Traning Methodology for Breast Cancer Surgery

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10.1 Introduction

10.1.1 History of Breast Specialization

Halsted described the radical mastectomy operation which is a milestone in the treatment of breast cancer in 1894. The Halsted operation consisted of removal of the breast, the pectoralis muscles, and all of the axillary lymph nodes [1]. However, the management of breast cancer has evolved dramatically since that time [2].

As the information about tumor biology has accumulated, systemic and targeted therapies for breast cancer have begun being the center of attraction. During this ongoing period, less invasive and more aesthetic surgical procedures have been continuing to evolve [2]. Advances in medical technology and growing public awareness on health have led to increased number of patients with breast cancer at earlier stages [3].

Throughout this time, breast cancer mortality dramatically decreased. From 1975 to 2010, the mortality of breast cancer declined from 32 per 100,000 per year to 21 per 100,000 per year (34%). At the same time, the incidence increased by 30%, in particular for localized breast cancers (62%) [4]. All of the aforementioned advances in breast cancer diagnosis, treatment, and follow-up were at least partially caused by development of breast centers and also led development of them [5].

Several decades ago, with increasing attention to breast cancer diagnosis and treatment, the discipline of breast surgical oncology emerged. This specialization has been associated with more favorable oncologic and patient satisfaction outcomes [2]. Occurrence of specialized breast oncologists might also have accelerated the formation of specialized breast surgeons.

The question to be answered is: Do specialized breast oncologists and surgeons working at breast centers cause any improvement on survival of breast cancer patients? The answer is probably yes, they do. Significantly better oncological outcomes have been reported in patients treated at specialized centers than patients treated in non-specialized clinics [6, 7].

As a result, clinical decision-making and the surgical treatment of breast cancer have become increasingly more complex; subspecialty training in breast surgical oncology has become a necessity [2].

10.1.2 Who Is a Breast Surgeon?

A breast surgeon is defined by the American Association of Breast Surgeons as the one having a strong commitment to the evaluation and care of patients with diseases of the breast and breast malignancy [5]. Although this definition may seem obvious to some, it may not be for others. It

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is emphasized that the breast surgeon should be familiar with very specific issues such as breast cancer genetics and even breast MRI, as well as adequate surgical ability [8, 9].

Mostly an underestimated issue is communication. Communication between the breast cancer patient and breast surgeon is extremely important. As a quite common problem, surgeons often do not explore the emotions or concerns of patients. Potential areas of improvement at patient-surgeon communication may be discussing some elements of informed decision and expressing empathy [10]. In addition to superior professional skills and knowledge, a breast surgeon must have the ability of expressing empathy.

It is very obvious that a special kind of surgeon is needed to meet the emotional needs of a breast cancer patient, as well as a desire to master the technical skills required to perform the highest quality surgery [5].

Surgical societies recognized the growing need for standardized training programs in breast surgical oncology within a multidisciplinary context. Leaders in the American Society of Breast Surgeons (ASBS), the Society of Surgical Oncology (SSO), the American Society of Breast Disease (ASBD), and Susan G. Komen Breast Cancer Foundation developed a formalized fellowship in breast surgical oncology after the completion of general surgery residency [2]. In the United States, the training period has been planned as 12 months, most of which to be spent in surgical clinics. The goal is gaining expertise in diagnosis of breast diseases, making the right choice between different treatment options, perioperative care, and specialized surgical procedures like nipple-areola-sparing mastectomy, skin-sparing mastectomy, oncoplastic techniques, and axillary dissection for initial node-positive patients following neoadjuvant chemotherapy. Breast medical oncology, radiation oncology, plastic surgery, diagnostic breast imaging, breast pathology, genetics, cancer screening and prevention, and community outreach are the rotations planned for this fellowship. Additionally, fellows are expected to actively participate in multidisciplinary tumor board and planning conferences. In addition to an institutional didactic curriculum, a web-based review module for self-assessment and learning in the multiple disciplines of breast oncology has been developed by the ASBS. BESAP is available to fellows and administers a pre-test upon entering fellowship and post-test at the completion of training.

The curriculum is composed of diseases, diagnostic modalities, and surgical procedures. All these subjects are divided into subgroups according to the frequency of occurrence and the necessity to be known. For example, with regard to breast imaging, a broad knowledge and implementation of mammogram, ultrasound and MRI; and a focused knowledge of positron emission mammography and molecular breast imaging are required.

Also surgical procedures are classified as essential and common, essential and uncommon, and complex. This classification is based on the frequency of performance of the procedure by a breast surgeon. Details of the curriculum are available at the SSO website.

