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Current perspectives of oncoplastic breast surgery in Pakistan

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Abstract

Oncoplastic breast surgery is based on the concept of tumour-specific immediate reconstruction. It combines both local and distant techniques to maintain breast texture, symmetry and cosmesis without compromising oncological outcome. The current narrative review was planned to highlight the current state and future of oncoplastic breast surgery in low- and middle-income countries where its utilisation in surgical practice remains insubstantial because majority of the surgeons who are treating breast cancer are either general surgeons or breast surgeons who do not have expertise in oncoplastic breast surgery or reconstructive surgery. Moreover, scarcity of financial resources, ignorance about oncoplastic breast surgery techniques, disfigurement distress and cultural taboos coerce women to hide in the shadows with their breast disease. Oncoplastic breast surgery needs more exposure in a developing country like Pakistan. There is a need to establish dedicated oncoplastic breast surgery training centres, fellowship programmes, workshops, and webinars to incorporate such techniques in the practice of breast surgeons.

Keywords: Oncoplastic surgery, Reconstruction, Low and middle-income countries, Breast cancer, Breast conserving surgery.

DOI: <https://doi.org/10.47391/JPMA.AKU-16>

Introduction

The first registered description of an attempt to reduce a female breast was by the Will Duston in 1670.¹ Two centuries later, in 1882, T. Gaillard Thomas from New York was the first one to integrate an incision at the mammary sulcus and reduce a breast with the intention to excise a benign tumour.² Oncoplastic surgery (OPS) of the breast began its journey around the mid-1970s as reductive techniques started to be performed expeditiously for breast cancer patients. It was also at this time when the first data from the Milan trial comparing breast-conserving surgery (BCS) together with radiotherapy (RT) and traditional Halsted mastectomy showed no

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difference in terms of local recurrence and overall survival.^{3,4} In 1993, the term 'oncoplastic' was first mentioned at the Santa Fe Symposium of Breast Surgery and Body Contouring. Few years later, its founding principles were explained in a published article.⁵ Since then, OPS has seen rapid and consistent development as a competitive medical practice for breast surgeons, making great progress and getting acceptance among patients and medical society.

Originally developed to aid in the management of complex tumour sites within the breast, the word 'oncoplastic' explains itself by performing tumour-adapted oncological safe procedures along with cosmetically outstanding breast reconstructions. OPS covers the technique and art of tumour-specific immediate breast reconstruction applicable to BCSs as well as in conservative mastectomy. In this sense, OPS has the potential to deal with very complex breast cancer patients by providing the surgeon a wide spectrum of medical tools, surgical techniques and back-up plans. Handful of original and review articles have been present in literature, focussing on the rapidly gaining popularity of OPS techniques in developing countries.⁶ The current narrative review was planned to highlight the prevailing state and future of breast OPS in low- and middle-income countries (LMICs).

Methods and Results

The narrative review was conducted at the Department of Breast Surgery, Aga Khan University Hospital (AKUH), Karachi, and comprised extensive literature search on PubMed and Google Scholar databases from the inception of the databases till June 2021 to explore all published original and review articles on OPS practices worldwide, especially in LMICs. Various combinations of the following terms were utilised during literature search: "Oncoplastic breast surgery", "Oncoplastic breast conserving surgery in Low-Middle income countries", "Oncoplastic techniques", and "Cosmetic outcomes of oncoplastic breast surgery".

Research articles published in languages other than English, duplicate publications and studies with incomplete data were excluded. Of the 300 articles identified, after consensus between two independent reviewers, 21(7%) were selected for detailed review.

Discussion

The current review is the first from Pakistan addressing OPS breast conservation in a country that has a much higher incidence of breast cancer with many presenting with bigger tumour sizes.

OPS and new surgical possibilities: OPS was conceived to provide surgical techniques to treat very complex breast lesions. Large tumours with unfavourable anatomic localisations have always been a challenge in the treatment of breast cancer patients and there has been concerns regarding the oncological safety of surgical procedures without sacrificing cosmetic outcome. It is known that up to 30% of the women undergoing BCS will have a residual deformity amenable for cosmetic correction.⁷

Other complex clinical scenarios, such as breast cancer in patients with prosthetic breast augmentation, breast cancer recurrence with previously irradiated tissues secondary to breast conserving surgery, and patients with substantial deformities, are part of daily practice and are perfectly addressed by surgeons who have the knowledge and skills to perform OPS (Table-1).⁸ There should be awareness that OPS is not a one-size-fits-all system and efforts should focus on individual oncological treatment protocols. Considerations regarding the relative size and tumour location, the anatomy of the breast and body, as well as patients' preference have all to be balanced to fulfil patient needs.

Local and distant control of the disease, improvement in overall survival, and quality of life, are primary endpoints in the care of breast cancer patients. The oncological intervention from the surgical point of view should always be in line with international standards regarding tumour management, resection margins, lymph node staging, pathology interpretation and processing of the tumour specimen. Special attention should be taken to cut down re-excision rates as much as possible, as this issue has great psychological impact on patients besides the additional costs.^{9,10}

Table-1: Complex breast cancer patients managed by oncoplastic surgeons.

