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Original Article

Dual plane breast implant reconstruction in large sized breasts: How to maximise the result following first stage total submuscular expansion

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ABSTRACT

Introduction: Women who were good candidates for a skin reducing mastectomy, but were instead treated with a skin-sparing mastectomy and reconstruction with expanders, show discrepancy of volume and form between the healthy breast (voluminous and ptotic) and the expanded mastectomy envelope and muscle, which has a smaller size as well as excessive amount of skin at the lower pole.

Methods: From January 2014 to March 2015, we recruited 18 women with breasts of medium to large volume and with moderate to severe ptosis, already treated at a different centre with a one-side mastectomy and reconstruction by means of an expander. These women were treated at our unit for the second reconstructive step with a dual plane technique and a contralateral reduction/mastopexy.

Results: The minimum duration of follow-up was 2 years (range 24–30 months). The average volume of the implants was 613 g. The reconstructive outcome at the final follow-up (at least 24 months) was judged by the specialist as excellent in 5 cases, very good in 10 cases and good in 3 cases. Breast Q average score was 87.08.

Discussion: The disinsertion of the expanded muscle dome and the use of a dual plane technique for the placement of the definitive implant provide a solution to the skin-volume mismatch problem. The subcutaneous placement of the implant at the level of the lower pole extends the excessive amount of skin and gives the

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reconstructed breast fullness and natural ptosis. Further validation of our results is needed.

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Introduction

Breast reconstruction is today an integral part of the therapeutic management of breast cancer.¹ The reconstructive process can be initiated at the time of mastectomy and implies, in about 70% of cases, the insertion of a skin expander.² Once a sufficient expansion is reached, the process is continued, in a second stage, with the replacement of the breast expander with the final implant. The ideal candidates for this type of reconstruction are patients with breasts of small to medium volume. In contrast patients with breasts of medium to large size and with ptosis, can undergo a skin reducing mastectomy and immediate reconstruction with prosthetic implants.^{3–11}

Given the above, women have come to our attention, who, although they were candidates for a skin reducing mastectomy, were instead treated with a skin-sparing mastectomy and reconstruction with expanders. The result was a considerable discrepancy of volume and shape between the healthy breast (voluminous and ptotic) and the expanded mastectomy envelope and underlying muscle, which presented a smaller size as well as excessive amount of skin at the lower pole. In these cases, in order to be able to replace the skin expander with an implant of greater volume, while making use of the excess tissue at the lower pole, we carried out a definitive reconstruction by means of a dual plane technique.

Materials and methods

From January 2014 to March 2015, we recruited 18 women with breasts of medium to large volume and with moderate to severe ptosis, already treated at a different centre with a one-side mastectomy and reconstruction by means of an expander. These women were treated at our unit for the second reconstructive step: replacement of the breast expander and insertion of the final implant. The characteristics of the study population are summarized in [Table 1](#). All patients had completed the skin expansion (average volume: 500 cc) and had an excess of skin at the lower pole of the expanded breast (pinch test >2 cm) with a healthy breast of large volume and medium to severe ptosis. The average age of our patients was 53 years (range 50–58 years); 14 patients were overweight (BMI 25–29.9 kg/m²), 4 were class 1 obese (BMI 30–34.9 kg/m²). Patients with a smoking habit or those with severe comorbidities (diabetes, renal insufficiency, congestive heart condition, chronic liver disease, metabolic diseases) were excluded. None of the patients had been treated with adjuvant radiotherapy.

In all cases breast expanders were replaced with silicone anatomical implants and all patients further underwent at the same time contralateral adjustment by means of breast reduction or mastopexy. Patients were regularly followed up and the reconstructive and aesthetic outcomes were defined by clinical and photographic assessment. The Breast Q questionnaire was used to assess the surgical outcome by the patients' perspective. Early and late complications were also assessed and recorded.

Surgical technique (Figure 1)

The replacement of the breast expander with the final implant was performed in all patients with a dual plane technique. This technique provides access to the expanded submuscular pocket through the previous surgical scar. The skin flap inferior to the mastectomy scar is separated off the muscle down to the inframammary fold. The expanded muscle dome, thus exposed, is disconnected at the level of its lower margin from the costal plane. Equatorial capsulotomy and fenestration of the capsule

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