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## Hair Transplantation Surgery in the Geriatric Patient

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Included in our survey of cosmetic surgery for the aging patient is a review of hair transplantation geared to this population. Dr. Ivan Cohen, a hair transplant surgeon at Yale who has lectured widely and published on novel concepts in hair restoration, discusses his approaches to the geriatric patient in very helpful practical detail.

## Introduction

Interest in hair restoration has increased dramatically in the geriatric population. This is part of a general trend toward self improvement in this age group. There is a greater emphasis on staying active and continuing to work. Advances in medicine have resulted in a significant improvement in the quality of life of older people who now want to look as good as they feel. Concurrently, there has been a flood of innovations in hair transplantation. Older men who previously were thought to be poor or unacceptable candidates for this procedure are now often our most satisfied patients. Many of these men have been bald for 30 or 40 years and are now able to have successful experiences with hair transplants. Post menopausal women who have androgenetic alopecia are also excellent candidates. This segment of the population represents an expanding part of many hair transplant practices.

The development of micro- and minigrafting in the 1980's dramatically changed the nature of hair transplantation.<sup>1,2,3</sup> The classic round graft that had been the workhorse of hair replacement surgery since its inception has also been the bane of its existence. The sine-qua-non of an incomplete hair transplant with full sized round grafts was the "plugged" or "doll's head" look. This has always been cosmetically unacceptable. Unfortunately this was a frequent occurrence in older patients with a more advanced balding pattern (Norwood VI-VII) and a limited donor area who were transplanted with standard round grafts. These unsatisfactory cosmetic results caused many prospective older patients to seek other non-surgical methods of hair restoration. Hair pieces and hair weaves were satisfactory for some but the majority of patients are not comfortable with artificial hair replacement. Many patients complain of an itching scalp, fear of losing their hair piece, detectability and a dislike of something foreign attached to their head. The daily ritual of removing and reattaching a hair piece is an unpleasant chore for many. While younger patients may be more motivated, the necessity of regularly scheduled visits to adjust more permanently attached hair weaves can be burdensome for the elderly. With the emergence of micro- and minigrafting combined with more effective methods of donor harvesting many of these patients can now achieve acceptable results with hair transplantation.<sup>4</sup>

## **Patient Selection**

The older patient is often the ideal candidate for hair transplantation. By this age the pattern of baldness has become more clearly defined and although androgenetic alopecia is progressive, the progress is more predictable. As a result it is much easier to design an accurate overall plan for these patients. Changes in hair color and texture can also be advantageous as one ages. The hair frequently changes from brown or black to grey or white. This is a cosmetic surgical advantage over the darker hair. Since there is less contrast with the scalp tufting is less likely to occur. Thick black hair is the most difficult hair to work with if the surgeon's goal is to avoid the transplanted look. With advancing age, hair texture or caliber decreases resulting in finer hair. Although fine hair does not cover as densely as thick hair it facilitates a more natural look with fewer hairs and there is much less likelihood of compression or tufting of grafts.

Another advantage of working with the mature patient is that their expectations are much more realistic than their younger counterparts. Many of these patients have been bald for years and are no longer compelled to achieve full dense coverage. They are usually comfortable leaving the crown untransplanted, concentrating instead on a natural looking hairline and moderate density in the frontal and mid areas of the scalp. The hair can then be combed back to easily camouflage the vertex. Not all elderly patients seen for hair restoration surgery have extensive baldness. Many just have frontal thinning and require far fewer grafts to reestablish a hairline and to achieve acceptable density.

The elderly however, require strict medical monitoring before, during and after surgery. A particularly detailed medical history is required for this age group and if necessary a consultation with the patient's primary care physician. Careful examination of the scalp for actinic damage is essential. Any actinic keratosis should be treated and all suspicious lesions should be biopsies. Older patients may be more sensitive to blood loss and could be more likely to develop syncopal episodes particularly during large and lengthy procedures. Strict attention to hemostasis in both the donor and recipient areas is essential. Any large transected vessels should immediately be cauterized while removing the donor strip. Any persistent oozing in the recipient area requires immediate pressure or dilators.

