



## Discussion

## The development of an Oncoplastic Training Center – OTC

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## ARTICLE INFO

## Article history:

Received 10 January 2012

Received in revised form

13 March 2012

Accepted 14 March 2012

Available online 21 March 2012

## Keywords:

Breast cancer

Breast reconstruction

Mammoplasty

Educational models

Teaching method

Training techniques

## ABSTRACT

**Introduction:** Breast cancer now occurs worldwide and each country has its own approach to breast surgery, which is constantly evolving. A training program was established in Brazil to familiarize breast surgeons with basic oncoplastic techniques and recent developments.

**Materials and methods:** The first 12 breast surgeons participating in the oncoplastic training program were surveyed regarding their experience of Urban's classification of oncoplastic procedures, and whether the training course met their expectations.

**Results:** The most part (11) of the breast surgeons surveyed had been breast specialists for more than five years. Just under one third (27.3%) wished to perform oncoplastic procedures in conjunction with a plastic surgeon. After the course the experience of the first group showed that just over half (seven) of the twelve specialists developed their skills sufficiently to perform Urban procedures at level III, and eleven others could perform until level II procedures.

**Conclusion:** Organized oncoplastic training centers can enable breast surgeons to undertake reconstructive breast procedures without the assistance of a plastic surgeon.

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## 1. Introduction

Breast cancer is a worldwide problem and its surgical treatment has changed significantly over time. The same has happened with the role of the surgeons. Today they do more than just remove the tumor. They are the patient's first contacts, leaders of a multidisciplinary team, guiding the patient through the many diagnostic and therapeutic modalities comprising the modern management of breast cancer. Surgeons are now expected to adapt and enhance their knowledge to improve treatment.

In 2005 McGlothlin<sup>1</sup> described breast surgery as a specialized practice in the United States. Unfortunately, breast surgery is still not a certified specialty in the United States as well as in other countries. The emergence of this specialty depends on training that has included pathology, diagnostic radiology, medical and radiation oncology, as well as basic breast surgical techniques. Moreover, there is a growing interest in expanding the training to include oncoplastic techniques. This would include instruction and

experience with reconstruction in the post mastectomy and post breast sparing situations along with symmetry for the contralateral breast.

In 2010 a discussion<sup>2</sup> took place regarding oncoplastic training. Urban<sup>3</sup> described a classification system in oncoplastic surgery to train and certify breast surgeons at different levels of experience (Table 1). Those in the plastic surgery community would disagree.<sup>4</sup> Losken<sup>5</sup> agreed with Urban's plan and added that very few plastic surgeons are really interested in breast reconstruction and that scheduling is difficult as well.

Breast cancer now occurs throughout most of the world and each country has their own set of customs for the specialties involved in breast reconstruction. However, all of them have in common the realization that breast cancer surgery is changing and they must adapt in order to provide current, safe, and refined treatment for women.

Urban described the Brazilian experience and felt this was going to be a worldwide evolution in breast surgery. The specialty of mastology was started in 1992 in Brazil and is certified by the Brazilian Society of Mastology. For certification, a specific examination that includes pathology, diagnostic radiology, medical and radiation oncology, and surgical techniques is required. At the beginning, some breast surgeons acquired their training abroad in

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**Table 1**  
Urban's classification<sup>a</sup> for oncoplastic procedures.

| Level I                                                                                                                                                                                                                                                                                                                                                                 | Level II                                                                                                                                                                                                                                                      | Level III                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monolateral breast reconstruction techniques such as esthetic skin incisions, de-epithelization of the areolar margins, glandular mobilization and re-shaping techniques, pursestring sutures for central quadrant reconstruction, and immediate breast reconstruction with temporary expanders<br>Specific competence in plastic surgery is not required at this point | Bilateral procedures such as lipofilling, breast augmentation, breast reduction, mastopexy, Grisotti flap, and nipple and areola reconstruction<br><br>Specific competence in plastic surgery techniques of the breast is required to achieve better symmetry | More complex monolateral or bilateral procedures involving autologous flaps (pedicled or free flaps), immediate and delayed breast reconstruction with implants or a combination of techniques<br><br>A higher standard in plastic surgery techniques is required |

<sup>a</sup> Authorized by the author.

the United States, France, Great Britain, and Italy. They returned and established training programs. In 2006 the National Committee of Medical Residence organized the official rules of Mastology Residency. Now there are about 1000 certified breast specialists in Brazil.

