Radical Mastectomy to Radical Conservation (Extreme Oncoplasty): A Revolutionary Change

Melvin J Silverstein, MD, FACS

After 4 decades of caring for patients with breast cancer, I have come to the conclusion that the combination of mastectomy, reconstruction, and radiation therapy is the least desirable option for local treatment. Although it may be an unavoidable approach for some patients, for many there may be better options that yield equal survival rates with a superior quality of life. Let me explain.

Everyone knows the definition of radical mastectomy, a procedure conceived and popularized by William S Halsted, MD. It removes the entire breast, the underlying pectoral muscles, and the axillary lymph nodes, leaving behind a depression under the clavicle, prominent ribs, and a markedly deformed patient. Most younger surgeons have never performed or even observed the procedure and never will. It has virtually no role in modern breast cancer surgery. In 1971, in McCall’s magazine, Dr William Nolan referred to radical mastectomy as “The operation women fear most.”

But what is radical conservation? Radical conservation is the complete opposite. It is a breast-preserving procedure, so extreme that it can be used to save a breast that would normally require removal. Radical conservation is a breast-preserving operation that uses oncoplastic surgery (a combination of oncologic principles and plastic surgical techniques) for a patient who, in most physicians’ opinions, requires a mastectomy.

Here is a confession. I do not like the term radical conservation. The word radical conjures up the terrible images of an ancient mutilating procedure. I used it in the title of this article to contrast it with radical mastectomy, but I much prefer to call the technique extreme oncoplasty. Extreme oncoplasty sounds more positive and I will use that term going forward. Most surgeons, regardless of age, have not performed extreme oncoplasty, have never seen a case in which it was used, and probably have never even heard the term.

This article will take you on a 50-year journey, from 1965 to the present: from radical mastectomy to extreme oncoplasty, from mutilation to the opposite, to less local recurrence, to a lower breast cancer mortality rate, to a better quality of life, to better cosmesis, and to breast conservation even when mastectomy is thought to be indicated.

LEARNING THE BASICS

I was a surgical resident from 1965 to 1970 at what was then the Boston City Hospital, a group of more than 20 aging medical buildings connected by tunnels so that it was possible not to go outside during your training, except for brief sojourns home. At that time, all 3 Boston medical schools provided service at Boston City Hospital, so it was an exciting and stimulating era to train there.

During my residency, breast cancer was just breast cancer. It was all the same. It was not the nuanced disease that we appreciate today. There were different pathologic types of breast cancer, but there was only 1 accepted treatment: Halsted radical mastectomy. During my 5 years as a surgical resident, I never saw a patient with breast cancer treated any differently. When Dr George (Barney) Crile Jr came to Boston to give a lecture on segmental resection for breast cancer, I was told he was a charlatan and was discouraged from attending his talk. I went anyway, and his lecture began to shake my faith in Halsted’s principles. But, when I read Dr Bernard Fisher’s October 1970 article in Current Problems in Surgery entitled, “The surgical dilemma in the primary therapy of invasive breast cancer: a critical appraisal,” my life changed. That article and its radically different biologic approach to breast cancer made me want to become a surgical oncologist. Years later, in the 1990s, Dr Fisher and I would become good friends, debating on the lecture circuit the treatment for ductal carcinoma in situ (DCIS). Dr Fisher trained in Dr Ravdin’s laboratory, hence, my connection to IS Ravdin once removed.

I spent the next 2 years as a major in the United States Army, most of it at Dewitt Army Hospital, Ft Belvoir, VA. There were many retired military personnel and their dependents living in that community and there were...
many cases of breast cancer. Virtually all breast cancer at that time was clinically detected and palpable. More than 60% of these patients were node positive at diagnosis. Mammography was in its infancy, of poor quality, and not available to us. The only chemotherapy was 5-fluorouracil (5FU) and methotrexate, and the patient had to be referred to Walter Reed Medical Center to get “adjuvant chemotherapy.” In spite of Dr Fisher’s paradigm-changing ideas, I continued to perform radical mastectomies at Ft Belvoir (Fig. 1). The other surgeons did the same, and I was in no position to change policy. I commonly took so much skin that I could not close the defect and needed a skin graft. I never did less than a radical mastectomy, not once. The patients stayed in the hospital a week to 10 days, until the drains were removed. I had no real appreciation of the deformity or emotional pain I caused these women. Based on my training, I believed I was properly treating and curing breast cancer.

