



DOI: 10.19187/abc.201964147-149

Oncoplastic and Reconstructive Breast Surgery: Who Is in Charge to Do It?

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Oncoplastic breast surgery (OBS) has been a breakthrough in the surgical management of breast cancer. Evolving and improving within recent decades, it might be time to reassess this novel technique to discuss who would be responsible for applying these techniques. Within many centers in the North America, a team of oncologic and plastic surgeons collaborates in performing oncoplastic breast surgeries together, whereas, in European cancer centers, breast surgeons are generally responsible for both oncologic and oncoplastic procedures. So in this letter, the benefits and the disadvantages of each approach are discussed.

Initially, the "oncoplasty" term was introduced in medical terminology through the first half of the 1990s, and its main purpose was the treatment of breast cancer as R0 resection in addition to preserving a normal and symmetrical breasts appearance.¹ Soon after, the techniques are extensively developed in the way that within 15 years the techniques are recognized as a standard modality in the surgical treatment of breast cancer according to the favorable cosmetic outcome and as a result less psychological consequences.²

In terms of technical improvement, oncoplasty was performed through a collaboration between oncologic and plastic surgeons in the mid- 1990s. However, at that time, oncoplasty was rather a novel advent than a common mainstream. In fact, depending on tumor's site and breast topology, oncoplasty differed from one case to another and one center to another depending on the personal

experience of the plastic surgeons. Gradually, the techniques were improved considerably, so oncoplasty was transformed from a concept to an approach and then to a group of standard techniques. Within the past two decades, there has been a six-fold increase in the development of oncoplastic breast surgery techniques while the complications have been markedly decreased.³

In Europe, the breast surgeons gently overtook and the role of plastic surgeons diminished. Then, breast cancer surgery fellowship programs have been developed in France, Italy and England to train competent surgeons to do almost all of breast cancer surgeries, including oncoplastic and reconstructive procedures.

In contrast, in the North America, there is still a prominent role of plastic surgeons, especially in reconstructive breast surgery. Thus, there is not a general and independent breast cancer surgery fellowship covering all oncoplastic and reconstructive breast surgeries in this part of the world though it has been established in some limited hospitals based on the annual ACGME (Accreditation Council for Graduate Medical Education) accreditation under SSO (Society of Surgical Oncology) supervision.⁴ Therefore, there are two different approaches to do oncoplastic and reconstructive breast surgery; performing the OBS and reconstructive surgery by an independent and fully trained breast surgeon or by a collaborative team consisting of oncologic and plastic surgeons. These following two options are being followed in numerous advanced cancer centers all over the world.

A few studies have evaluated oncoplasty applying in accordance with different fields⁵, but there are no precise comparative results between plastic surgeons and breast surgeons in managing breast cancer yet. We discuss the subject according to the type of surgery, whether it is a reconstruction or oncoplastic

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surgery. Typically, OBS is classified at two separate levels; Level I OBS, which is employed for breasts of small to medium size, when it would be predicted to excise less than 20 percent of the breast tissue. It contains resection of tumor and repairing the consequent defect by applying tissue displacement. Level I is appropriate for small tumors and following the procedure, the breast and nipple-areola complex position usually remains unchanged so that the breast shape would be very identical to the preoperative or a little smaller in size.⁶

Table 1. Different types of oncoplastic and reconstructive surgery

Type of surgery
Oncoplastic breast surgery
Level I
Level II
Breast Reconstruction
Tissue reconstruction
Free flaps
Pediculated flaps
Implant reconstruction
One stage
Two stage
Mixed tissue and implant

Level II of oncoplastic surgery is applied in massive lumpectomy with skin resection in patients having large and/or pendulous breast, which need breast manipulation and mobilization of glandular tissues. At this level, oncoplasty is accompanied by larger incisions and noticeable asymmetry. In order to establish the symmetry, the opposite breast is commonly operated as a reductive mammoplasty, so it can be proper for patients who would like to reduce the volume of their large breasts during oncologic surgery.⁶

Moreover, there are different techniques for breast reconstruction that mainly organize in three types: implant/expander, tissue, and the mixed reconstruction (table1). Tissue reconstruction includes various techniques such as TRAM (transverse rectus abdominis myocutaneous), LD (Latissimus Dorsi) and DIEP (Deep Inferior Epigastric Perforators). TRAM and LD -also known as pedicled flap - are familiar and more commonly applied, but DIEP has been introduced in the recent two decades and replaced the TRAM flap in many situations.