As breast cancer procedures have advanced, mastologists had to constantly increase their knowledge and skill base to remain current. The present dilemma is to minimize the disfigurement caused by the resection of the tumor. While there are a great number of well-trained plastic surgeons in Brazil, very few are interested in reconstructive work in breast cancer patients. Therefore an initial group of breast surgeons developed an interest in breast reconstruction and acquired training, usually abroad. They demonstrated good outcomes and patient satisfaction. The next step was to establish training in Brazil. Currently there are 49,240 new cases of breast cancer per year in Brazil,<sup>6</sup> however there is still a low number of trained surgeons in oncoplastic surgery and these techniques should be offered to more patients.

In 2007 Oncoplastic surgery was approved for the Brazilian Society of Mastology, since breast surgeons had a good training. The oncoplastic surgery courses established training in Brazil, but there are doubts as to whether the training would be sufficient for breast surgeons to perform oncoplastic procedures. The current literature

is limited, so it was necessary to evaluate the experience of oncoplastic surgery training courses.

## 2. Materials and methods

In 2009 at the Hospital Cancer Barretos (HCB) an Oncoplastic Training Center (OTC) was established with approval of the Brazilian Society of Mastology. The breast unit team, comprised of seven breast surgeons, with an average of 13.5 (35–2) years experience in breast cancer surgery and 9.2 (27–2) years experience in oncoplastic surgery.

A training course in oncoplastic was established with an initial class of twelve breast surgeons. The course was divided into 21 modules taught to the surgeons one weekend per month. Each module focuses on a different aspect of oncoplastic procedures (Table 2). Up to now two courses have been made. The first group ended in 2010 and it is the focus of this paper.

An expert is invited to lecture and also a practical procedure is performed. The experts were selected by their clinical approved experience in oncoplastic surgery. They are composed of breast surgeons with oncoplastic experience and plastic surgeons.

Cases were selected related to the surgery to be discussed, and the need to improve the trainees' abilities. Patients are chosen ahead of time and informed consent obtained for participation in the course. The treatment was provided at no cost to the selected patients. The surgeries were supported by the Brazilian Public Health System (BPHS) and by the Hospital's private foundation.

During the morning lecture all cases supposed to be operated are discussed. Its indications, possible techniques to be proposed and tricks to improve the results of surgery are also assessed. Then a main theme related to oncoplastic surgery is