The European Society of Surgical Oncology (ESSO) organizes a similar education in Europe. ESSO Fellowship in Breast Surgery is to provide a subspecialist education to surgeons who wish to have further specialized training in the multimodality clinical care specific to the breast patient and a deeper training at breast cancer research.

As in the United States, the ESSO Breast Surgery Fellowship Program consists of at least 12 months of training, with a minimum of 8 months on breast surgery training. Mandatory educational activities within this program are participation in 50 operative procedures, clinical rotations, attendance to conferences and at least two ESSO courses, clinical or laboratory research, and EBSQ (European Board of Surgery Qualification) exam.

Surgical procedures include diagnostic biopsies, partial and total mastectomies, axillary node dissections, sentinel node biopsies, and reconstructive and oncoplastic procedures.

Clinical rotations are composed of breast imaging, genetics, pathology, medical oncology, radiation therapy, and research. These formal rotations are completed with the fellows' participation in multidisciplinary conferences (MDT) and attendance to subspecialty tumor clinics.

Besides the formal training procedures like the aforementioned, many certification programs are available across the United States and Europe. One of these is the Certificate of Competence in Breast Cancer Program (CCB), organized by the European School of Oncology, in cooperation with Ulm University (Germany) [11]. The significant feature of this program is its international attendance. The program is open not only to surgeons but also to gynecologists, medical oncologists, radiation oncologists, and clinical oncologists. Its duration is 13 months, and it is composed of lectures, seminars, workshops, live surgery, and tumor board. At the end of each module, multiple-choice tests are applied to attendants. Probably the most attractive feature of the program is that it does not prevent family life and a full day job.

It is clear that breast surgery training is essential for surgeons engaged in breast surgery. It should be taken after completion of general surgery residency (in some countries also gynecology residency). Training or fellowship programs should be prepared by breast surgery associations in cooperation with academic centers. The curriculum has to include both theoretical lectures and surgery training.

Oncoplastic procedures must be a part of the surgical training. Attendants must take place at surgical operations as the surgeon or first assistant. The minimum number of surgical procedures required to be performed by the participants should be determined by taking into consideration the numbers in the programs that were previously passed.

Apart from surgical issues, the training program should also cover subjects that should be known to the breast surgeon on medical oncology, radiation oncology, breast imaging, breast cancer screening, breast cancer genetics, and research. At the end of each lecture (maybe also before), quizzes should be made, and feedback should be taken to measure the gains immediately.

One issue that is often overlooked in the treatment of patients with cancers is the possible defects in surgeon-patient communication and as a result, the lack of confidence in patients towards their surgeons.

Most patients with breast cancer are confused by the different treatment options recommended by different surgeons and the information pollution on the internet. They usually have a lot of questions in their minds that should be patiently answered by their surgeons. Breast surgeons should not appear to be merely soulless algorithms when discussing treatment options with their patients. They have to express empathy and they should make their patients feel that their concerns are understood. Many gifted surgeons can be extremely inadequate in speaking with their patients. In order to overcome this problem, surgeon-patient communication panels and role-playing lectures can be organized with expert communication academicians. Psychiatrists can give lectures about the emotional expectations of patients with breast cancer.

We recommend that the duration of the training program should be between 12 and 18 months, depending on the socioeconomic conditions of the countries and the intensity of the program.

Such training programs must be sustainable to provide long-term benefit for society. For this reason, the intensity of the program has to be as consistent as possible with the family life of the attendants and the full-time work they are working with. To facilitate participation, some courses can be given online. Of course, if breast surgery can be defined as a major specialty on general surgery, such problems can be more easily addressed.

The education of the breast surgeon should continue throughout his professional life. For this purpose, a continuous training portal should be established that allows the participants to communicate with each other and the course organizers.

10.2 Conclusion

Patients suffering from breast cancer should be treated and followed by a specialized multidisciplinnary team. The breast surgeon is a very important part of this team. Most of the past and present breast surgeons have not been trained in breast surgery but have gained this title by dealing with breast surgery over time. However, at present time, this is not the ideal solution, because surgical oncology has widened enormously and therapeutic options for breast cancer have increased too much. A standardized breast surgical oncology education must be given to breast surgeons of tomorrow, after completion of general surgery residency. Training or fellowship programs should be prepared by breast surgery associations in cooperation with academic centers. The curriculum has to include both theoretical lectures and surgical training which incorparates oncoplastic procedures.

Tips and Tricks

- Breast cancer should be treated and followed by a multidisciplinary team.
- The surgeon is the center of this team, or at least a very important part of this team.
- The breast surgeon is a specialized surgeon.
- After the general surgery residency is completed, breast surgery training should be taken.

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