Breast cancer recurrence
Breast cancer in augmented patients
Previously radiated breast and skin tissue
History of lymphoma, mantle radiation to the thorax and secondary breast cancer
Breast cancer during pregnancy
BRCA Mutation
Aggressive tumour biology (i.e., triple negative, high grade tumors, etc)
Patients with heart pacemakers
High degree of distortion and asymmetry from previous surgery and radiotherapy

BRCA: Breast cancer gene A.

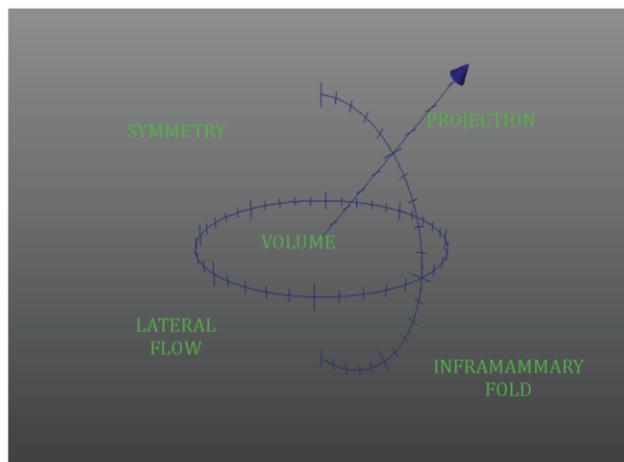


Figure: Principles to obtain a naturally shaped reconstructed breast.

Once the oncological procedure has been accomplished, the reconstructive phase begins, and it is at this point that the OPS becomes the best intervention to provide patients a functional and good quality of life. In the process of breast reconstruction, a complete understanding of the breast shape in a three-dimensional (3D) conception is needed.

There are multiple reconstructive options available to restore symmetry in BCS. They can be divided into three broad categories: volume displacement techniques using available gland parenchyma, fat, and skin to remodel and redistribute tissue; volume replacement techniques to fill up spaces with both local or distant flaps; and volume reduction techniques in cases when ptosis and volume improve as well. Either with the use of local or distant flaps, and autologous or prosthetic tissue, the success of the reconstruction is based on surgical principles of a meticulous tissue handling. Basic aspects of adequate blood supply to tissues, integration of scars from previous surgery, precise flap positioning and rotation, and tension-free closure, should be on the checklist to ensure a successful result. The final touch in "sculpturing and tailoring" tissues can be a true artistic challenge. Getting all the pieces together for the precise volume and projection, the accurate lateral flow and infra-mammary fold, will result in a naturally shaped and anatomic reconstructed breast⁵ (Figure).

The essence of a competitive OPS clinical practice relies on surgical precision planning which means having a detailed and meticulous surgical workup for each patient.

OPS worldwide: OPS is being practised worldwide and the facility is available at most recognised breast cancer centres around the world. It is known that the quality of treatment and medical attention can be substantially

improved through specialisation, certification and external monitoring of breast cancer centres.¹¹

Breast units are also associated with increased economic efficiency secondary to tight organisational structures, simplified patient routing, common purchasing and, to some extent, to the avoidance of multiple examinations.¹² The logistics and requirements to perform OPS can be pragmatically integrated processes practised at breast centres and hospitals. It is important to say that specialised breast cancer units are expected to oversee a large volume of cases. It has been calculated that an increase from 50 to 100 new breast cancer cases per year results in almost 50% reduction of average costs in the management of these patients.¹³ This can be of particular interest to health systems with a limited budget struggling to find a way to optimise healthcare for breast cancer patients.

Certified OPS breast centres should be able to provide a clear and efficient network of care. Strong interdisciplinary work is a key for success in the treatment of these patients, and feedback is needed from all the involved medical fields, including surgery, medical oncology, radiotherapy, psychology and specialised nursing.

Prevailing state of OPS in LMICs: OPS has successfully made its way into LMICs over the past two decades and has become an effective surgical intervention of choice for women presenting with an early stage of breast cancer, complex anatomic locations, or non-responding disease to neo-adjuvant treatment. Data-driven evidence has also validated the expeditiously increasing popularity of OPS in LMICs.^{6,14,15}

