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Short Communication

Recipient site creation for hair transplantation: A prospective half-side comparison study of hole versus slit

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ABSTRACT

Follicular unit strip surgery and FUE (follicular unit extraction) are techniques used for donor harvesting in hair transplantation. For recipient site creation, the slit technique is now commonly used. The hole technique is an alternative technique in which holes are created in the tissue at the recipient site. This study compared these techniques in order to evaluate the effectiveness of the hole technique. Mean time for recipient site creation was significantly shorter with the hole technique than with the slit technique (95.5 s vs. 121 s; $p = 0.021$). This can be explained by better visibility of the holes compared with slits. This study focused on recipient site creation and found that the hole technique was a rapid and effective for recipient site creation.

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Introduction

Hair transplantation is a standard treatment for androgenetic alopecia (AGA) among other reasons of alopecia. Follicular unit strip surgery and FUE (follicular unit extraction) are techniques used for donor harvesting.^{1,2} For recipient site creation, the slit technique is now commonly used. The hole

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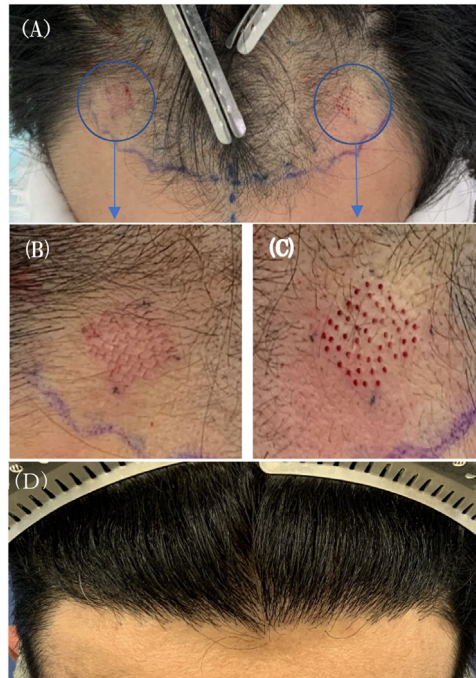


Figure 1. The forehead before surgery (A). Recipient site creation with slit (B). Recipient site creation with hole (C). Result at 12 months after surgery (D).

technique is an alternative technique in which holes are created in the tissue at the recipient site. No study has compared the slit technique and the hole technique. Thus, this study compared these techniques in order to evaluate the effect of the hole technique.

Methods

Eight male patients with a diagnosis of AGA were enrolled between June 2020 and May 2021. The study procedures were performed during hair transplantation surgery in the forehead area. Tattoo marks were made at 4 corners of a square (1 cm × 1 cm) on each side of the forehead to perform a half-side test. The slit technique or hole technique was used to create 50 slits or holes per 1 cm² to receive grafts harvested by FUE. The hole technique was performed using a stainless-steel punch (diameter 0.65 mm) attached to a motorized handpiece (OmniGraft®, Medicamat, France). For the slit technique, an 18-gauge hypodermic needle was used. In each patient, implantation on both sides was performed by the same surgeon using a vacuum-assisted implantation device (Figure 1). After the study procedures were completed, transplantation was performed in the remaining area, as planned for each patient. The recipient site creation time (seconds), implant time (seconds), 1-year graft survival rate (%), and complications (pain, numbness, folliculitis) were investigated. JMP 16 was used for statistical analysis. The Mann-Whitney U test was used to compare quantitative variables between the two groups, and a *p*-value of <0.05 was considered statistically significant.

Results

Mean age was 25.9 ± 15.9 years. The Norwood classification of AGA was Type III in 3 patients, Type IV in 3 patients, and Type V in 2 patients. Mean recipient site creation time was significantly shorter with the hole technique than with the slit technique (95.5 s vs. 121 s; *p* = 0.021). The implant

time was 269 s using the hole technique and 323 s using the slit technique, and the difference was not statistically significant ($p = 0.495$). Graft survival rates were 94% and 92% for the hole and slit techniques, respectively, and the difference was not statistically significant ($p = 0.281$). No differences were found in complications (pain: hole $n = 0$, slit $n = 0$; numbness: hole $n = 1$, slit $n = 1$; folliculitis: hole $n = 0$, slit $n = 0$). Skin firmness was not markedly different between the right and left sides.

Conclusion

Hair transplantation involves a series of steps from donor harvesting to implantation. For implantation, a direct approach is used in some methods (e.g., the Choi method), while recipient site creation is performed before implantation in other methods.^{3,4} This study revealed that the hole technique was a rapid and effective technique for recipient site creation. This can be explained by better visibility of the holes compared with slits. This high visibility of holes would be advantageous when performing hair implantation in a hairy area. The implant time was also shorter, albeit not significantly, when the hole technique was used, probably due to the lower resistance during hair implantation into holes than into slits. The greater amount of bleeding with the hole technique compared with the slit technique is a concern, but the amounts of bleeding were almost same between the techniques because compression hemostasis was applied whenever necessary during actual surgery.⁵ Also, the orientation of implanted follicles can be easily adjusted with both the hole technique and the slit technique, enabling creation of natural-looking hairline and hair whorl. The severity of scarring was not objectively examined in this study, although there was no marked difference based on our subjective evaluation. Objective examination of postoperative scarring and cost-benefit analysis of surgical devices are awaited in the future.

Ethical approval statement

This study was approved by our institutional review board (no. 200001).

Informed consent

Informed consent was obtained from all individuals participants included in the study.

Declaration of Competing Interest

None.

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