

## THE IMPACT OF BREAST RECONSTRUCTION AFTER BREAST CANCER

Mihaela RADU, Cristian BORDEA, Iulia MATEI, Aniela NODITI and Alexandru BLIDARU

“Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania  
Institute of Oncology Bucharest “Prof. Dr. Al. Trestioreanu”, Surgical Oncology II, Bucharest, Romania  
Corresponding author: Mihaela RADU, E-mail: [dr.mihaela@gmail.com](mailto:dr.mihaela@gmail.com)

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*Breast reconstruction has an important role in regaining femininity for women fighting breast cancer. Our aim was to compare the different perceptions on the reconstructed breasts especially related to the time of reconstruction: immediate or delayed one but also the difference between patient's and doctor's opinion. There were 29 breast reconstructions between September 2014 and September 2015. Two patients underwent bilateral mastectomy with immediate bilateral breast reconstruction. Most of the reconstructions, 62% (18 patients) were delayed ones, mostly with Becker implants and 38% (11 patients) were immediate ones mostly with anatomical implants and synthetic meshes. After the surgery, all patients completed a questionnaire of 15 questions of their opinion about the reconstructed breasts. Also, the physicians from the surgical team were asked to complete a form about their point of view regarding the aesthetic outcome. Most of the patients were pleased with their reconstructed breasts but their subjective criteria for defining the beauty of the breast did not always match the objective criteria of the physician's evaluation. Breast reconstruction after breast cancer surgery always helps women to endure the diagnosis but also the disease's complex treatment.*

**Key words:** breast cancer, psychological impact, breast reconstruction

### INTRODUCTION

Breast cancer has been first described in 1600 B.C. in the papyrus writings of the ancient Egyptians, but the most important step for treating breast cancer was made in 1882 by Halsted after describing the radical mastectomy which improved significantly the survival rate<sup>1</sup>.

The first attempt of a breast reconstruction was in 1895 when Vincent Czerny, a professor of surgery at Heidelberg, did an autogenous breast reconstruction by transplantation of a fist-sized lipoma from the patient's flank<sup>2</sup>. In 1906, while trying to close large wounds after radical mastectomy the Italian surgeon Tancini developed a pedicled flap of skin and underlying latissimus dorsi muscle, which he transferred to the mastectomy defect<sup>3</sup>. The modern era of breast reconstruction began with Cronin and Gerow and the introduction of the silicone gel breast implant in 1963. At first, the silicone implants were used for delayed reconstruction, but eventually the first immediate reconstruction was reported in 1971<sup>4</sup>.

Several studies have been made to compare three major breast cancer-associated surgical procedures considering the psychological outcome: lumpectomy, mastectomy alone, and mastectomy with subsequent breast reconstruction.

The results of a prospective study showed surprisingly that patients who underwent lumpectomy or mastectomy with

reconstruction had no better QOL (quality of life) than those who had mastectomy alone<sup>5</sup>.

Another study surveying 1957 breast cancer surviving patients, suggested more positive QOL-related outcomes with women who underwent lumpectomy rather than mastectomy with or without reconstruction<sup>6</sup>.

A study with 577 patients showed that significant statistical differences existed between the three procedures regarding satisfaction and psychosocial morbidity (anxiety, depression, body image, sexuality and self-esteem) in favor of wide local excision followed by breast reconstruction. Greatest morbidity was seen in the mastectomy group<sup>7</sup>.

Considering that breast conserving surgery can be applied only in selected, early disease stages, breast reconstruction should be an option available to patients requiring mastectomy

### MATERIAL AND METHODS

Between September 2014 and September 2015 there were 29 breast reconstructions at the Institute of Oncology Bucharest “Prof. Dr. Al. Trestioreanu”. Two patients underwent bilateral mastectomy with immediate bilateral breast reconstruction. One of them had BRCA 2 (Breast Cancer Gene 2) mutation and right breast cancer, the other one was diagnosed with right breast invasive ductal and lobular carcinoma and left breast in situ carcinoma.

62% (18 patients) of the reconstructions were delayed and 38% (11 patients) were immediate.

Only one patient with immediate breast reconstruction using a saline expander, which was replaced after 6 months with an anatomical implant.

Two patients were excluded from the study, because of major complications as local recurrence and implant exposure.

