

Review

Oncoplastic breast conserving surgery: Volume replacement vs. volume displacement



M. Noguchi ^{a,*}, M. Yokoi-Noguchi ^a, Y. Ohno ^a, E. Morioka ^a,
Y. Nakano ^a, T. Kosaka ^b, T. Kurita ^c

^a Department of Breast and Endocrine Surgery, Kanazawa Medical University Hospital, Uchinada-daigaku, Ishikawa, Japan

^b Department of Surgical Oncology, Kanazawa Medical University Hospital, Uchinada-daigaku, Ishikawa, Japan

^c Breast Center, Yale Cancer Center, New Haven, CT, USA

Accepted 19 February 2016

Available online 4 March 2016

Abstract

Oncoplastic breast conserving surgery (BCS) has emerged as a third option between conventional BCS and mastectomy. Oncoplastic BCS includes two fundamentally different approaches: volume replacement and volume displacement. The former involves partial mastectomy and immediate reconstruction of the breast with the transposition of autologous tissue from elsewhere, while the latter involves partial mastectomy and using the remaining breast tissue to fill the defect resulting from extirpation of the tumor. There are several benefits associated with oncoplastic BCS. First, it allows partial mastectomy without cosmetic penalties, and can achieve better cosmetic outcomes than total mastectomy with immediate breast reconstruction. Second, it avoids the need for total mastectomy in an increasing number of patients without compromising local control. Third, partial breast reconstruction is less extensive and has fewer complications than conventional procedures. Partial mastectomy and partial breast reconstruction can be carried out either simultaneously as a one-stage procedure, or using a two-stage approach. Although patients prefer a one-stage procedure, it requires intraoperative confirmation of complete tumor excision using frozen-section analysis. Moreover, oncoplastic BCS requires combined skills, knowledge, and understanding of both oncological and plastic surgeries, which may be optimally achieved by an oncoplastic surgeon.

© 2016 Elsevier Ltd. All rights reserved.

Keywords: Segmental mastectomy; Mammoplasty; Breast reconstruction; Breast surgery

Introduction

The main goal of breast conserving surgery (BCS) is the complete removal of cancer with clear surgical margins while maintaining the natural shape of the breast. However, there is a conflict between obtaining an adequate excision margin around the tumor and not removing too much tissue, which may result in breast deformity. In fact, cosmetic

failure of BCS is more common than generally realized, occurring in up to half of all patients after BCS.^{1–5} Several studies have suggested that there is a clear risk of breast deformity once 20% of the breast volume is excised,^{6,7} and the subsequent cosmetic outcomes of BCS can be worse than those of mastectomy in some patients.^{8,9} Oncoplastic surgery has emerged as an additional surgical strategy to address this problem.^{10–15} The term “oncoplastic surgery” originated with the concept of avoiding mastectomy by wide tumor excision coupled with partial breast reconstruction.^{16,17} This “hybrid” approach was later extended to include generic issues of seamless cancer surgery, and immediate and delayed total breast reconstruction. Nipple-sparing mastectomy followed by immediate

* Corresponding author. Department of Breast and Endocrine Surgery, Kanazawa Medical University Hospital, Uchinada Daigaku 1-1, Kahoku, Ishikawa, 920-0293, Japan. Tel.: +81 762 862 211x3838; fax: +81 762 188 288.

E-mail address: nogumasa@kanazawa-med.ac.jp (M. Noguchi).

breast reconstruction (IBR) has been accepted as oncoplastic surgery.^{18,19} Thus, oncoplastic surgery is a broad concept that consists of several different combinations of oncological surgery and plastic surgical procedures. This article presents a review of the relevant literature and discusses the history, current role, and practice of oncoplastic BCS.

History of breast cancer surgery

The surgical treatment of breast cancer has changed dramatically over more than 100 years. Radical mastectomy, first described by Halsted in 1894, dominated the surgical treatment of breast cancer for more than half a century.²⁰ However, this resulted in severe chest deformity, which was difficult to reconstruct. From the 1970s, modified radical mastectomy (Patey's operation or Auchincloss's operation) became the treatment of choice.^{21,22} These operations resulted in less deformity but still required breast reconstruction to be cosmetically acceptable.

