



Prepectoral implant-based reconstruction after nipple sparing mastectomy in the breast cancer treatment: a single center experience

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Abstract

Introduction: Nipple-sparing mastectomy (NSM) with immediate prosthetic breast reconstruction (IPBR) is an oncologically accepted technique that allows to improve aesthetic results and patient quality of life. Traditionally, implant for reconstruction have been placed in a submuscular (SM) plane, beneath the pectoralis major muscle (PMM). Recently, prepectoral (PP) placement of prosthesis is increasingly used in order to avoid morbidities related to manipulation of PMM. The aim of this study was to compare outcomes between a personalized PP-IPBR using implants with micropolyurethane foam coated shell surface (microthane) without further coverage and a traditional SM-IPBR after NSM.

Materials and methods: A retrospective review of breast cancer patients who underwent NSM followed by IPBR over a 2-years period (January 2018 – December 2019) was performed. The patients were divided into 2 cohorts for comparison based on the plane of implant placement as the primary predictor variable: PP-IPBR versus SM-IPBR. Data were recorded in order to evaluate operative details, major complications and oncological outcomes. Aesthetic results and patient quality of life were measured by a “QOL assessment PRO” survey; an analysis of economic performance was also performed.

Results: 177 patients who received IPBR after NSM were included in the study; implants were positioned in a SM plane in 95 patients and in a PP plane in 82 patients. The two cohorts were similar for mean age (44 years and 47 years in the SM and PP groups, respectively) and follow-up (20 months and 16 months, respectively). The mean operative time was 70 min shorter in the PP group. No significant differences were observed in length of hospital stay or overall major complication rates. Statistically significant advantages were observed in the PP group in terms of aesthetic results, chronic pain, shoulder dysfunction, and skin sensibility ($p < 0.05$), as well as a trend of better outcomes for sports activity and sexual/relationship life. Cost analysis revealed that PP-IPBR was also economically advantageous over SM-IPBR.

Conclusions: Our preliminary experience shows that PP-IPBR using polyurethane-coated implant after NSM is a safe, reliable and effective alternative to traditional IPBR with excellent aesthetic outcomes and high patient quality of life; it is easy to perform, minimizes complications related to manipulation of PPM and reduces operative time while resulting also in a cost-effective technique.

Key words: Breast cancer; nipple-sparing mastectomy; immediate breast reconstruction; acellular dermal matrix (ADM); aesthetic and oncological outcomes; quality of life; surgical complications.

Biography

Gianluca Franceschini is a Breast Surgeon with expertise in the surgical treatment of breast tumors and oncoplastic techniques; over 3.000 surgical procedures for breast cancer from 1 January 2010 to date. Author of over 200 scientific papers in international journals and 15 textbook chapters (Orcid ID 0000-0002-2950-3395; Scopus Author ID 23027478400). Lecturer at the PhD School “Technological Innovations in the Integrated Therapies of Breast Tumours” (2010-2013) and Professor at the School of Specialization in General Surgery, Plastic Surgery and Oncology at the Catholic University of Rome, Italy, from 2013 to date. Coordinator for the University Masters Degree Course in “Endocrinology and Breast Pathology” at the Catholic University of Rome, Italy, from 2014 to date. Member of Editorial Board Member of “REPRISE” (Register of the Scientific Experts for Italian Ministry of Education – MIUR). Winner of the Editor’s Medal for best paper published in “Clinical Radiology” in 2010 (“Diffusion-weighted imaging in breast cancer: relationship between apparent diffusion coefficient and tumour aggressiveness” (Clinical Radiology. 65; 2010; 1005-1012), as coauthor. Founding Partner and Member of the non-profit Organization, “Susan G. Komen Italia”, since February 2000. Permanent Member of the College of Italian Breast Surgeons since 15th February 2016.



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4th World Congress on Womens Health and Midwifery, April 23, 2021

Citation: Gianluca Franceschini, Prepectoral implant-based reconstruction after nipple sparing mastectomy in the breast cancer treatment: a single center experience, Womens Health 2021, 4th World Congress on Womens Health and Midwifery, April 23, 2021