In November 2014 a saline expander was used for a delayed reconstruction for a 35-year-old patient, after 7 years since mastectomy. In March 2015 she was diagnosed with local recurrence and the expander could not be replaced anymore.

The only implant exposure was described for a delayed reconstruction in a 44 year-old-patient treated in 2011 for left breast invasive ductal carcinoma: modified radical mastectomy, chemotherapy, radiotherapy and hormonal therapy. The reconstruction was made in March 2014 using a 325cc Becker implant, placed partially under the pectoralis major muscle and the inferior pole was covered by a Seragyn mesh. Two weeks after surgery wound dehiscence was noticed of aprox. 1.5 cm and persistent lymphorrhea. Although two consecutive bacteriological exams showed no evidence of germs, the dehiscence persisted and the implant was eventually removed along with the synthetic mesh.

In this study immediate complications such as: bleeding, implant displacement, infection were absent. Prolonged lymphorrhea was the only complication in two cases.

Becker implants were placed in the retromuscular “pocket” created by pectoralis major and serratus anterior muscles.

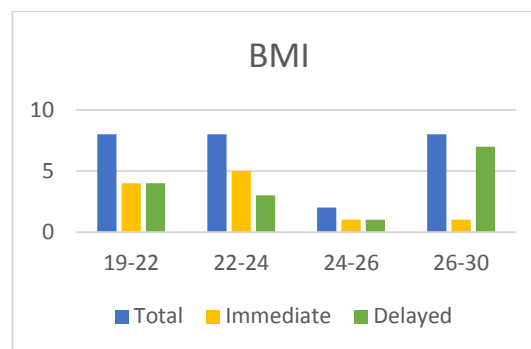
For immediate breast reconstructions, 10 Seragyn®BR meshes were used, at first for the aim of bridging the muscular plan, then they were used to cover and stabilize the implants either partially, by fixing the pectoralis major muscle to the inframammary fold or by suturing them above the pectoralis major muscle, therefore completely covering the implant. After the surgery, all patients completed a questionnaire of 15 questions of their opinion about the reconstructed breasts. Also, the physicians from the surgical team were asked to complete a form about their point of view regarding the aesthetic outcome.

The 15 questions were about the timing of reconstruction (immediate/delayed), the implant type (Anatomical/Becker/Expander), unilateral / bilateral, type of mastectomy (Nipple sparing mastectomy – NSM / Skin sparing mastectomy –SSM / Modified radical Mastectomy - MRM), the use of Seragyn mesh, how do they appreciate the aesthetic outcome (on a scale from 1(poor) to 10(excellent)), to what do they compare the reconstructed breast (previous natural breast / contralateral breast/ breast absence), scar aspect (very good / good / satisfying / unsatisfying), the outcome of the reconstructed breast is (above expectations / under expectations / reasonable), the

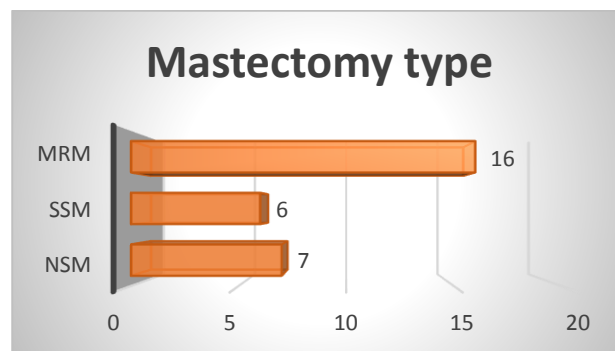
reconstructed breast consistency (on a scale from 1 (firm, painful) to 10 (soft, natural)) thinking about symmetrization surgery for the contralateral breast, would they choose breast reconstruction again, was there anybody from medical environment who discouraged them regarding breast reconstruction, did breast reconstruction have an important psychological impact for them. For the last question, the patients had to complete their height and weight.