I followed military service with a 3-year surgical oncology fellowship at UCLA under the leadership of the remarkable Dr Donald L Morton. I was Don’s first fellow: “Fellow Number 1.” There was no national fellowship match in 1972. At the end of my interview for fellowship, Dr Morton looked at me and asked a simple question: “Do you want to be rich or do you want to be famous?” “Famous,” I answered without hesitating. “Then you’re hired,” he said, and that was that. I spent the next 3 years with him at UCLA. For the first 2 years, we did radical mastectomies. But during my third year, we began to spare the pectoralis muscles in selected, more favorable cases. The modified radical mastectomy was becoming popular; not because there was a prospective randomized trial proving its equality, but rather because the women’s movement, frustrated with years of mutilation, had pressed for the change. Betty Ford and Happy Rockefeller both had mastectomies in 1974. Their openness led the way to making breast cancer the more mainstream subject that it is today.

By saving the pectoral muscles, we had taken the first steps toward a less deforming and demoralizing treatment for breast cancer. The journey toward extreme oncplasty had officially begun for me, but reaching it would require time, evolution, and multiple pieces of a puzzle coming together.

FIRST PIECE OF THE PUZZLE: THE VAN NUYS BREAST CENTER

Dr Morton allowed me to assemble and run UCLA’s first multidisciplinary breast clinic. The staff included a radiologist, a medical, surgical, and radiation oncologist, and a nurse. This small team made the breast cancer experience much quicker and simpler for the patient. During my fellowship, I began to think about building an expanded multidisciplinary breast clinic to serve West Los Angeles. I visited the administrators of a number of Westside Los Angeles hospitals and told them of my idea for a multidisciplinary breast clinic. Their answers were generally about the same, something like: “It’s a pretty good idea, but our surgeons will eat you alive (or worse). The last thing they want is a young know-it-all from UCLA telling them how to manage breast cancer. They know how to manage breast cancer.”

After a year of frustration, I headed 15 minutes north, over the Santa Monica Mountains and into Van Nuys, in the middle of the San Fernando Valley. A surgeon friend steered me to Valley Hospital, an old hospital with a new 230-bed tower with only about 40 inpatients and no board certified general surgeons routinely using the facility. So, there was no one there to offend with a new breast program. The administration provided seed money and space. No one objected.

In September 1979, after a year of planning, redesigning, equipping, and painting, I opened a small breast center in an old building at the rear of the hospital. At that time, there was no such thing as a “Breast Center.” Local television and newspapers covered the opening, and we were immediately successful. I used part-time consultants to cover all the specialties, including plastic surgery,
medical, and radiation oncology. I was the only full-time physician.

In 1982, we expanded into a newly constructed medical office building on the Valley Hospital campus. A group of us took out a bank loan to fund the move and develop the space. Ownership of the Van Nuys Breast Center went from the hospital to the group. All the physicians, other than the radiation oncologist, became full-time. We initially occupied 11,000 square feet but within a few years we expanded to 15,000 square feet. At our peak, we had 12 medical professionals and a support staff of more than 40. The Van Nuys Breast Center became internationally known as the first free-standing breast center in the United States.4,5 It was a model for most breast centers that came later, with visitors from 40 states and 36 foreign countries. The Van Nuys Breast Group was not affiliated with a medical school, but during its 20-year tenure, the group had more than 200 publications, 2 textbooks, and multiple oral presentations at The American Society of Clinical Oncology (ASCO). The Van Nuys Breast Center was featured on the Today Show, Good Morning America, and ABC's 20-20. In the late 1980s, Dr Morton and his protégé, Dr Armando Giuliano, visited the Van Nuys Breast Center because they were designing their new breast center at St Johns Hospital in Santa Monica. The early success of the Van Nuys Breast Center led to the second piece of the puzzle: ductal carcinoma in situ (DCIS).

