skill of the procedure however the ultimate success is dependant on the surgeons artistic talent. A painter who does a fine job painting a house does not qualify him to painting a Picasso.

Generally the center of the new hairline should fall 8 to 10 cm in the midline between the eyebrows in a curvilinear pattern towards the back of the head. The density of the hair transplanted should be more concentrated centrally with a feathering or decrease in density towards the perimeter. This provides a natural look to the hairline once the hair actually grows in.

It is extremely important when designing the transplant to consider future hair loss of the individual ie. What will the grafted site look like when more hair is lost in the periphery.

What also is important when performing the procedure is the direction of the transplanted hair such that new growth will fall appropriately in a natural orderly, pattern.

#### **Crown Planning:**

Although important it is not as important as the hairline since this area can be concealed in a variety of methods. In fact there is a tendency to use larger grafts here since it takes less time to transplant and its obviousness is less apparent and concealable.

### **Donor area**

The density of the hair in the donor site is important to determine the availability of the desired number of grafts. The donor area first must be trimmed and the follicular units counted. In Caucasians, the average scalp has between 90-100 follicular units per cm<sup>2</sup> with a range of 50-140. It is critical that the donor strip is removed from the area not predisposed to future loss.

## **Surgical Procedure**

Once the size of the donor graft (.5 to 1.5 cm in width) the donor graft is dissected. Once the graft is removed the donor area wound edges are approximated and sutured or stapled. It is important to stress to the patient to avoid flexing the neck for approximately 5 to 7 days in order to prevent separation of the sutures and impede wound healing.

### **Graft dissection**

Once the donor tissue has been removed, it is kept in chilled saline over frozen packs to maintain a cool temperature while the tissue is dissected. To maintain graft viability, it is important to keep the grafts from becoming dehydrated or heated. The grafts are dissected under a binocular microscope using a minimum magnification of 10 X. Sterilized tongue blades placed over an autoclavable glass cutting plate create a cutting surface for the tissue. Assistants use jeweler's forceps to apply traction while cutting with a standard double-edged razor blade or knife. Donor tissue first is reduced to thin wafers or slivers containing only a few follicular units. Then, these slivers are cut into follicular units and trimmed of excess bald tissue.

The use of a binocular microscope provides minimal transection of follicles during the dissection process and dense packing in the recipient area, since minimal amounts of donor tissue are regrafted along with the follicular units.

The ability to create greater density within the recipient zone as a result of the small size of the grafts is the key to follicular unit hair transplantation. The dissection process is undeniably the most labor-intensive portion of the process and requires 2-3 graft-dissection assistants for every 1 implanting assistant.

### **Graft implantation**

During the implantation stage, the follicular unit grafts are placed into the anesthetized recipient zone using small punch holes (0.75-1 mm), small slit incisions (1-2 mm in length), or needle tunnels made by 19- to 22-gauge needles. If using the punch or slit methods, the recipient sites may be made prior to beginning the implantation process.

The needle tunnel technique, also referred to as the stick-and-place method, requires that each graft be placed immediately after the needle has been removed, since the needle tunnel remains open only for a few seconds. An 18-gauge needle is preferred for implanting 3-4 hair grafts, while 19- to 20-gauge needles are used for implanting 1-2 hair grafts. The stick-and-place method provides greater density of follicular units within the recipient zone and causes the least trauma to the vascular system in that area. Thus, this is the method of choice for some physicians. Because of the smaller size of these grafts, it is important to handle them with extreme care and to keep them hydrated at all times. A goal of 20-40 follicular unit grafts per cm<sup>2</sup> is reasonable and readily achieved by skilled assistants.

**Postoperative details:** Once the implantation process has been completed, the recipient surface is cleaned using chilled saline spray. The use of a postoperative dressing is optional. A moist surface speeds up the healing process. Repetitive wetting of the surface with saline or special solutions, such as copper peptide (GraftCyte), or ointments can maintain a moist surface. Allowing the graft surfaces simply to dry and heal without dressings is the method of care used most commonly.

Complications are rare and seldom threatening. Postoperative bleeding and infections are unusually rare. Donor suture lines occasionally may spread and are more prone to do so if closure is performed under tension.

During the regrowth phase that occurs between 30-90 days postoperatively, pustules may form in the grafted zone, which are believed to represent a pseudofolliculitis phenomenon of regrowth. A rare furunculoid lesion or epidermal inclusion cyst may occur at the site of a buried graft.

The goal is to make the final product look so natural that it cannot be distinguished as a transplant. The tight packing of grafts provided by microscopic dissection generates a natural appearance acceptable to most patients. Although this method is time and labor intensive, the results justify the meticulous attention to detail.