## RESULTS AND DISCUSSIONS

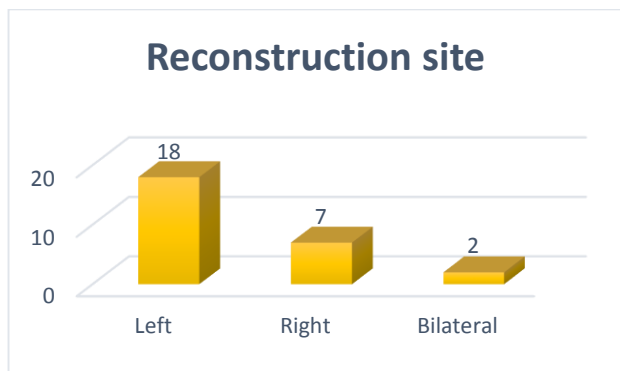
A prospective study on 26 patients having a median age of 47-year-old (between 33 and 63-year-old) with the mean follow-up of 7 months (12 to 2 months) revealed no capsular contracture and good aesthetic result. For 9 unilateral and 2 bilateral immediate breast reconstruction, 15 delayed breast reconstruction and one expander/implant reconstruction there were used 10 Seragyn meshes, 1 saline expander, 12 anatomical implants and 16 Becker implants. The BMI average was 24.12 (from 19 to 30.86). Most of the overweight women had delayed breast reconstruction and the implant volume was not enough compared to the contralateral breast.



**Figure 1.** BMI index related to the type of breast reconstruction.

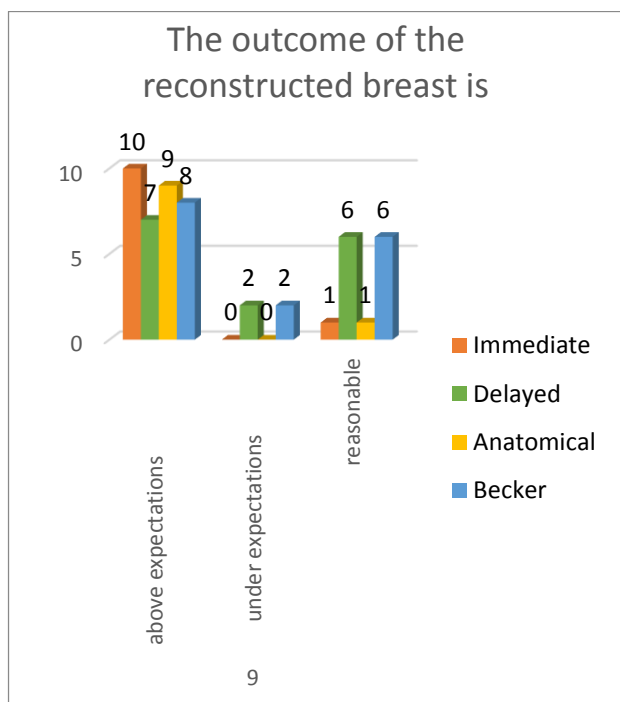


**Figure 2.** Mastectomy type: Modified radical mastectomy, Skin sparing mastectomy, Nipple sparing mastectomy.



**Figure 3.** Site of breast reconstruction.

The outcome of the reconstructed breast was above expectations for almost all of the patients with immediate breast reconstruction (10 out of 11).



**Figure 4.** The outcome of the reconstructed breast (question no 9) related to the moment of breast reconstruction and type of implant.



**Figure 5.** A patient diagnosed with left breast cancer and a right breast benign tumor, after chemotherapy, before surgery.



**Figure 6.** Patient from Figure 5 after SSM with immediate breast reconstruction using a 395 cc Anatomical implant placed above the pectoralis major muscle and covered by a 28\*17.5cm Seragyn mesh. Two Months postoperative aspect.

This study has similar results concerning immediate reconstruction regarding reduced costs, improved cosmesis<sup>9</sup> and less psychological disturbance than is otherwise observed in the early stages after mastectomy<sup>10, 11</sup>.



**Figure 7.** A patient two years after left Madden radical modified mastectomy for invasive ductal carcinoma. Before breast reconstruction.



