

Immediate Breast Reconstruction With Latissimus Dorsi Myocutaneous Flap and Silicone Implant Followed by Adjuvant Radiotherapy for Breast Cancer

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Background: About 30% to 50% of women with breast cancer undergo mastectomy, and approximately 50% of them will receive adjuvant radiotherapy (ART). This study evaluates the medium- and long-term impact of ART after immediate breast reconstruction (IBR) with latissimus dorsi myocutaneous (LDM) flap and silicone implants.

Methods: Clinical, surgical, and oncological data were retrospectively collected and analyzed based on the medical records of 176 patients who had undergone IBR with LDM flap and silicone implants.

Results: The data showed that 7.4% of patients had a history of previous radiotherapy, 56.3% received ART, 31.8% developed capsular contracture with a mean follow-up of 58.1 months, and 14.2% of surgeries were categorized as procedures with a prolonged operating time, lasting above 1 SD of the observed mean. Those who experienced prolonged operating time (odds ratio, 4.72; 95% confidence interval, 1.72–12.93; $P = 0.003$) and those who received ART (odds ratio, 7.38; 95% confidence interval, 3.18–17.10; $P < 0.001$) were more likely to develop capsular contracture. Thirty-two patients (18%) underwent capsulectomy with implant replacement, and 7 patients (4%) had the implant removed. The mean time between IBR and reoperation was 29.1 months. Patients who received ART were 2.84 times more likely to experience reconstruction failure or undergo implant-related reoperation ($P = 0.002$).

Conclusions: The results indicated that IBR with LDM flap and silicone implant followed by ART is a safe procedure, resulting in low rates of reconstruction failure. However, ART increased the likelihood of capsular contracture development and implant-related reoperation, having a negative effect on reconstructed breasts.

Key Words: breast cancer, adjuvant radiotherapy, mammaplasty, mastectomy, myocutaneous flap

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Ethical approval and informed consent: Research ethics board approval (Brazil Platform System; approval number CAAE, 46253215.2.0000.0072) was obtained for a retrospective cohort study. Written informed consent was obtained from all subjects.

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The constant evolution in the management of breast cancer and increased understanding of the various aspects of this disease have resulted in personalized, less-aggressive therapeutic approaches, which reduce treatment-related morbidity and improve patient survival.^{1–3} A 43% decline in breast cancer mortality was observed in the United States from 1989 to 2020.⁴ During 2012 to 2018, the 5-year survival ranged from 99% for stage I disease to 93% for stage II, decreasing to 75% for stage III.⁴ Although radical surgeries have decreased worldwide, about 30% to 50% of women with breast cancer will undergo mastectomy, and approximately 50% of these patients will receive adjuvant radiotherapy (ART).^{4,5}

Breast reconstruction after mastectomy is important in the rehabilitation of patients, as it provides physical and psychological benefits.^{6,7} There is a growing interest in improving the quality of life of women treated for breast cancer, and immediate breast reconstruction (IBR) plays an important role in this process. Reconstructive techniques contribute to the reduction of psychological trauma, decreasing the perception of mutilation and issues related to femininity caused by mastectomy.^{8,9}

Faced with advances in treatment and survival in breast cancer, the multidisciplinary team should prioritize breast reconstruction using safe approaches that yield long-lasting aesthetic outcomes, especially in the ART setting.⁵ Studies on different IBR techniques reporting medium- and long-term oncological outcomes are scarce, with great emphasis being placed on IBR with tissue expander or direct-to-implant reconstructions.¹⁰ Immediate breast reconstruction using the direct-to-implant technique has been reported to result in up to 40% breast reconstruction failure when combined with ART, depending on the follow-up duration of the study.¹¹ These techniques are associated with higher complication rates and reconstruction loss when compared with techniques using autologous flaps.¹⁰

Thus, the aim of this study was to assess the impact of ART on the medium- and long-term outcomes of IBR with a latissimus dorsi myocutaneous (LDM) flap and silicone implant.

METHODS

This retrospective cohort study was approved by the Research Ethics Council (Brazil Platform System; approval no. CAAE: 46253215.2.0000.0072) and adhered to the Strengthening the Reporting of Observational Studies in Epidemiology guidelines.¹² Informed consent was obtained from all patients on admission to the hospital for use of clinical data for scientific purposes and publication.

Medical records of all women 18 years or older, with breast cancer, who had undergone mastectomy followed by IBR in a tertiary teaching hospital from August 1, 2010, to March 31, 2020, were retrospectively reviewed for eligibility.

Patients who had undergone any type of mastectomy (modified radical mastectomy, skin-sparing mastectomy, or nipple sparing mastectomy) followed by IBR with LDM flap and silicone implant were included in the cohort.