With better understanding of the biological behavior and natural history of breast cancer, breast-conserving therapy (BCT) is now widely accepted as the standard treatment in early breast cancer. BCT is a combination therapy that involves local excision of the tumor with a safe margin, followed by application of radiotherapy to the residual breast tissue. The aims of BCT are to achieve local control and survival rates equivalent to total mastectomy, while preserving the good cosmetic appearance of the breast. Several prospective randomized clinical trials showed no statistically significant differences in patient survival between mastectomy and BCT for small invasive and noninvasive carcinoma.^{23,24}

On the other hand, skin-sparing mastectomy (SSM)^{25–27} and nipple-sparing mastectomy (NSM)^{18,19} followed by IBR are accepted as effective treatment options. Standard SSM removes the entire breast tissue, nipple-areola complex (NAC), previous biopsy scars, and the skin overlying superficial breast tumors.²⁵ For patients without skin and nipple involvement, however, NSM has evolved as an alternative to SSM with a safe oncological profile and better cosmetic outcome.^{18,28} Currently, NSM with IBR using breast implants has become increasingly common for patients with multicentric and multifocal tumors. Moreover, oncoplastic breast-conserving surgery (BCS) has emerged as a third option between conventional BCS and mastectomy with or without breast reconstruction (Table 1). Therefore, breast surgery can be individualized and selected based on the extent of the breast lesion and the patient's preference.

Oncoplastic BCS

As BCT rapidly gained popularity, breast surgeons realized that BCS may result in breast deformity worse than total mastectomy in some women.^{8,9} Two factors predict poor

Table 1

A classification of breast cancer surgery.

(1) Breast conserving surgery (partial mastectomy)
Lumpectomy
Wide excision
Quadrantectomy
(2) Total mastectomy
Conventional mastectomy (modified radical mastectomy)
Conservative mastectomy (nipple- or skin-sparing mastectomy)
(3) Oncoplastic surgery
a. Breast conserving reconstruction: Partial mastectomy + Volume replacement or volume displacement
b. Breast reconstruction: Total mastectomy + Breast implant or autologous breast reconstruction

cosmetic outcome following BCS: the proportion of tissue resected from the breast, and the tumor location in the breast.^{7,29} Excision volume is the single best predictive factor for breast deformity.⁶ Once 20% of the breast volume is excised, there is a clear risk of deformity.^{6,7} On the other hand, tumor location is another predictive factor. It is well known that tumors in the upper inner quadrant and lower pole of the breast are at particular risk of leaving severe breast deformity following excision, even in cases in which less than 20% of the breast volume is excised.^{14,30} Retraction of the skin and downward deviation of the NAC resulting from tissue excision from the 6 o'clock position is known as the "bird beak" deformity.^{14,30} In these settings, simple reshaping methods are not appropriate and more complex techniques are required.

Oncoplastic BCS has emerged to address these problems as a third option between conventional BCS and mastectomy, extending the role of BCS where there is a conflict of interest between wider excision and cosmetic outcome.³¹ The integration of plastic surgery techniques with BCS in the surgical treatment of breast cancer is not a new approach. The term "oncoplastic surgery" was first introduced in 1993 with the concept of avoiding mastectomy by wide excision coupled with partial breast reconstruction.^{16,17} This "hybrid" approach involves immediate reconstruction of resection defects by either of two fundamentally different procedures: volume replacement and volume displacement. Volume replacement procedure involves partial mastectomy and immediate partial breast reconstruction with the transposition of autologous tissue from elsewhere, while the volume displacement procedure involves partial mastectomy and using the remaining breast tissue to fill the defect resulting from extirpation of the tumor. Over 25 years ago, volume replacement was initially adopted for oncoplastic BCS in Japan^{10–13} and volume displacement was adopted in France.^{14,15}

Volume replacement procedure

In 1896, Tansini advocated use of a latissimus dorsi (LD) myocutaneous flap for wound closure after radical mastectomy.³² In 1977, Schneider et al.³³ described a

Download English Version:

<https://daneshyari.com/en/article/6191081>

Download Persian Version:

<https://daneshyari.com/article/6191081>

[Daneshyari.com](https://daneshyari.com)