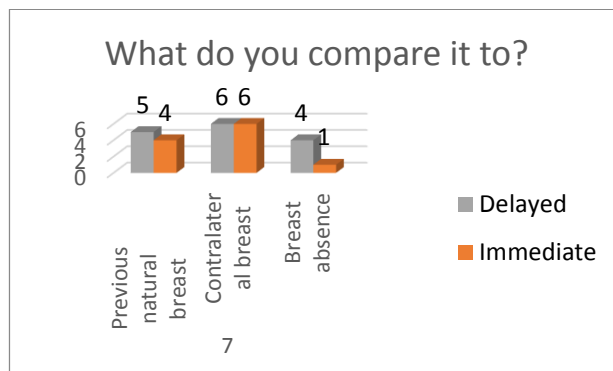
**Figure 8.** Intraoperative aspect



**Figure 9.** The postoperative result of the patient from Figure 7 after a delayed breast reconstruction using a 255 cc Becker implant placed under the pectoralis major and serratus anterior muscles. Nine Months postoperative result.

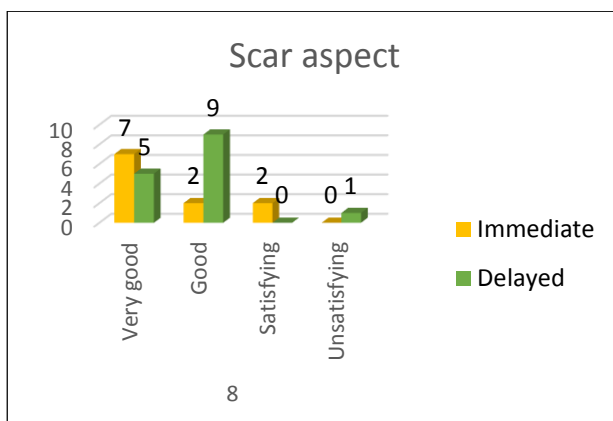
The question number 6 was about how do the patients appreciate the aesthetic outcome (on a scale from 1 (poor) to 10 (excellent)). The average from all patients was 8.852 - 9.454 for immediate reconstruction and 8.333 for delayed one. As for the physicians average was 7.8846.

Most of the women compare the reconstructed breast with the contralateral one. Of course, patients having immediate reconstruction cannot think about not having a breast at all, therefore could never compare it to the breast absence.



**Figure 10.** Comparison of the reconstructed breast related to the time of breast reconstruction.

Scar aspect was definitely better for immediate reconstructions. All of the patients had intradermal suture and Steri-Strips kept for at least 3 to 4 weeks.



**Figure 11.** Scar aspect related to the time of breast reconstruction.

It is well known that the natural consistency of the breast cannot be achieved using implant based technique for breast reconstructions, but there was almost no difference between the Becker and Anatomical implants regarding their consistency. On a scale from 1 to 10 where 1 was considered firm, painful and 10 soft, natural, Becker implants have an average of 7.75 and Anatomical implants of 7.6.

Patients from the delayed reconstruction group think more about having an aesthetic surgery for the symmetrization of the contralateral breast.





**Figure 12.** A patient with right delayed breast reconstruction using a 255 cc Becker implant and left breast ptosis who is considering contralateral symmetrization surgery.

Given the same opportunity, all of the patients with immediate reconstruction would consider undergoing breast reconstruction again; only two patients with delayed breast reconstruction using Becker implants having a BMI of 27.63 and 28.72 wouldn't choose again implant based breast reconstruction. Only for them, breast reconstruction didn't have an important psychological impact.

A study from 2005 demonstrated that women seeking immediate reconstruction at the time of mastectomy show a relatively higher incidence of psychosocial impairment and functional disability. Women who undergo mastectomy demonstrate early restoration of psychosocial health within the first year after surgery<sup>8</sup>. In our case all immediate breast reconstruction had an important psychological impact on patients.



**Figure 13.** Psychological impact of breast reconstruction related to the time of the surgery.

## CONCLUSIONS

Implant based is the most frequent surgical technique for breast reconstruction after mastectomy. Safeness and low rate of complication stand beyond its prevalence. Other important advantages would be the lack of donor site

morbidity as for autologous tissue breast reconstruction and shorter operating time. Combining of Seragyn®BR meshes with an implant in immediate breast reconstruction permits to achieve a bigger volume and more natural aspect (ptosis) of the breast, to spare the pectoralis muscle and to embed the implant.

Patient selection for this type of reconstruction is very important because of the impossibility of obtaining a beautiful aesthetic result for overweight or obese patients.

The contralateral breast symmetrization should always be considered at the time of breast reconstruction.

Breast reconstruction after breast cancer surgery always helps women to endure the diagnosis but also the disease's complex treatment having an important psychological impact.

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