The potential advantages of seven hour megasessions must be carefully weighed against the patient's medical status. Patients with cardiac disease preferably should have smaller procedures requiring less operating time and less anesthesia. Older patients are more likely to have one or more medical conditions that may require certain procedural changes. Prophylactic antibiotics are required in patients with prosthetic heart valves, joint replacements and/or mitral valve prolapse. Hypertension can cause increased bleeding both during and after surgery resulting in prolonged operating time and possible poor growth of grafts. Hypertension must be adequately controlled well before transplant surgery is scheduled. Patients on beta blockers may require a change in the choice of anesthesia. Reactions of bradycardia and hypertension have been reported in patients on propranolol who were given lidocaine with epinephrine.<sup>5</sup> The concentration of epinephrine in lidocaine should either be reduced or eliminated and the patient should be carefully monitored. Alternatively, beta blockers may be discontinued prior to surgery or another antihypertensive agent may be chosen. Other medications such as coumadin or aspirin may prolong bleeding and need to be reduced or discontinued prior to surgery. Aspirin should be stopped at least one week before surgery. Daily aspirin is such a common therapy that many patients do not consider it a drug. They need to be asked specifically if they are taking aspirin.

## **Technique**

Techniques have dramatically changed with the emergence of micro- and minigrafting. Micrografts were initially obtained by separating isolated hairs from the periphery of round grafts. Minigrafts were obtained by cutting large round grafts in halves (bisected grafts) or in quarters (quarter or quadrasected grafts).<sup>3,6</sup> A more effective method of obtaining small grafts (Figures 1a-c) was then developed utilizing the strip of hair bearing skin between two parallel rows of full size round grafts (donor island).<sup>7</sup> These grafts were obtained by sectioning this strip into micro- and minigrafts. This technique is still used when both full size round grafts and small grafts are combined in one procedure. Currently, the most effective instrument (Figure 2) for obtaining micro- and minigrafts is the multi bladed knife.<sup>8</sup> Several manufacturers make variations of this instrument. For most procedures of micro- and minigrafts, three #10 Personna blades (Robbins Instruments, Chatham, NJ) are used with 3mm or 3.5mm spacers. For micrografting only, 2mm spacers are preferred. The triple bladed knife produces two strips of hair bearing skin that can be easily, rapidly and accurately sectioned into micro- and mini grafts (Figures 3a-c). The use of this knife

requires more expertise and attention to detail than harvesting round grafts with punches. The angle of the blades must be parallel to the hair shafts to avoid transecting the follicular bulbs. To accomplish this successfully, tension must be evenly applied by the surgeon and the surgical assistants. The strips are then carefully removed by trimming through the deep subcutaneous tissue staying above the galea. Once a level of skill is achieved, the surgeon can harvest significantly more grafts from the donor area than could ever be obtained by sectioning standard round grafts.

## **Procedure**

Hair transplantation is performed in an appropriately maintained operating suite (Figure 4). Diazepam 5-10 mg p.o. is used as a premedication. The patient is placed in a prone position with the head supported in a Pron Pillo (Chattanooga Pharmacal, Chattanooga, TN). The donor site is selected from the occipital and/or temporal regions. A narrow band of hair, approximately 8mm wide, is trimmed. The length is determined by the number of grafts required for the procedure and the density of the hair. After anesthesia with lidocaine with epinephrine 1:200,000, donor hair is harvested using the triple bladed knife as previously described. After hemostasis has been achieved, the wound is closed using a running 3-0 Supramid suture (S. Jackson, Alexandria, Virginia). The two donor strips are carefully separated and placed on a sterile saline soaked tongue blade for sectioning (Figures 5a-c). Personna Shaping blades (Robbins Instruments, Chatham, NJ) are used to separate micro- (1-2 hair grafts) and minigrafts (3-5 hair grafts).<sup>9</sup> The grafts are placed in a petri dish on sterile strips of saline soaked Telfa (Kendall, Mansfield, MASS) in parallel rows. The grafts are now ready to be placed in the recipient area.

