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ORIGINAL ARTICLE

A retrospective comparison study of the infra-mammary approach to the standard mastectomy scar in the 2nd stage of tissue expander to implant breast reconstruction

Étude rétrospective comparant l'approche infra-mammaire à l'approche par la cicatrice de mastectomie dans le 2^e temps de reconstruction mammaire par échange d'expandeur à prothèse définitive

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KEYWORDS

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Second stage;
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Summary

Background. — Staged expander-to-implant breast reconstruction is plagued by a high prevalence of complications. We have employed an alternative approach of using the infra-mammary crease (IMF) for expander-to-implant exchange. The IMF approach was thought to utilize healthier tissues, which are believed to be less affected by the process of tissue expansion, and reside distant from the field of the radiotherapy boost.

Methods. — A retrospective chart review was performed on all patients undergoing a staged implant-based breast reconstruction from 2009 to 2014. Patients were divided into those that received an IMF vs. a mastectomy scar (MS) approach in the second stage of expander-to-implant exchange. Patient characteristics and postoperative complications were extracted.

Results. — A total of 75 patients undergoing 96-staged reconstructions were included (70 cases MS vs. 26 cases IMF). Patient demographics and implant characteristics were similar between

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MOTS CLÉS

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Complications

groups. There were no significant differences in overall complications between the groups (11.4% MS vs. 7.7% IMF, $P = 0.72$). All cases of implant exposure occurred in the MS group and had a history of radiation. However, there was no statistical difference in implant exposure between groups (4.3% MS vs. 0% IMF, $P = 0.56$) or in the irradiated patients subgroup (20% MS vs. 0% IMF, $P = 0.25$). **Conclusions.** – In conclusion, the IMF approach for the second stage of expander-to-implant exchange is an alternative technique with a similar prevalence of complications as the traditional mastectomy scar approach. This technique may prove useful in reducing postoperative incisional dehiscence and implant exposure, especially in the context of radiotherapy.

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Résumé

Objectifs. – La reconstruction mammaire par expandeur/prothèse comporte un taux de complications élevé. L'approche par le sillon sous-mammaire (SSM) est une technique alternative lors de l'échange de l'expandeur par la prothèse définitive. Cette approche se base sur le principe que les tissus sont plus sains au niveau du sillon sous-mammaire, étant moins affectés par l'expansion tissulaire et la radiothérapie.

Méthodes. – Une analyse rétrospective a été effectuée chez toutes les patientes ayant une reconstruction mammaire par étapes expandeur/prothèse entre 2009 et 2014. Les deux groupes à l'étude sont l'approche par le sillon sous-mammaire et celle par la cicatrice de mastectomie (CM). Les caractéristiques des patients et les complications postopératoires ont été compilées.

Résultats. – Un total de 75 patientes ayant eu 96 reconstructions ont été incluses (70 cas CM vs 26 cas SSM). Les caractéristiques des patientes et des prothèses sont similaires entre les groupes. Les complications totales sont comparables entre les groupes (11,4 % CM vs 7,7 % PIM, $p = 0,72$). Tous les cas d'exposition de prothèses ont eu lieu dans le groupe CM avec des antécédents de radiothérapie. Toutefois, aucune différence statistiquement significative pour l'exposition de l'implant n'a été notée entre les deux groupes (4,3 % CM vs 0 % SSM, $p = 0,56$) ou dans le sous-groupe de radiothérapie (20 % CM vs 0 % SSM, $p = 0,25$).

Conclusions. – L'approche infra-mammaire est une technique alternative lors de l'échange d'expandeur par prothèse avec des complications similaires à l'approche traditionnelle par la cicatrice de mastectomie. Cette technique pourrait être bénéfique pour réduire la déhiscence et l'exposition de prothèse, particulièrement dans un contexte radique.

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Introduction

Implant-based breast reconstruction is the most commonly used reconstructive modality following mastectomy for breast cancer. It accounts for 81.3% of post-mastectomy breast reconstruction procedures performed in the United States [1]. This approach allows restoration of the breast mound using the preserved skin, while obviating the need for donor tissue and the concomitant morbidity. Generally, a two-stage expander-to-implant approach is employed when autologous tissue is insufficient, adjuvant radiotherapy is deemed necessary or when the skin envelope is insufficient, allowing for superior control over the final aesthetic outcome.

The second stage, which is classically performed through the original mastectomy scar, represents a particular challenge, as tissues are attenuated post-expansion and often damaged by radiation therapy. The deleterious effects of radiation therapy on wound healing are well documented in the literature and in the context of breast reconstruction can increase the risk of wound dehiscence, implant exposure and capsular contracture [2].

To overcome these challenges and mitigate the complication profile of the expander-to-implant procedure in our health care center, several surgeons have utilized the

infra-mammary (IMF) crease approach for placement of the final implant in both radiated and non-irradiated breasts. The IMF approach was thought to utilize healthier tissues, which are believed to be less affected by the process of tissue expansion, and reside distant from the field of the radiotherapy boost [3–5]. In addition, we believe this technique provides improved visualization of the peri-prosthetic pocket and avoids losing expanded skin, facilitating final implant placement. The evidence in the literature regarding this approach is lacking, with the results of a single case series demonstrating promising results [6].

The purpose of this study is to retrospectively compare the outcomes of the infra-mammary crease (IMF) vs. the standard mastectomy scar approach following the second stage of expander-to-implant breast reconstruction in our patient population.

Material and methods

Study design

A retrospective chart review of all consecutive patients undergoing expander-to-implant exchange for post-mastectomy breast reconstruction was performed at our tertiary Healthcare Center over a 5-year period (2009–2014). All

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