

One-stage breast reconstruction with implants in previously irradiated patients

Reconstrução em tempo único com implantes em pacientes previamente irradiadas

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Descritores

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RESUMO

Após a cirurgia conservadora, o emprego de implantes mamários é controverso, devido aos efeitos adversos da radioterapia nos tecidos. Existem riscos maiores para perda do implante, problemas com a cicatrização e contratura capsular, quando a radioterapia foi associada com reconstrução mamária em diversas séries. Este estudo reporta três casos de reconstrução mamária em um único tempo em pacientes previamente submetidas à quadrantectomia, seguida de radioterapia, e que apresentaram recidiva local da doença. Todas foram submetidas à mastectomia, preservando a pele, seguida de reconstrução imediata com implante anatômico Allergan Style 410. Após uma média de 16 meses de seguimento, não houve contratura capsular, os resultados estéticos foram satisfatórios e estáveis, e as pacientes não apresentaram complicações agudas ou tardias.

ABSTRACT

After a breast conserving treatment for breast cancer, the use of implants is controversial due to radiotherapy damaging effects on soft tissues. A large risk of implant loss; high rates of wound complications; and capsular contracture when radiotherapy is associated with breast reconstruction were reported in a previous series. This study reports three cases of one-stage breast reconstruction in patients that had previously undergone a quadrantectomy followed by radiotherapy, and presented local recurrence. All of them were submitted to skin-sparing mastectomy followed by immediate reconstruction with the anatomic implant Allergan Style 410. After an average follow-up of 16 months, no evidence of capsular contracture was noticed, the aesthetic results were good and stable, and the patients did not present with early or late complications.

Study carried out at the Breast Unit of Hospital Nossa Senhora das Graças – Curitiba (PR), Brazil.

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Introduction

Radiotherapy constitutes an essential step in the breast conserving therapy (BCT)¹. Unfortunately, it also represents a significant additional risk for any reconstruction technique when there is a true local recurrence or a second tumor in the same breast, and the patient is eligible for mastectomy. Therefore, nowadays, the use of implants remains a relative contraindication when there is history of previous breast irradiation^{2,3}. But, breast implants and temporary expanders are the most common techniques for breast reconstruction. The last generations of contour profile implants have textured surface and highly cohesive silicone gel for form-stable breast contours, resulting in technical refinements and better results in breast reconstruction than the first implants generations^{4,5}. These implants, when used in one-stage reconstruction after skin-sparing mastectomy instead of the classical two-stage reconstruction (which requires tissue expansion with a temporary expander), had not been tested yet in association with radiotherapy in larger series of patients, and with long-term follow-up.

Therefore, the purpose of this paper is to report three successful cases of one-stage breast reconstruction with implants after recurrence of breast cancer in patients that were previously submitted to BCT and irradiation.

Cases

Three patients (59, 60 and 62 years old), previously submitted to quadrantectomy with complete axillary dissection and complementary radiotherapy within the recommended doses (5000 cGy and boost), due to invasive ductal carcinoma, were selected. All of them had previous T1 tumors and one had one compromised node in the axillary dissection. Estrogen receptor (ER) and Progesteron receptor (PgR) were positive in all of them. The patient with axillary metastasis received six cycles of fluorouracil, antracyclin and ciclophosphamide (FAC) and all of them received five years of adjuvant Tamoxifen. Two patients later appeared with an invasive ductal carcinoma and one with an invasive lobular carcinoma, which was considered a second tumor. Previous treatment had occurred eight, six, and five years earlier, respectively. One of the patients had been previously submitted to a mastectomy of the contralateral other breast with delayed reconstruction through tissue expander and implant. The patients' breasts had no important fibrosis at the time of recurrence diagnosis, and the patients refused to undergo reconstruction with flaps, which is the indicated procedure in these cases.

Then, they were submitted to skin-sparing mastectomy and immediate reconstruction with implant positioned in the retropectoral space (partial cover technique). One patient was submitted to a simultaneous contralateral breast reduction (Figure 1).



FIGURE 1. Preoperative and postoperative view of a 59 years-old patient with a local recurrence after breast conserving therapy 6 years earlier in the left breast; 18 months of postoperative surgery with one-stage breast reconstruction with implant (without contra-lateral breast reduction for symmetry).