**Table 2**  
Scientific program of Oncoplastic Training Center – HCB.

| Scientific program |                                                                                                                                                         |                               |                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------|
| Module             | Lesson                                                                                                                                                  | Surgical procedures           | Cases report discussion |
| 1                  | Introduction: History of the Oncoplastic Surgery/Presenting basic concepts                                                                              | Yes                           | No                      |
| 2                  | General oncoplastic surgical points of view/Breast anatomic review/Breast Types/Oncoplastic surgery perspective from plastic surgeon and breast surgeon | Yes                           | Yes                     |
| 3                  | Medical photography/Oncoplastic surgery Legal aspect                                                                                                    | Yes                           | Yes                     |
| 4                  | Oncoplastic surgical training and bioethics                                                                                                             | Yes                           | Yes                     |
| 5                  | Superior quadrants approach and simmetrization                                                                                                          | Yes                           | Yes                     |
| 6                  | Inferior quadrants approach and simmetrization                                                                                                          | Yes                           | Yes                     |
| 7                  | Lateral quadrants approach and simmetrization                                                                                                           | Yes                           | Yes                     |
| 8                  | Medial quadrants approach and simmetrization                                                                                                            | Yes                           | Yes                     |
| 9                  | Central quadrant approach and simmetrization                                                                                                            | Yes                           | Yes                     |
| 10                 | Evolution of mastectomies and new perspectives on breast conserving treatment/Radiotherapy in oncoplastic                                               | Yes                           | Yes                     |
| 11                 | Skin Sparing Mastectomy and Nipple Sparing Mastectomy                                                                                                   | Yes                           | Yes                     |
| 12                 | Breast reconstruction with implants                                                                                                                     | Yes                           | Yes                     |
| 13                 | Breast reconstruction with latissimus dorsi                                                                                                             | Yes                           | Yes                     |
| 14                 | Breast reconstruction with TRAM                                                                                                                         | Yes                           | Yes                     |
| 15                 | Closure techniques after great dissections                                                                                                              | Yes                           | Yes                     |
| 16                 | Correcting breast asymmetries                                                                                                                           | Yes                           | Yes                     |
| 17                 | Principles and bases of fat grafting                                                                                                                    | Yes                           | Yes                     |
| 18                 | How the pathology deals with oncoplastic surgery/Wounds and dressings                                                                                   | Yes                           | Yes                     |
| 19                 | NAC reconstruction/The radiology and oncoplastic surgery                                                                                                | Yes                           | Yes                     |
| 20                 | Principles of microsurgery-DIEP                                                                                                                         | Yes                           | Yes                     |
| 21                 | Oncoplastic surgery spreads around the world                                                                                                            | Yes                           | Yes                     |
|                    | Conclusion: overview                                                                                                                                    | Delivery of Surgical Log Book | –                       |

discussed. Also personal cases from the breast surgeon trainees' hospitals can be discussed with the experts. Simultaneously one case should be operated on by an expert and trainees can observe the surgery in real time via closed circuit television from the amphitheater and the trainees do have the chance to ask questions at any time (Fig. 1).

About five cases were operated on during the day. Some of them are bilateral procedures. In the afternoon the cases are submitted to surgery in two operating rooms in the presence of the trainees. There is one expert coordinator for each surgical room. The trainees are allowed to participate in the surgeries following the rules approved by the Barretos' Review Institutional Board. They are well organized, rotating their functions. The local team is responsible for clinical support.

All the lessons and surgeries (Fig. 2) are recorded and a DVD is provided to the trainees in the next class, containing the procedures and the themes previously discussed. The post-operative results of the surgeries are showed and assessed in the following module.

To confirm the beliefs and know the surgeons profile, a survey<sup>7</sup> was given to the first group of 12 trainees trying to quantify their level of expertise from the beginning to the end of the course. Surveys were sent by email. The trainees were asked about their experience regarding Urban's classification<sup>3</sup> for oncoplastic procedure. A database was created and statistical analysis performed using Statistical Package for Social Science – SPSS for Windows version 17.0. A descriptive analysis of the answers will allow a profile of the trainees and how the course reflects their expectations.

### 3. Results

Twelve breast surgeons specialists belonged to the first group and have already concluded the course (Table 3). The mean age was 45 years old (35–62), predominantly male (10 out of 12). The great majority (11) of them presented a personal experience longer than 5 years as a specialist.

Ten out of twelve students worked with patients from BPHS. Seven of them did not have a plastic surgeon to improve their results, one out of ten rarely had a plastic surgeon on their team and only two out of ten regularly had that professional.

Before the course three-quarters of those were able to perform any kind of level I procedure and none were able to perform procedures at level II–III. All the specialists expected the course to improve their surgical skills to help their patients. Most part of them (91.7%) were used to working with a plastic surgeon as a partnership in a private clinic. However only two (16.7%) never had problems with this relationship, another five (41.7%) mentioned their desires to work together the plastic surgeon but usually they were not available on request.

After the course the first group experience confirmed that three-quarters of the specialists developed their skills and became capable to perform procedures at all levels. Other related surgeons are at least able to perform until level II procedures.



Fig. 1. Case operated by an expert during the lesson in the lecture room.