**THE SECOND PIECE OF THE PUZZLE: DUCTAL CARCINOMA IN SITU**

Initially, the Van Nuys Breast Center had a single, outdated mammography machine. Mammograms were taken during the day and batch-read in the main hospital at night. They were poor quality, with low contrast and minimal penetration. From 1979 through 1981, we treated an average of 6 patients with DCIS each year. All the lesions were clinically apparent. None were detected by mammography alone and all were treated with mastectomy.

When we moved to the new medical office building in 1982, we started with 2 state-of-the-art film-screen mammography units and a full-time experienced expert breast radiologist. A few years later, we added a third and fourth machine. From 1983 to 1998, with our new technology, we diagnosed an average of 53 cases of DCIS each year, most of which were nonpalpable and screen-detected. Suddenly, we were inundated with a disease we knew little about.

We continued to do mastectomies for DCIS until I had the good fortune of meeting Michael D Lagios, MD, a noted breast pathologist from San Francisco. He visited the Van Nuys Breast Center and taught the team a great deal about DCIS. We learned about nuclear grading and the limited malignant potential of low-grade lesions. We learned that many cases did not have to be treated with mastectomy. He explained that he was conducting an “excision-only trial” for small (≤25 mm) mammographically detected DCIS, locally excised with clear margins ≥1 mm.7,8 He taught us about inking or color-coding all margins, serially sectioning, and sequentially embedding all tissue, performing mammographic/pathologic correlation, and estimating size by 3-dimensional reconstruction. Most importantly, he taught us to measure margin width, the distance of the tumor to the inked edge. Margins were important and we adopted all of Dr Lagios’ suggestions for both DCIS and invasive cancer.

For the next 20 years, DCIS became the most important component of my medical life. I lived and breathed it. I thought about it all the time. I had a weekly Saturday morning breakfast with a group of colleagues where we discussed life, family, and DCIS. We collected data, published papers, and I had the opportunity to travel the world talking about DCIS and debating its treatment. The Van Nuys Group became a leading proponent for selecting patients who could be treated with excision alone. We developed the Van Nuys DCIS Classification9 and the Van Nuys Prognostic Index,10-13 and algorithm used to select patients with a low risk of local recurrence after excision alone. The first textbook devoted solely to DCIS was published in 1997 while we were still at the Van Nuys Breast Center.14

**THE THIRD PIECE OF THE PUZZLE: PARTIAL MASTECTOMY FOR INVASIVE CANCER**

In 1981, the great Italian surgeon, Professor Umberto Veronesi, published the Milan I Trial, a prospective randomized study comparing Halsted radical mastectomy with quadrant resection, axillary lymph node dissection, and radiation therapy to the ipsilateral remaining breast tissue for invasive breast cancer ≤2 cm. In his 1981 New England Journal of Medicine landmark publication, he reported there was no difference in disease-free and overall survival at 5 years, regardless of treatment.15,16 This news made the front page of the New York Times on July 2, 1981 and was the first prospective randomized trial showing that a breast-preserving procedure resulted in an equal cure rate with far less deformity when compared with the Halsted mastectomy.

In 1985, Bernard Fisher, MD, chairman of the National Adjuvant Breast and Bowel Project (NSABP), published NSABP B-06, the 5-year results of a prospective randomized trial comparing total mastectomy and
segmental mastectomy with or without breast irradiation for invasive cancer ≤4 cm.17,18 Distant disease-free survival and overall survival were equivalent in all 3 groups at 5 years. This was the first American trial to show equality of breast conservation and mastectomy. Unfortunately, surgeons in the United States were slow to accept breast conservation, so for much of the 1980s, mastectomy continued to be the predominant method of local breast cancer treatment.

