A new cost-effective and fast method of autologous fat grafting

Une nouvelle méthode économique et rapide de greffe graisseuse autologue


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Summary  Due to the increasing number of fat grafting procedures, several laboratories have developed their own fat processing system (Puregraft®, LipiVage®, Viafill®, etc.), such as closed harvesting systems, centrifugation or washing and filtration devices, or even simple decantation techniques. However, all these tissue-engineering systems are expensive. Our team has developed a simple and fast autologous fat grafting system, usable even for a large volume of lipofilling, and based on low-pressure suction and a sterile closed-system for processing the harvested fat tissue. It is a cost-effective system, as it only costs 9.28 Eur (10.52 USD) for a 500 milliliters autologous fat grafted procedure.

KEYWORDS  Human engineering; Surgical procedures; Fat grafting; Lipofilling

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Introduction

Fat grafting was described for the first time in 1893 by Neuber [1]. Recently, the demand for fat grafting, popularized by Khouri et al. [2] and Ho Quoc et al. [3,4], has tremendously increased, as there has been the total expenditure (11,505 buttock augmentation with fat grafting in the USA in 2014, representing a total expenditure of 46,905,885 USD) [5].

There are many available techniques for harvesting, preparing, and re-injecting the adipose tissue. Due to the increasing number of fat grafting procedures, several laboratories have developed their own fat processing system: Puregraft® (Cytori Therapeutics, Inc., San Diego, California, USA), Lipose™ (Genesis Biosystems, Lewisville, Texas, USA), Viafill® (Lipose Corp., Maitland, Florida, USA), such as closed harvesting systems, centrifugation or washing and filtration devices, or even simple decantation techniques [6]. However, all these tissue-engineering systems are expensive.

Our team (mainly J. Rausky) has developed a new simple, fast, reproducible and cost-effective system for harvesting, processing and re-injecting autologous fat tissue.

Method

We listed all the required equipment for collecting, preparing and re-injecting the autologous fat and estimated its cost (Figs. 1 and 2; Table 1).

Figure 1  1: multiperforated harvesting cannula (4 mm; 12 port configuration) (JBMC, Beauselle, France — reference: 70710-12-25); 2: three way stopcock (BD, Temse, Belgium — reference: 394501); 3: Luer Lock syringe (10 mL) (BD, Temse, Belgium — reference: 30912); 4: universal adaptor (Coloplast, Rosny-Sous-Bois, France — reference: AK3100); 5: double taper connector (Vygon, Ecouen, France — reference: 881.00); 6: suction hose (cut to a length of 30 cm) (Cair/LGL, Cивриёс-d’Азергве, France — reference: TA7301); 7: impactor (JBMC, Beauselle, France — reference: 1180-ivs); 8: saline bag (100 mL) (Fresenius Kabi, Sèvre, France — reference: 3675129); 9: needle (16-gauge) (BD, Temse, Belgium — reference: 300637).

Figure 2  Left: the saline bag of 100 mL is vertically placed to obtain decantation (saline bag number two). Ten minutes of decantation are sufficient to separate the adipose phase from fluids and debris (saline bag number one). Fluids and debris are removed using a 60 mL syringe (BD, Temse, Belgium — reference: 300865) and a 16-gauge needle; right: the re-injection is performed by reconnecting the saline bag filled with re-injectable fat to the same system, the harvesting cannula being replaced with a re-injection cannula (Pouret Medical, Clichy, France — reference: PLA189) and the 10 mL Luer Lock syringe being replaced with a 3 mL Luer Lock syringe (BD, Temse, Belgium — reference: 309658).
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