

Surgical Pearl

A new method for obtaining autologous dermal graft for tissue filler techniques

ABSTRACT

Several types of synthetic filler materials has been made available in recent years. However, autologous substances can still be considered more advantageous and secure. The author developed a collector that makes it easy to quickly obtain an autologous dermis already de-epithelized and he also describes the surgical instrument and details of its use.

INTRODUCTION

Tissue filler techniques have become very popular in the past few years and many types of substances are currently used to correct facial contour defects. The use of autologous dermal grafts to correct facial defects was first proposed in the beginning of the last century.^{1,2} Thereafter, many other studies have demonstrated the value of dermal grafts as tissue fillers.^{3,4,5,6} Most of the authors agree about the advantages of dermal grafts over synthetic, heterologous or allogenic tissues, including histocompatibility, long-term viability, resistance to infections and versatility. However, despite its efficacy, dermal grafts have yet to achieve widespread acceptance, mainly because of the scar that is produced at the donor site, the formation of an epithelial cyst, and also the relative difficulty in harvesting and implantation. In recent years, the most commonly used harvesting techniques have included the removal of an ellipse from the donor site followed by de-epithelization,^{7,11} *in situ* de-epithelization by dermabrasion,^{8,12} by a high-energy short-pulse laser,⁹ or by scalpel dissection,¹⁰ followed by dissection of the dermis with a scalpel. The most common donor sites used are the lower or suprapubic abdomen, the groin crease, the presacral region, the buttock, and the retroauricular region. In this paper, a method is described for harvesting an already de-epithelized dermis cylinder, through the use of a surgical instrument developed by the author.

Technique

The dermal collector developed by the author consists of a cylindrical surgical instrument, with a cutting edge at the free extremity, from which protrudes a ridge with 3 centimeters of length, ending at the other extremity in a piece of solid metal that functions as a handle (Figure 1). Para-vertebral areas from dorsal or lumbar regions were chosen as donor sites because the dermis is thick, there is a lack of coarse hair follicles in most cases, and there are no large caliber blood vessels. The patients were positioned in ventral decubitus, the procedure's area was demarcated with a dermatographic pen and a solution consisting of 0.5% lidocaine with epinephrine (1:100.000) was injected. Then, a 3 mm incision was made using a n°



Figure 1 – Dermal collector.

Author:

Sergio Schrader Serpa

Service of Dermatology and Dermatologic Surgery, Ronaldo Gazolla Policlínics, Universidade Estácio de Sá

Correspondence to:

Sergio Schrader Serpa
Av. Atlântica, 4240 sala 218
Copacabana – Rio de Janeiro –
Brasil
CEP: 22070-900.
Phone: +55 (21) 2235-3501 /
2227-0496 / 9192-1848
Fax: 2547-7744
E-mail: sergioserpa@uol.com.br

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11 blade in one of the extremities of the demarcated area, through which the dermal collector was introduced. With the skin pinched by the surgeon's fingers, the dermal collector was progressed by semi-circular movements parallel to the skin, and subjacent to the epidermis, until it reached the other extremity of the demarcated area. At that point, another small n° 11 blade incision was made, yielding an already de-epithelized cylindrical fragment of dermis (Figure 2). Finally, the dermal collector was pulled back, and the incisions were closed with only one or two no. 4.0 mononylon suture knots.

The dermal grafts can be used in filler techniques to augment nasolabial, mental and glabellar creases, lips, depressed surgical scars, areas of lipoatrophy, and other soft tissue defects. We have already successfully treated approximately 50 patients with this technique, including nasolabial augmentation (Figure 3), broad undulating acne scars, labiomental creases, lipoatrophy caused by lupus erythematosus, and depressed surgical scars following grafts. The harvesting of autologous dermal grafts through the use of the dermal collector developed by the author confers considerable speed to the technique, when compared to other methods published to date. For example, up to 30 dermal discs to be used in the filling of acne scars can be produced in just a few minutes. Besides, the scar produced at the donor site is minimum and acceptable, and the dermal tissue is already obtained with no epidermis, avoiding cyst formation in the receptor area.

REFERÊNCIAS

1. Lexer E. Free transplation. *Ann Surg* 1914; 60:166-194.
2. Figi FA. Depression of frontal region, fat transplant. *Surg Clin North Am* 1931; 11:8-31.
3. Schuessler WW, Steffanoff DN. Dermal grafts for correction of facial defects: a series of 80 cases. *Plast Reconstr Surg* 1949; 4:341-451.
4. Boering G, Huffstadt AJC. The use of derma-fat grafts in the face. *Br J Plast Surg* 1967; 20:172-178.
5. Leaf N, Zarem HA. Correction of contour defects of the face with dermal and dermal-fat grafts. *Arch Surg* 1972; 105:715-719.
6. Davis RE, Guida RA, Cook TA. Autologous free dermal fat graft: reconstruction of facial contour defects. *Arch Otolaryngol Head Neck Surg* 1995; 121:95-100.

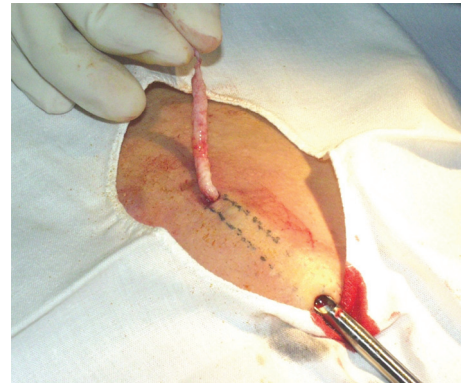


Figure 2 – Fragment of dermis obtained.



Figure 3 – Nasolabial augmentation with autologous dermal graft.

7. Nicolle FV, Chir M, Matti BA, Scamp T. Dermal and facial autografts in facial aesthetic surgery. *Aest Plast Surg* 1992; 16:219-225.
8. Quereshy FA, Hauser MS. Diamond fraise technique for dermal grafts in temporomandibular disk reconstruction. *Oral Pathol Oral Radiol Endod* 1998; 85:517-519.
9. Goodman G. Laser-assisted dermal grafting for the correction of cutaneous contour defects. *Dermatol Surg* 1997; 23:95-99.
10. Lapiere JC, Aasi S, Cook B, Montalvo A. Successful correction of depressed scars of the forehead secondary to trauma and morphea en coup de saber by en bloc autologous dermal fat graft. *Dermatol Surg* 2000; 26:793-797.
11. Chasan PE, Rahban SR. Presacral donor site for lip augmentation. *Aesth Plast Surg* 2000; 24:31-33.
12. Swinehart JM. Dermal grafting. *Dermatol Clin* 2001; 19:509-522.