At the Van Nuys Breast Center, we were early adopters of breast conservation, and it played a major role in our success. It quickly became our procedure of choice for patients with stages I and II breast cancer. Women from all over Los Angeles came to the San Fernando Valley for breast conservation. Additional prospective randomized trials followed and confirmed the equality of breast conservation and mastectomy.19-23 In 1990, the National Institutes of Health (NIH) held a Consensus Development Conference and issued a statement recommending breast conservation for the majority of women with stages I and II breast cancer.24,25

THE FOURTH PIECE OF THE PUZZLE: ONCOPLASTIC BREAST SURGERY

The final and most important piece of the puzzle was my realization that plastic surgery could play a role in a breast-conserving procedure for cancer. This was the most difficult of all the pieces. I was very resistant at first. Oncoplastic breast conservation requires a philosophy that, after segmental resection, the appearance of the breast is important. That concept was never part of my training. Most general surgeons of my era were trained to think that it was not "oncologic" to open additional surgical planes and to move or rearrange tissue during a cancer operation. The goal of the oncologic surgeon was to remove the cancer with clear margins, not to preserve breast shape and function or to worry about cosmetic results.

During the early 1980s, it never dawned on me to use plastic surgery as part of a breast-preserving operation, in spite of the fact that I worked with plastic surgeons on a daily basis. I scrubbed and assisted on at least 100 breast reductions during the early years of the Van Nuys Breast Center, but I never put the 2 procedures, lumpectomy and reduction, together. My training led me to believe that reconstructive breast surgery after mastectomy was acceptable, if properly timed, and the cancer was not too advanced. But at that point in my career, I thought that cosmetic breast surgery was somewhat frivolous and certainly not "oncologic."

The turning point came in the middle 1980s, when I walked into the Van Nuys Breast Center preoperative holding area. One of our plastic surgeons was making some unusual markings on the breasts of an elderly woman. I asked what he was doing. He called it a "batwing" reduction, saying that the markings looked like the "Batman Symbol over Gotham." He said it was an easy, quick reduction, with fewer incisions than with the standard approach. The nipple would be supported on a very broad-based inferior pedicle with literally no chance of nipple necrosis. It was perfect for an older, not so healthy woman, who would physically benefit from a reduction. As I looked at it, I had that "light bulb" moment. I thought, "What if a breast cancer was right in the center of the batwing?" This would yield both wide margins and a good cosmetic result, something we did not always achieve with our standard segmental resection. It was a win-win concept that changed the focus of my career.

PUTTING ALL THE PIECES TOGETHER: THE EVOLUTION OF EXTREME ONCOPLASTY

For 90 years, mastectomy was essentially the only choice. In 1981 and 1985, Milan I and NSABP-06 confirmed the equality of breast conservation compared with mastectomy.16,17 In 1990, an NIH Consensus Conference concluded that breast conservation was equivalent and preferable to mastectomy for stages I and II breast cancer.25 During the next 10 years, breast conservation was slowly accepted for invasive breast cancer and then for DCIS. Surgeons generally made an incision over the tumor, took no skin, removed a 20- to 30-g segment and accepted some deformity. There was a 20% to 40% positive margin rate, and re-excisions to clear margins, as a second surgical procedure, were common. This remains a problem today. The positive margin rate without shaving the cavity was recently reported as 35%.26 After resection of the tumor, radiation therapy was used to deal with any residual cancer and often added additional deformity. For many surgeons, this entire approach has remained relatively unchanged since breast conservation was introduced.

In the middle 1980s, oncoplastic breast conservation began at the Van Nuys Breast Center. Unbeknownst to us, oncoplastic surgery was also beginning in Europe with Werner Audretsch27 in Dusseldorf and Krishna Clough28 in Paris, both of whom visited the Van Nuys Breast Center and enlightened us on what they were doing. Jean Petit in Paris and Mauricio Nava in Milan also made major oncoplastic contributions in the early 1980s.29,30

In Van Nuys, we used a range of new breast-conserving excisions for cancer, including batwings, hemibatwings,
crescents, round blocks, and ultimately reductions. The oncoplastic approach consistently yielded wider margins, fewer re-excisions, less radiation therapy for DCIS, and better cosmesis. We removed skin over the tumor and reshaped the breast, trying to avoid deformity. We did this for many years for unifocal disease ≤5 cm, in keeping with the recommendations of the NIH and the prospective randomized trials that proved the equality of breast conservation and mastectomy.