In the older male patient, the hairline should be placed as high as is cosmetically acceptable. A minimum of 8cm but preferably 10cm above the glabella is ideal for most older patients (Figure 6). Females usually retain most of their hairline or at least enough hair to use as a guide. The patient is then placed in a supine position. After local anesthesia an 18 gauge Nokor needle (Robbins Instruments, Chatham, NJ) is used to make micrograft holes anteriorly, which are immediately followed by slits using a #15 Personna blade. The use of dilators has been largely abandoned but they are still useful for hemostasis when an occasional slit persists in bleeding. The pattern utilized for these incisions can best be described as "organized disorder" (Figure 7). The surgeon must be diligent to avoid

any appearance of orderly rows. There actually is no hairline but an area of transition from single hair grafts to 2 hair grafts to grafts of 3-4 hairs. If greater density is desired, larger slit grafts of 4-6 hairs can be used or they can be placed into 2 mm holes. Small holes have the advantage of removing bald scalp and ultimately achieving greater density than slits. Their main disadvantage is transitory tufting in between procedures and the necessity to achieve a certain density to eliminate this problem. Slit grafting with 3-4 haired grafts looks natural after only one procedure and less final density is acceptable. The appearance of randomization is the key to achieving the most cosmetically pleasing results with micro- and minigrafting.<sup>4,10,11</sup> In patients with very limited donor hair and extensive baldness it is advantageous to utilize extensive numbers of micro grafts (1-2 hairs) exclusively. Once the incisions have been made the grafts are carefully placed with each assistant beginning laterally and working toward the midline. The Telfa graft bearing strips are placed on the back of one gloved hand and then the grafts are inserted with the other hand using a fine tipped forceps.<sup>12</sup> Using this logical approach 400-600 grafts can be placed in 1-1 ½ hours. The area is then carefully cleansed with dilute hydrogen peroxide and a Vigilon dressing (Hermal, Delmar, NY) is applied. A turban type bandage using 4X4 gauze and Kerlix (Kendall, Mansfield, MASS) is used to secure the dressing and keep the grafts in place. The patient returns the next day for bandage removal and cleansing of the operative site.

## **Discussion**

The number of hair transplantation procedures performed annually is rapidly increasing. Part of this is due to the increased popularity of the procedure among the general public and the increased number of physicians performing the procedure. Greater awareness in all age groups from increased advertising to increased media coverage has also contributed to this trend. More importantly, more successful results and more natural looking transplants have created an interest in a much larger part of the “balding” population than ever before (Figures 8a-b,9a-b,10a-c). The older patient is part of this trend and in most instances is an excellent prospect for reasons previously discussed in this paper. In fact, these patients may be ideal for the novice surgeon. To the novice, hair transplantation appears to be a relatively simple procedure to learn. However, the most difficult concept for the novice to master is that androgenetic alopecia is relentlessly progressive. Beginning hair transplantation in younger patients can be cosmetically hazardous without a full understanding of the progression of baldness. The surgeon must think long

term when planning the procedure to avoid such problems as improper hairline placement, lack of density, depletion of the donor area, frontal and vertex transplants that cannot be connected and permanent gaps between transplanted hair and a shrinking donor area. The surgeon can avoid most, if not all of these pitfalls by working with older patients. Because of their more predictable pattern of baldness and their more realistic expectations the surgeon and the patient are much more likely to have a positive experience. Attempts to achieve complete coverage with aggressive flap or scalp reduction surgery are unnecessary. Incisional slit grafting combined with micrografts provide adequate coverage for the vast majority of these individuals. The concept of using smaller grafts has enabled the physician to achieve the appearance of more extensive coverage while actually using less hair. This concept is particularly advantageous for the older patient.

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