Fig. 2. Trainees participate in surgery during the course in the operating theater.

By the end of the first course, 91 different surgeries were performed over the 21 modules including those in levels I, II, and III as described by Urban<sup>3</sup> and spent 252 official hours on the course. The surgical procedures were distributed in 11% level I, 54% II and 35% III. Bilateral surgeries were performed in 69% cases.

The trainees initial feedback was very positive. This revealed that they were able to offer oncoplastic surgery procedures to their patients at the end of the course. It is also responsible for stimulating new classes.

### 4. Discussion

New paradigms are often slow to be adopted, as Veronesi<sup>8</sup> and Fisher<sup>9</sup> both noted when advocating breast conserving surgery. Various questions concerning oncoplastic techniques have been raised. Who is qualified to do it? Who does it better? What are the limits? Are there any? Those questions concerning oncoplastic surgery can be answered but time may be needed to accept the concepts.

The routine practice of oncoplastic surgery depends on the geographical, social, and economical aspects of the region involved. Oncoplastic surgery in the developed world is associated mainly with the reconstruction aspects of early breast cancer, while in the developing countries it includes repairing the surgical defect created by local advanced tumors.<sup>10</sup> Not every breast surgeon will have the time, inclination, or opportunity to learn breast reconstruction and the pattern of practice will depend on local circumstances and available expertise. Options in each area include (1) the breast surgeon performing the mastectomy and the plastic surgeon performing a delayed reconstruction separately, (2) the breast and plastic surgeons working together to perform the mastectomy and

**Table 3**  
Profile of breast surgeons in the Oncoplastic Training Center – HCB

| Surgeons Characteristics                                          | First Class (2009–2010)                                                    |
|-------------------------------------------------------------------|----------------------------------------------------------------------------|
| Certified specialist                                              | 12                                                                         |
| Experience > 5 years                                              | 12                                                                         |
| Reason for course                                                 | - improve knowledge: 11<br>- no background: 1                              |
| Before the course (surgical experience by Urban's Classification) | - Level I: 11                                                              |
| After the course (surgical experience by Urban's Classification)  | - Level II and III: 1<br>- Level I: 12<br>- Level II: 11<br>- Level III: 7 |



immediate reconstruction, (3) the oncoplastic surgeon performing both procedures as part of a multidisciplinary team,<sup>11</sup> or to add could be mentioned (4) the plastic surgeon obtaining the oncological knowledge and also performing both procedures.

In 2003 Rainsbury wrote about future training and skills for breast surgeons in the new millennium.<sup>11</sup> He commented that breast surgery was becoming more specialized as a result of fellowship training, greater patient demand for specialists, increasing trainee expectations, and new skills learned by existing breast surgeons. As a result, modern training programs need to recognize these requirements by supporting multidisciplinary cross-training initiatives and encouraging professional development. Examples of these ideas are found in Great Britain,<sup>11,12</sup> Australia,<sup>13</sup> France,<sup>14</sup> Germany,<sup>15</sup> Italy,<sup>16</sup> Portugal,<sup>17</sup> Spain,<sup>18</sup> and Brazil.<sup>19,20</sup> Nowadays the American Society of Breast Surgeons and American Society of Breast Disease are promoting these ideals of oncoplastic surgery in the United States.<sup>21</sup>

In United Kingdom the oncoplastic surgery concept has made the breast subspecialty a more popular and attractive perspective to new generation of surgical trainees.<sup>22</sup> The general surgical programs do not offer adequate numbers of breast cancer cases to residents to adequately train, so residents go on to the breast surgery or surgical oncology fellowship.<sup>23</sup> Oncoplastic surgery fellowships must train specialists who have an active role in the global management of breast cancer patients, capable of providing the most appropriate cancer surgery with the best cosmetic results.<sup>22</sup>

More recently, Robertson et al. proved that trained breast surgeons specialists perform implant-based immediate breast reconstructions with a satisfactory outcome when evaluated by subjective and objective analyses.<sup>24</sup> This emphasizes the importance of the oncoplastic surgery training.