I left Van Nuys in 1998 to become Professor of Surgery at the Keck School of Medicine, University of Southern California (USC). At USC, I continued to perform oncoplastic breast conservation, expanding the oncoplastic program to include support from the Division of Plastic Surgery. I started a surgical breast fellowship in 2000, with oncoplastic surgery as the key component. The second edition of my textbook, Ductal Carcinoma in Situ, was published in 2002 while I was at USC.

In 2008, I moved to Hoag Memorial Hospital Presbyterian, Newport Beach, CA, to become director of its Breast Program. I was able to remain on the USC faculty and to expand the USC Breast Fellowship Program to include Hoag. At this writing, we have trained 39 breast fellows, 23 of whom have rotated through Hoag.

At Hoag, I recruited a plastic surgeon, Nirav Savalia, MD, to the USC faculty, and together we have run the Hoag Oncoplastic Program. We developed the “split reduction,” a procedure that allows the removal of overlying skin when a tumor falls outside the standard Wise Pattern Reduction. With funds from The Gross Family Foundation Endowed Chair in Oncoplastic Surgery, we produced a video on basic oncoplastic surgery in 2010. In 2015, Dr. Savalia and I produced Silverstein and Savalia’s Advanced Oncoplastic Breast Conservation. Both of these videos were distributed worldwide at no charge (for a free copy, contact vectorsurgical.com.)

To better understand the contribution of breast cancer excision using a reduction excision, Table 1 compares our experience with 250 consecutive excisions using an ellipse over the tumor with 300 consecutive excisions using a standard Wise Pattern or split reduction. Skin over the tumor was removed in every case.

The reduction excision resulted in no ink on tumor in 97% of the cases, compared with 91% for excision using an ellipse. No ink on tumor is currently the accepted standard for a clear margin for invasive breast cancer. Only 3% of patients with reduction excisions underwent re-excision and only 1% were converted to mastectomy. There were more complications for reduction excision but they were minor, consisting of a few easily treated seromas or hematomas. The local recurrence rate was low and similar in each group.

| Table 1. A Comparison of Elliptical Excisions with Reduction Excisions |
|-----------------|----------------------|----------------------|
| Data            | Ellipses      | Reductions     |
| n               | 250           | 300            |
| Mean tumor extent, mm | 22           | 22             |
| Mean specimen weight, g     | 65           | 140            |
| No ink on tumor, %          | 91           | 97             |
| Margin ≥ 1 mm, %           | 79           | 88             |
| Re-excision, %              | 15           | 3              |
| Mastectomy, %               | 2            | 1              |
| Complication, %             | 2            | 3.4            |
| Any local recurrence, %     | 2            | 2.5            |

FINALLY EXTREME ONCOPLASTY

In 2008, at Hoag, I wondered how far we could push the oncoplastic envelope. We had been doing oncoplastic resections for unifocal stage I and II disease for years. In addition, we often encountered patients with larger or multifocal/multicentric tumors who seemed technically amenable to oncoplastic resection, but there were no prospective randomized data to support breast conservation for these patients. I always believed that the relationship between the size of the breast and the span of the tumor was key. A large breast with a large tumor could easily accommodate a large resection. So I began the Extreme Oncoplasty Program to provide second opinions for patients who wanted to save their breast but had been told that they needed a mastectomy. Many patients sought out our program.

Extreme oncoplasty is a breast-conserving operation using oncoplastic techniques for a patient who, in most physicians’ opinions, requires a mastectomy. Because of the size and severity of the lesion, most of these patients will also need postmastectomy radiation therapy. Extreme oncoplasty can be considered, if the breast is large enough to support it, for patients with tumors >50 mm, for some with multifocal or multicentric lesions, extensive DCIS or extensive intraductal component >50 mm, for patients with a previously irradiated breast with a new or recurrent cancer within that breast, and for patients with large locally advanced breast cancer with a partial or complete imaging response to neoadjuvant chemotherapy. Patients such as these have generally not been considered acceptable candidates for breast conservation. Why would anyone want to treat these patients with breast conservation? First of all, some patients simply want breast conservation even when they are poor candidates and are advised against it.

