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Follicular Unit Excision-Linear Ellipse (FUE-LE): A New Way to Add the Linear Ellipse Donor Harvesting Method to Any FUE Practice

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ABSTRACT

Many hair restoration practices offer exclusively the Follicular Unit Excision (FUE) method of donor harvesting, excluding the linear ellipse (LE), or "strip," procedure. In speaking with new surgeons joining the field of hair restoration surgery, the most common reasons for not offering the "older" linear ellipse method of donor harvesting are the linear scar, lack of patient demand, and lack of staff trained to perform graft dissection. However, experienced surgeons who perform both donor harvesting methods understand the merits of each, aware that with appropriate patient education and selection both methods can provide excellent cosmesis for recipient and donor areas, in addition to optimizing a good long-term surgical plan to preserve future donor area harvesting if or as needed. Furthermore, patients with or destined to develop advanced pattern hair loss often have a sufficiently larger recipient area compared to the safe donor area making a single method of donor harvesting likely to limit coverage. These patients are best served by a combination of both methods to achieve the greatest number of follicular units (FUs) harvested with the least visible donor deficit. For this reason, identifying a way for FUE-only clinics to easily add the LE procedure to their practice would be advantageous for patient care. To that end, I present here the technique of using FUE to harvest all follicular units from inside a pre-marked area of a planned linear ellipse—a novel technique called Follicular Unit Excision-Linear Ellipse (FUE-LE).

Keywords: follicular unit excision (FUE), linear ellipse (LE)

THE FUE-LE PROCEDURE

The FUE-LE procedure is a five-step donor harvesting procedure as follows:

Step 1: Identify the safe donor area (SDA) and, based on the number of planned grafts and density of the SDA, demarcate a zone for excision (Figure 1). For example, a planned procedure of 1,500 grafts with a density of 75 FU/cm^2 requires 20cm^2 donor area (75 × 20 = 1,500). In this situation, this can be achieved with a 1cm-wide area that is 20cm long, or 1.2cm wide and approximately 17cm long, etc.

Step 2: Excise all FUs inside the area of demarcation (Figure 2) using the preferred FUE machine. The demarcation area can be adjusted if the FUE yield is more or less than expected. Importantly, since the excision holes will be removed, punch scar size is not an issue, therefore, it may be advantageous to use a 1mm or larger punch to ensure minimal transection and additional perifollicular tissue around the grafts.

Step 3: Perform a full-thickness ellipse of scalp skin and subcutaneous tissue along the demarcation lines. This excision is carefully performed along the lines to limit

FIGURE 1. Demarcated zone of planned FUE.

FIGURE 2. FUE inside zone of demarcation.

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FIGURE 3. Full-thickness excision of the demarcated area of FUE.

FIGURE 4. Suture of the ellipse, followed by limited excision density above the suture line, illustrating the combined donor harvesting method.

"border hair," and the ellipse is now largely devoid of follicular units (Figure 3).

Step 4: Approximate the open ellipse wound, using a single- or two-layer closure, which may include a trichophytic edge (Figure 4).

Step 5: Examine the ellipse to harvest any "border" or retained follicular units contained in the final ellipse excision process.

Advantages of FUE-LE technique

There are three primary advantages of the FUE-LE technique:

1. FUE-only clinics can immediately offer the linear ellipse donor harvesting method without significant financial outlay for graft dissection equipment or the need to train a large team of graft dissection staff.
2. All patients with advanced pattern hair loss have a long-term, limited SDA, and FUE alone cannot remove as many grafts as a combined donor harvesting approach provides without risking the appearance of donor thinning and donor depletion. Adding FUE-LE allows concentrated removal of hair in the SDA, and it can be combined with FUE to allow a lower excision density for a combined harvesting approach to achieve comparable or greater graft harvest and recipient density while maintaining a level of cosmetic residual donor area density.
3. Offering both FUE and LE methods of donor harvesting satisfies the physician's responsibility to provide unbiased informed consent for hair transplantation surgery. When physicians or clinics do not offer both methods of donor harvesting, it is difficult to provide comprehensive and unbiased information regarding a surgical technique they do not or cannot perform themselves.

CONCLUSION

The FUE-LE donor harvesting method introduces a simple surgical technique to transition any FUE-only clinic into one that provides both donor harvesting methods without requiring added staff or equipment. The addition of FUE-LE removes the barriers to use of the linear ellipse method of donor harvesting for any FUE-only clinic and allows them to offer the full range of donor harvesting options that can benefit all patients—but especially those destined for advanced pattern hair loss—while also satisfying the legal requirement for unbiased patient education and informed consent.

Editor's note: A more in-depth discussion about the patient characteristics or circumstances in which one donor harvesting method may be advantageous over the other, or where a combined approach is the optimal choice, can be found in Dr. Keene's chapter (19), "Transitioning an FUE-Only Clinic to Include LE," in the soon to be released textbook update, *Hair Transplant 360: Follicular Unit Excision (FUE)*, Volume 4 (2nd Ed.) (Lam SM, Williams JR KL, eds. Jaypee Brothers Medical Publishers: New Delhi, India, 2022). ■