The problem is to provide education for surgeons with large practices in breast surgery but without oncoplastic surgery experience. Another point is the structure of the postgraduate training course and the level of breast reconstruction training unit.<sup>25</sup> Breast cancer centers with high volume should be certified as training programs.<sup>26</sup> The Brazilian Health Ministry and Brazilian Society of Mastology certify the residency of Mastology. On the contrary fellowship programs are not formally allowed in Brazil. Therefore OTC can be a way to teach oncoplastic techniques for breast surgeons with large clinical practices, and Brazilian Society of Mastology approves it in properly selected services. Barretos' Breast Unit (SenoNetwork) is responsible for about 950 new breast cancer diagnoses yearly, performing about 1300 breast surgeries per year, 12.9% are oncoplastic procedures.<sup>20</sup> It could be categorized by Level II Oncoplastic Training Unit – BASO,<sup>25</sup> representing a good OTC example.

One philosophical role for the training centers is to teach the surgeons to listen the desires of the patients. Sometimes results are not good in the eyes of the surgeon but good for the patient, mainly because she was treated for cancer and still has acceptable breast shape. Of course the esthetic results are important, however for a breast specialist the results must be beyond the esthetic and should reach the soul of the women. As the surgeon gains experience using the oncoplastic procedures, it becomes a kind of Swiss army knife replete with options. Thus the expert can help treat the disease offering therapeutic options in accordance with the expectations of each patient. Treatment of breast cancer nowadays must face its patient individually, one by one, listening to their wishes and adapt them as best as possible. On the other hand the patients are increasingly demanding it requires a continuous improvement of the specialist in search of better technical results. The communion between the breast surgeon and plastic surgeon is certainly important for this development and will be formed regardless of how teams work.

The core of teaching oncoplastic surgery uses a variety of methods including use of simulators, demonstrations of the reconstructive anatomy, small group tutorials, implant workshops, and anatomical dissection. Students should perform cadaver-based procedures reinforced by teaching videos and live operative demonstrations. The training centers should provide comprehensive oncological and reconstructive training with structured educational supervision, assessment, and feedback. Hoffmann and Wallwiener<sup>27</sup> developed a complexity-based system for breast surgery, but Urban's classifications<sup>3</sup> seem simple to analyze and to compare results. Actually the discussion of oncoplastic surgery training courses is theoretical and there are no results of formal courses published yet, mainly for surgeons with large practice in breast surgery. This fact makes this publication particularly interesting.

All the 12 breast surgeons sought this course to improve their skills. Additionally they were looking for complete the breast cancer treatment for their patients. The reasons are cloudy but the great majority of plastic surgeons are not interested in breast reconstruction. Probably performing esthetic procedures is more profitable, economically saying. Another point is the impossibility to provide a high percentage of good or excellent results. Sometimes the surgeon who performs oncoplastic techniques must accept the results despite its limited esthetic pursuit of excellence. Reconstructive surgeries are through procedures and can never be assured about the final result. Dealing with uncertain outcomes despite all the expertise used, greater surgical time and uncertain financial compensation might have been responsible for the non-participation of plastic surgeons from the fight against breast cancer. This gap encouraged other surgeons to obtain related training to complete the treatment of breast cancer and help patients to regain their dignity.

## 5. Conclusions

Well-organized oncoplastic training centers can provide the knowledge and skills necessary for breast surgeons to undertake various types of breast reconstruction, an essential requirement in the modern management of breast cancer.

### Conflict of interest

The authors declare no conflict of interest.

### Funding

The authors declare that this study had no sponsor.

### Ethical approval

None.

## Author contribution

AGZ Matthes and RAC Vieira: study design, data analysis and writing.

Others: data collection.

## Acknowledgments

The authors are grateful to the Researcher Support Center from HCB. We also appreciate the cooperation of all colleagues in the Breast Unit – SenoNetwork – HCB. A special thank to Dr James E Hurley for proofreading the manuscript.

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