The prospective randomized trials on which breast conservation is based allowed tumors up to 5 cm. There are no prospective randomized data for larger lesions and there are not likely to be any. But what is the difference
between a 48-mm cancer that qualifies and a 52-mm cancer that does not? When breast conservation is performed for a patient who turns out to have a 55- or 60-mm cancer on final pathology, most of us will irradiate that breast if the margins are clear, and not convert to a mastectomy just because of a size larger than 50 mm. When we do that, we are doing it without the support of any level I evidence.

The most important reason to consider extreme oncoplasty is that breast conservation yields a better quality of life when compared with the combination of mastectomy, reconstruction, and radiation therapy, and survival is likely the same. Consider the quality of life with the combination of mastectomy, reconstruction, and radiation therapy. For most patients, a submuscular expander will be placed at the time of mastectomy. This causes pain. There are drains, a foreign body, the potential of infection, and the time required for expansion. The final reconstruction requires another operation, the expander to implant exchange, or perhaps an autologous flap. If an autologous flap is used, it is a longer procedure, with additional operative risks and donor site morbidity. There may be additional operations to adjust the breast and nipple as well as tattoos for the areola. Then there is the opposite breast to consider, perhaps prophylactic mastectomy and reconstruction, or a reduction for symmetry. The mastectomy or mastectomies will leave insensate breast(s). The final cosmetic result will range from poor to excellent.36-38 But my experience, from looking at more than 1,000 reconstructions, tells me that less than 25% would be rated as excellent by me. Then there is the residual breast tissue needed to keep the skin and nipple, if preserved, viable. The amount of residual tissue varies, depending on how the mastectomy was done and the thickness of the flaps.

After a mastectomy with reconstruction, most of these high-risk patients need radiation therapy.39 Currently, patients with tumors >5 cm receive radiation therapy. Patients with 4 or more positive nodes get radiation therapy. Many radiation oncologists now treat patients with 1 to 3 positive nodes.40 Patients with extensive lymphovascular invasion get radiation therapy, as will patients with close or involved margins after mastectomy. In other words, radiation therapy will be recommended for many patients after mastectomy and certainly for most patients who qualify for extreme oncoplasty. If the patient is going to be given radiation therapy after a mastectomy with reconstruction, I would generally prefer to save her breast with an acceptable cosmetic result, if it is technically possible and oncologically sound.

Radiation therapy is not friendly to reconstruction.41 There is a risk of capsular contracture if an implant-based reconstruction is used, or breast shrinkage if autologous tissue is used. Radiation therapy is inconvenient from the patient’s perspective, expensive, causes some morbidity, and may interfere with the timing of chemotherapy. After a mastectomy with reconstruction, if radiation therapy is not given, 5% to 10% of the breast tissue, depending on the thickness of the flaps, is not treated, including the dermal lymphatics.

Compare, on the other hand, breast conservation using a reduction with a simultaneous contralateral reduction for symmetry: 1 operation, no drains, and it looks better immediately and later. There is less pain, less expense, shorter hospital stay, no foreign body, and no donor site morbidity. The breasts are more functional and sensate. All of this results in a better body image and a happier patient. Most importantly, breast conservation with a reduction allows a patient to forget that she had breast cancer, not right away, but at some point in the future. In 6 months or a year, the patient will be getting dressed and she has 2 normal reduced breasts. They look good, they are sensate, and she feels like she is just a normal woman. She will be reminded of breast cancer only when she sees it on television or it is time for an appointment with her doctor. If she had a mastectomy, even with an excellent reconstruction, she will be reminded, on a daily basis for the rest of her life, that she had breast cancer.