In Pakistan, a developing country, OPS is still in its nascent state associated with less popularity possibly because of factors related to patients and surgeons.¹⁶ Patient-related factors may include underlying issues of low socioeconomic status, psycho-social taboos, false assumptions that mastectomy is associated with better survival, reliance on alternative therapies and lack of awareness of oncoplastic techniques. The surgeon-related factors may include paucity of training and education programmes in breast OPS that affect the decision-making process of surgeons, while many also believe that training in OPS might hinder their performance as an oncological surgeon.¹⁷ Majority of the surgeons who are treating patients happen to be either general surgeons or breast surgeons with no expertise in OPS or reconstructive surgery. Many patients do not opt for OPS when they are advised to follow two surgeons separately for oncological and aesthetic part of the surgical procedure, and lack of OPS multidisciplinary

team meetings also results in compromised cosmetic outcome as incisions or dissections performed by oncological surgeons are often either hamper the cosmetic outcome or require more complex procedure to maintain cosmesis. In private setups, patients usually choose the cost-effective procedure, which is a simple BCT or mastectomy, and none of the government hospitals in Pakistan has any trained Oncoplastic Surgeon. One of the biggest cancer institutions in Lahore has adequately trained OPS surgeons, but they do not offer level III OPS techniques or reconstruction to reduce operative cost. Compromised access to education and healthcare facilities, weak financial status because the majority of females are not earning members of their families, and religious reasons also contribute to surgical planning and decision. Breast cancer patients do not have much awareness about breast conservation, as females are hesitant to discuss available surgical portfolio for their disease with male surgeons where OPS/female surgeons are not available. Therefore, they drop the idea of any form of partial or total breast reconstruction.

Data published by a trained oncoplastic surgeon from Pakistan showed that patient acceptability and outcome improved when procedures were offered to suitable candidates, with promising cosmetic outcome and lesser complications which not only resulted in sharp decline in mastectomy rates among the young and the middle-aged, but also in the rate of re-excision with improved quality of life.^{16,18}

The situation is much better in neighbouring India where there is a dedicated OPS centre and trained eminent OPS surgeons ensuring that the field is evolving fast despite the shortcomings. A structured training course has also been initiated, incorporating all the breast oncoplastic surgeons from India and the United Kingdom to provide detailed training of OPS principles and techniques. Surgical simulations, live mark-up sessions, workshops and doing operative interventions under the supervision of well-trained oncoplastic surgeons from across the globe helps in providing hands-on training to aspiring breast surgeons.¹⁵

The status and trends of breast OPS in other LMICs cannot be discerned as there is a paucity of published data.⁶ The need of the time is to have One Oncoplastic Breast Surgeon-Dual Role Model. Essentially this is a more acceptable model as dual cost can be saved, the patient does not need to pay to two surgeons, one surgeon can handle both oncological and aesthetic aspects of the case, and provide better care and cosmetic outcome.¹⁹

The future of OPS: The future of OPS depends on further

Table-2: International Oncoplastic breast surgery (OPS) fellowship programmes.

Country / City	Hospital Breast Center	Program Director
Dusseldorf, Germany	Marien Hospital Breast Center	Prof. Werner Audretsch
Milan, Italy	Istituto Europeo di Oncologia	Prof. Mario Rietjens
London, Great Britain	Royal Marsden Hospital	Miss. Fiona McNeill
Barretos, Brazil	Oncoplastic Training Center	Dr. Gustavo Matthes
Paris, France	The Paris Breast Centre-L'Institut du Sein	Dr. Krishna Clough
Pune, India	Orchids Breast Health Clinic	Dr. C. Koppiker

medical innovations in breast cancer treatment and the dissemination of its founding basis and principles to the new generations of breast surgeons. This can only be accomplished through the development of competitive and formal training fellowship programmes for the specialisation of human resource in the OPS field.

Several fellowship programmes have been established worldwide and are committed with high standards of academic and practical training. Some international OPS fellowship programmes are more recognised than the rest (Table-2).

Although OPS training has had great impact on the specialisation of young breast surgeons, some challenges need to be faced and overcome. Important areas to be developed in OPS include a license approval on a global level, and the creation of an international committee to regulate adapted practice standards across different countries.

Most surgeons start practising oncoplastic techniques after attending few courses, which does compromise the aesthetic outcome with complications. Taking a single workshop on OPS training does not make one an expert in the technique. It is a journey, not a single course, which slowly and steadily needs to be integrated in one's practice. After all, mastery needs practice.²⁰

In terms of limitations, published papers on the indexed search engines from LMICs are rather old, and, therefore, the references included in the current review are not recent.

Conclusion

Patients should be aware that aesthetic surgery is no contraindication to local control and cosmesis. Surgical precision planning is an OPS fundamental. Tumour-adapted surgery along with the integration of radio-chemotherapy can reduce the number of re-excisions, result in a better local control of the disease, and facilitate outstanding cosmetic outcomes. OPS has shifted the paradigm of making BCS an alternative not only for early breast cancer, but in all cases in which radiotherapy is

mandatory. Ultimately, OPS is committed to providing the highest standard of care for breast cancer patients, making its future always very promising. Oncoplastic surgery can bring favourable change to surgical aspect of breast cancer management in LMICs by increasing the rate of breast conservations, reducing cost and workload, with lesser rate of re-excisions in already overburdened healthcare systems. There is a need to overcome the gap in practices between the developed and the developing worlds, and to train surgeons in this regard from developing countries.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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