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CLINICAL CASE

Lipofilling, an efficient solution for breast sequelae after cardiothoracic surgery

Le lipofilling, *une solution efficace pour les déformations mammaires après chirurgie cardiaque*

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Summary Evolutions in pediatric cardiovascular surgery have allowed the treatment of a various range of cardiovascular malformations in infants. It is a difficult branch of surgery, with vital impact, which can also leave residual thoracic scars, possible sources for thoracomammary deformities in adults. Most thoracomammary deformities after thoracotomy are observed at puberty, when they appear as breast asymmetries. The main cause is the breast bud injured during thoracotomy. Several techniques have been suggested for breast reconstruction, but none give satisfying results. We have been practicing lipofilling since 1998 for breast reconstruction. Since 2001, we have started applying it to breast deformities. The final result is constant in time, natural, and has a good volume filler effect. We describe the fat grafting technique, an original technique, as a solution for this kind of deformities. The technique is illustrated by two clinical cases. In conclusion, fat grafting has really improved breast asymmetry due to iatrogenic deformation. Even if those cases are rare, surgeons have to know this kind of procedure. It is indeed a simple and efficient solution for those patients after childhood, with natural and long standing results.

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Lipofilling ;
Fasciotomies ;
Asymétrie mammaire

Résumé L'évolution de la chirurgie pédiatrique cardiovasculaire a permis de traiter de nombreuses malformations cardiaques chez les enfants. C'est une branche difficile de la chirurgie, avec un impact vital majeur. Ce type de chirurgie peut également être source de cicatrice thoracique importante, potentiellement source de séquelles mammaires à l'âge adulte. La plupart de ces malformations mammaires apparaît à la puberté, quand apparaît une asymétrie mammaire, secondaire à l'atteinte du bourgeon mammaire. Plusieurs techniques de reconstruction ont été utilisées, avec plus récemment l'utilisation du *lipofilling*. Nous pratiquons le *lipofilling* depuis 1998, d'abord en reconstruction mammaire, puis depuis 2001 aux malformations mammaires. Les résultats sont naturels, durables et la consistance est proche de celle d'un sein normal. La technique est illustrée au travers de deux cas cliniques. En conclusion, le *lipofilling* a permis d'améliorer considérablement les déformations mammaires iatrogènes liées à la chirurgie cardiaque dans l'enfance. Il nous a semblé intéressant de diffuser la technique permettant d'obtenir un résultat naturel et durable. Le transfert graisseux est une solution simple pour l'asymétrie mammaire gênante de l'adolescente.

Introduction

Evolutions in pediatric cardiovascular surgery have allowed the treatment of a various range of cardiovascular malformations in infants. It is a difficult branch of surgery, with vital impact, which can also leave residual thoracic scars, possible sources for thoracomammary deformities in adults as breast hypotrophy or partial atrophy, thoracic depressions, retractile scars, hyper- or hypotrophic scars. These iatrogenic deformities can have a major psychological impact on the individual especially at puberty, when the body image is developed. The anterolateral and posterolateral thoracotomies with the incision passing through the third or fourth intercostal space often injure the breast bud [1,2] and produce hypoplastic breasts [2]. There are few studies that treat this problem, and the classical surgical methods used for reconstruction in these cases generally have poor results. We have been practicing lipomodeling since 1998 particularly for breast reconstruction, and since 2001 we have started applying it to breast deformities. The final result is lasting, natural, and has a good volume filler effect. Because of all these advantages, we have extended the use of this technique to include the treatment of acquired thoracic deformities. The normal appearance of the chest wall has a major social and psychological impact on the individual. The thoracomammary deformities most often encountered in clinical practice are the pectus excavatum [3], tuberous breasts [4] and Poland syndrome [5]. Several methods have been developed for their treatment. In some cases, we can acknowledge acquired deformities of various origins. Even though they are usually the result of a trauma [6], these can sometimes be iatrogenic deformities [7] secondary to thoracic or cardiovascular surgery for congenital cardiovascular malformations. These are complex surgeries that can associate severe chest wall or breast sequelae, because of the multiple incisions: median with a hypertrophic scar as a result and lateral sectioning the breast bud, with breast deformities at puberty.

The purpose of this article is to present an original, simple and efficient method of treating severe breast acquired deformities after cardiovascular surgery.

Materials and methods

This article presents an original method for correcting acquired chest wall and breast deformities after thoracic and cardiovascular surgery for congenital malformations, applied in the treatment of two consecutive patients with severe breast deformities after thoracotomy. Given the fact that treatment possibilities are reduced, and most of them have poor results, we have suggested a different approach by using fat grafting to correct the deformities. Both patients agreed to be treated by fat grafting alone in two or three sessions. Prior to the surgery, we prescribed a complete imagery examination of the breast (mammography and ultrasonography).

Both patients were operated under general anesthesia for each operation, and were discharged the same day after each surgery. The used technique implies harvesting fat grafts from different areas of the body (abdomen, thighs, and lower back) after infiltration with a saline-epinephrine solution. A multi-perforated cannula was used for liposuction. The harvested fat was then treated by 500 G centrifugation (3000 rotations per minute for 30 seconds). Afterwards, several small incisions (with a 14-G trocar) were made and the fat was transferred to the tissues using a 2 mm transfer cannula from the deep to the superficial layers, in order to correct volume deficit areas. We recorded the tolerance (complications) and efficiency (the satisfaction degree of surgeon and patients) of the technique.

Results

The results of this technique are illustrated with two clinical cases.

Case 1

A 37-year-old female consulted in 2010 for a major asymmetry and a hypertophic median scar after a congenital cardiovascular malformation, operated at the age of 3 months and 9 years. At the clinical examination, we described a median scar that extended from the manubrium