Table 2 compares the 300 consecutive reductions discussed earlier with 105 extreme oncoplastic cases. For the extreme cases, the cancers are about 3 times the extent when compared with standard or split reduction patients with tumor ≤50 mm. The extreme specimens weighed about 70 g more. No ink on tumor was achieved only 86% of the time during the first excision due to the larger size of the extreme tumors. Twelve percent of extreme patients underwent re-excision and 5% ultimately underwent...
Figure 2. (A, left) Preoperative photograph of a 48-year old woman with multiple abnormalities detected on screening. (Right) Mammogram shows multicentric disease spanning 81 mm. Biopsy revealed 2 foci of invasive lobular carcinoma (ILC) and 1 focus of atypical ductal hyperplasia vs ductal carcinoma in situ (ADH/DCIS). (B, left) Two bracketing guide wires have been placed around each lesion for a total of 6 wires. (Right) The patient has been marked for a split reduction excision. The inner black line shows skin that will be removed over the tumors. The outer lighter yellow line shows the amount of tissue that will be removed. (C, left) A 202-g specimen with overlying skin. (Right) Specimen radiograph. Final pathology revealed 2 foci of invasive lobular carcinoma spanning 42 mm. Including the ADH/DCIS, the entire span was 81 mm. The closest margin was 5 mm. There were 2 negative sentinel lymph nodes. (D, left) Preoperative. (Right) 3 years postoperative and post-radiation therapy.
mastectomy. The local recurrence rate for the extreme cases is slightly higher, as would be expected for patients with larger cancers. There are no long-term recurrence or survival data, at this point, for extreme patients. There was overwhelming patient satisfaction with the oncoplastic program as measured by a patient satisfaction survey.

**EXTREME ONCOPLASTY CASE EXAMPLE**

A 48-year-old woman with multiple abnormalities detected on screening mammography is shown in Figure 2A to 2D. Biopsy of 3 suspicious areas revealed invasive lobular carcinoma in 2 areas and atypical ductal hyperplasia vs DCIS in the third. The disease spanned 81 mm and was in 2 quadrants. Mastectomy was suggested by 2 surgeons, but the patient sought an alternative breast-conserving approach. Extreme oncoplasty was performed successfully.

**CONCLUSIONS**

We have come a long way from the Halsted radical mastectomy as the only procedure for breast cancer. With proper use of all currently available tools that include screening, early detection, genetic testing, state-of-the-art chemotherapy and hormonal therapy, molecular testing, and oncoplastic surgery, we can achieve fewer local recurrences, fewer distant recurrences, a lower mortality rate from breast cancer, a better quality of life, and better cosmesis. And we can do all of this with a lower mastectomy rate.

It is time to accept that the appearance of the breast after breast conservation is important, that there are too many unilateral mastectomies, that there are too many bilateral mastectomies, and that prophylactic contralateral mastectomy should not be a knee jerk response, as it does not offer any survival benefit. For most patients, breast conservation offers equal survival and a better quality of life when compared with mastectomy.

Standard oncoplastic breast reduction should be available to all patients. Combined with radiation therapy, oncoplastic breast reduction is a better option than the combination of mastectomy, reconstruction, and radiation therapy. It provides a superior quality of life with an equivalent survival rate.

Extreme oncoplasty, or radical breast conservation, is a new concept. It allows breast conservation in selected patients with tumors >5 cm, multifocal or multicentric disease, locally advanced tumors after partial or complete response to neoadjuvant chemotherapy, and in patients with recurrent or new disease after previous excision and radiation therapy. Long-term data on recurrence and survival do not currently exist for the extreme cases, but are being accrued.

Oncoplastic breast conservation is a tool that should be added to our armamentarium in the fight against breast cancer. It should be taught to all surgeons who aspire to treat patients with breast cancer. General surgeons who have not been trained in oncoplastic surgery should team up with a plastic surgeon so that they can offer their patients the best possible state-of-the-art care. Breast surgical fellowship programs should be expanded to include extensive experience in breast oncoplastic surgery. Extreme oncoplasty is an evolutionary leap in the progression of breast conservation. Some may even consider it revolutionary.

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