FIGURE 2. Preoperative and postoperative view of a 62 years-old patient with a local recurrence after breast conserving therapy 8 years earlier in the left breast; 12 months of postoperative surgery with one-stage breast reconstruction with implant and contra-lateral breast reduction for symmetry.

The patient in Figure 2 refused to do a contralateral breast reduction for symmetry. Both implants had an anatomic shape, Allergan Style 410, MF 375cc in one patient, and 420cc in two patients. The average follow-up for the three patients was 16 months (two of them had 18-month follow-up and the other one, 12 months). They had no identification of acute or chronic complications. The implants remained with mobility and without evidence of capsular contracture, achieving good and stable long-term aesthetic results.

Discussion

Despite being related to a decrease in the mortality and local recurrence rate in breast cancer patients, chronically, radiotherapy can cause endarteritis, which leads to a less vascularized future surgical bed. It is potentially damaging if a new intervention is necessary, for ischemia alters the local resistance of the tissue to infection. Furthermore, the reduced lymphatic drainage, which results from the actinic lymphangitis, favors the accumulation of fluids^{4,5}. At last, many patients develop a certain degree of breast fibrosis a few months after the radiotherapy end, impeding the expansion of the tissue with temporary expanders. Due to all these factors, flaps are generally the main indication for previously irradiated breast cancer patients.

A high percentage of capsular contracture and postoperative complications in reconstruction with implants when adjuvant radiotherapy is associated has been reported. Due to a more intensive inflammatory response, pain, distortion, and capsular contracture have been reported in approximately 30% of the patients during a long-term follow-up²⁻⁸. There are also reports of bad placement, implant exposure, poor aesthetic results, and high rates of implant removal². In a study developed in Switzerland⁹, among 107 patients submitted to mastectomy with immediate reconstruction, followed for a minimum period of two years, 20.6% developed capsular contracture. This rate was significantly higher for irradiated breasts (41.7%), when compared to non-irradiated breasts (14.5%) ($p = 0.01$).

In other reported series of 77 patients that underwent two-stage tissue expander and implant reconstruction, 55 of them (71%) had received adjuvant radiotherapy. Eight patients with an ipsilateral recurrence had been previously irradiated at the time of the conservative treatment, and the remaining ones were irradiated for the first time after the expander placement. It was noticed that the complications appeared to be related to radiotherapy (14% in the non-irradiated patients and 51% in the irradiated ones; $p = 0.006$). Complications occurred in five (62.5%) of the eight previously irradiated patients and in 23 (49%) of the 47 irradiated ones after reconstruction. Besides that, all of the most serious complications (Class 3) were found in patients that received radiation. It was ratified by the authors that there is need for more studies regarding immediate breast

reconstruction in previously irradiated patients, in order to determine selection criteria before this option is supported¹⁰.

For 15 years, Benacci followed 57 patients who were submitted to salvage mastectomy, due to local breast cancer recurrence. Nine patients of this group underwent breast reconstruction with tissue expander/implant, involving placement of ten prostheses. From those patients, six of them presented significant complications, including inability to fully expand the tissue expander secondary to tight overlying skin envelope in two of them (20%), wound infection requiring implant removal in one (10%), significant capsular contracture (Baker class 3) in 20% of the patients, and tissue expander extrusion in one. Four reconstructions required an unplanned surgical revision (expander replacement, implant exchange, capsulectomy). In this select group of patients, who underwent salvage mastectomy and afterwards underwent two-stage surgery, 60% of the attempted reconstructions resulted in either a significant complication, or an unfavorable aesthetic outcome¹¹.

More recently, this paradigm – to not use implants when radiotherapy is present or planned – had been challenged by reports of good to excellent results in breast reconstruction, despite the previous use of radiotherapy or its association after reconstruction^{5,12}. However, as long as some authors describe favorable experiences to reconstruction after radiotherapy, others still are opposed to that procedure.

In conclusion, although the present study is limited due to the number of patients analyzed, it points out to an alternative and a promising strategy when applied in well selected cases. We suggest that the success in this group of patients was due to the association of the patients' selection with no important breast fibrosis after radiotherapy, and the use of anatomic implants lower than the original size of the irradiated breast. The immediate breast reconstruction with implants in this well selected group of patients needs to be tested in a larger series, in order to confirm these preliminary results.

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