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ORIGINAL ARTICLE

Outcome of 122 delayed breast reconstruction following post-mastectomy radiotherapy: The scarless latissimus dorsi flap with tissue expansion technique



Revue de 122 reconstructions mammaires différées post-radiothérapie par : Lambeau de grand dorsal sans cicatrice dorsale avec expansion tissulaire

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Mammoplasty;
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Summary

Background. – Delayed breast reconstruction with tissue expansion may be risky after radiotherapy, due to the poor skin quality. To permit the use of the tissue expansion procedure, we propose a scarless latissimus dorsi flap to bring tissue trophicity, by a healthy vascularized muscular interface with no donor scar and no patch effect. The objective of this study is to assess the outcome of the tissue expansion technique with scarless latissimus dorsi flap after post-mastectomy radiotherapy.

Methods. – All the patients who had benefited of a delayed breast reconstruction after radiotherapy using tissue expansion technique with scarless latissimus dorsi flap, between January 2000 and January 2013, were reviewed. The exclusion criteria were: prior breast reconstruction, or interruption of breast reconstruction procedure due to active metastatic disease requiring ongoing oncological treatment. The complications were identified: failures of reconstruction, implant exposure, wound dehiscence, capsular contracture, deflation of implant, hematoma, infection, and skin necrosis.

Results. – One hundred and twenty-two breasts were reviewed. The average time between the flap and the expander intervention was: 194 ± 114 SD (28–1051) days. The mean volume of inserted expander was 633 ± 111 SD (350–1100) mL and the mean inflation volume was

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MOTS CLÉS

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578 ± 190 SD (170–1160) mL. The average time between insertion of the expander and insertion of the permanent implant was 132 ± 76 SD (49–683) days. The mean inflation of the implant volume was 368 ± 105 SD (130–620) mL. Forty patients developed at least one complication. The most common complication was the appearance of a capsular contracture requiring a capsulectomy: 11 (9.2%) with permanent implants and 6 (4.9%) with expander. Deflation of implants occurred with six permanent implants and with one expander. There were 3 breast reconstructions failures (two infections and one exposure of implants).

Conclusion. — This procedure offers the advantages that there is no unattractive scar, and that there are low rates of exposure or failed reconstruction.

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Résumé

Introduction. — La reconstruction mammaire différée par prothèse d'expansion peut être risquée après de la radiothérapie. Les autres procédures chirurgicales de reconstruction mammaire par lambeaux imposent fréquemment de nouvelles cicatrices. Pour sécuriser l'usage de l'expansion tissulaire en post-radiothérapie, nous proposons la couverture de la prothèse par un lambeau musculaire pur de grand dorsal, prélevé sans cicatrice. L'objectif de cette étude est d'évaluer les résultats de cette technique dans le cadre de la reconstruction mammaire différée post-radiothérapie.

Matériel et méthodes. — Toutes les patientes ayant bénéficié de cette technique de reconstruction mammaire en différée et post-radiothérapie, de janvier 2000 à janvier 2013 ont été incluses, soit 122 reconstructions.

Résultats. — Le délai moyen entre la mise en place du lambeau et la prothèse d'expansion était de 194 ± 114 SD (28–1051) jours. La prothèse d'expansion présentait un volume de gonflage final de 578 ± 190 SD (170–1160) mL pour une capacité moyenne de 633 ± 111 SD (350–1100) mL. Le délai moyen entre le remplacement de la prothèse d'expansion par la prothèse définitive était de 132 ± 76 SD (49–683) jours. Le volume moyen de la prothèse définitive insérée était de 368 ± 105 SD (130–620) mL. Quarante patients (33 %) ont présenté au moins une complication. La complication la plus fréquente était l'apparition d'une coque (stade 3–4 de Baker) : 11 sur un implant définitive et 6 sur une prothèse d'expansion. Un dégonflement est survenu pour six implants définitifs et pour une prothèse d'expansion. Quatre infections nécessitèrent la dépose de la prothèse d'expansion. Deux expositions de prothèse définitives se sont produites. Cette technique de reconstruction a abouti à un échec de reconstruction dans trois cas (secondaire à deux infections et une exposition de prothèse).

Conclusion. — Cette procédure nécessite plusieurs temps chirurgicaux, mais offre les avantages de : l'absence de cicatrice, d'un faible taux d'exposition de prothèse et d'échec de reconstruction.

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Introduction

Breast reconstruction remains one of the most common procedures plastic surgeons perform worldwide. In 2012, ASAPS (American Society for Aesthetic Plastic Surgery) surgeons performed 91,655 breast reconstructions [1]. One of the most common procedures for breast reconstruction by ASAPS surgeons is the use of a tissue expander followed by an implant (64,575 procedures) [1].

In France, breast reconstruction with a prosthetic implant is the most common reconstructive procedure. From 2005 to 2009, 4900 breast reconstructions with implant were performed among the 9200 breast reconstructions per year. Unfortunately, this procedure can be risky after radiotherapy, due to the poor skin quality. Another surgical procedure that may be offered to a patient is a flap reconstruction procedure, but this requires a donor site, leaves a donor site scar and may produce a patch effect. In France, the use of the latissimus dorsi flap [3] is one of the most used flap techniques for breast reconstruction; it has a

good tolerance to irradiation [4], offers long-term satisfaction [5] and has a tendency to be less and less associated with an implant [6,7].

To permit the more general use of the tissue expansion procedure, we propose a scarless latissimus dorsi flap to prepare the tissue's expansion (induce tissue vascularisation and trophicity) by creating a healthy, vascularised muscular interface with no donor scar or patch effect. Thereafter, the muscle is used to cover the expander and ensure augmentation of the damaged skin.

The objective of this study is to assess the outcome of the scarless latissimus dorsi flap with the tissue expansion technique after post-mastectomy radiotherapy.

Materials and method

This muscle flap technique was offered to patients who wanted breast reconstruction with implants but presented with difficulties due to radiotherapy (insufficiently elastic skin and/or irregular or thin pectoral muscle thickness).

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