Oncoplasty

In classic oncoplasty as displacement-replacement, the breast surgeons have gained valuable experiences that should be well used in learning and scoping new methods.⁷ The choice of technique widely depends on the surgeon's judgment of tumor characteristics, breast shape and patient's desire. In addition, breast cancer management is not limited to breast surgery and some

other important considerations such as perioperative tasks, axillary staging, post-operative radiation, and systemic therapies must be managed. Indeed, the breast surgeons must have a leading role in implementation or consultation.⁸

It seems that level I oncoplastic surgery techniques can be simply applied by the breast surgeons, but in level II that require challenging repairing or performing therapeutic mammoplasty, the role of the plastic surgeons in cooperation with breast surgeons would be more obvious.

Even in performing level II oncoplastic surgery, there are some potential advantages and disadvantages for each approach. The following topics can be considered as the advantages of more efficient and less confusing single surgeon (breast surgeon) approach:

- Better physician-patient communication,
- Easier time management for scheduling the operations,
- Decreasing the cost of surgical intervention,
- Clear responsibility of the surgeon for perioperative care and potential complications,
- Less ambiguity in case of confronting with a medico-legal problem.

On the other hand, some alternative advantages for team working (Oncologic and Plastic surgeon) approach are:

- Better planning for cosmetic considerations in the same breast as well as the contralateral breast,
- More profitable use of the operating agenda, and appropriateness for more extensive tumor excisions with safe margins.

Results from the American Society of Breast Surgeons Oncoplastic Surgery Committee 2017 Survey demonstrated widespread interest in doing oncoplastic surgery by non-plastic surgeons that revealed a safe oncoplastic surgery with its improved oncologic and aesthetic results would become available to the U.S. breast surgeon and ultimately to the patients.⁹ The article from Boston also confirmed that doing oncoplastic surgery by two groups of surgeons does not increase the risk of morbidity in breast cancer patients.¹⁰

Reconstruction

Reconstructions are generally followed after different types of total mastectomy or poor cosmetic results of partial mastectomies. They are recognized as major and time-consuming surgeries, especially when performed as immediate breast reconstruction (IBR) and flap reconstruction. Nevertheless, IBR is a refined decision from the oncologic point of view though its indications are increasing recently. Nowadays, thanks to the effective systemic therapies, more patients are eligible to receive immediate breast reconstruction. On the other hand, decreasing the stage of the disease at the time of diagnosis has reduced the need for post-mastectomy radiotherapy, and it makes IBR more feasible.

For breast reconstruction planning, the surgeon



should consider that some essential prognostic factors could overwhelm the outcome of the reconstruction, e.g., the need for further radiation therapy, previous history of radiotherapy, the timing of the treatment, risk of recurrence, and the necessity of additional systemic treatments. On the other hand, reconstruction needs a holistic cosmetic perception of the techniques and outcomes in order to choose the best approach for each patient.

Although the breast surgeons can simply do the less complex surgeries like implant-based breast reconstruction or pedicled tissue flaps, the presence of a skillful plastic surgeon is crucial in free flap reconstructions. As mentioned earlier, apart from the methods, reconstruction is a large and time consuming surgery that in case of tissue flaps like DIEP, would be remarkably longer. Therefore, it seems better to perform the operations through an experienced team consisting of both oncologic and plastic surgeons, especially for the free flaps and more complex redo reconstructions. Moreover, it is crucial for a surgeon who does the breast reconstruction to be familiar with the different techniques for reconstruction and their best indications, to know the oncological considerations and surveillance of the patients.

In conclusion, it is important to consider that beyond the dualism of Plastic- Breast surgeon, a competent team of physicians who embrace both technical and aesthetic aspects, must play a leadership role in the breast cancer management. Any active surgeon in breast cancer management must be mastered in the doctrine of oncoplastic surgery and be able to make a choice among relevant techniques to achieve an excellent harmony between minimal breast aesthetic impairment and maximal oncological outcomes. Indeed, in the breast cancer surgery fellowship and the breast surgery course in the plastic surgery curriculum, the precise oncologic aspects of breast cancer management, team working, and multidisciplinary approach should be overemphasized before going through details of the sophisticated surgical techniques.

Conflict of Interest

None

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