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**Early complications after subcutaneous mastectomy and immediate breast reconstruction with silicone prosthesis**

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**Background:** Breast reconstruction with silicone prosthesis following subcutaneous mastectomy (SCM) has been shown to have a salutary effect on the overall psychological well-being of women being treated for breast cancer and at the same time does not threat the oncological safety. The purpose of this study was to evaluate the incidence of early local complications after immediate breast reconstruction with a subpectorally placed silicone prosthesis following SCM.

**Materials and Methods:** Prospective study was performed on a consecutive series of 64 breast reconstructions in 63 patients over a one-year period. All complications during the six weeks after surgery were recorded. 12 prostheses were implanted after neoadjuvant chemotherapy and in all other cases surgery was the primary treatment for cancer.

**Results:** The overall complication rate was 22% (14), and in 3.2% (2) cases explantation of prosthesis was done due to major skin flap necrosis and prolonged seroma formation.

The most frequent complications were prolonged seroma formation 6.3% (4), minor skin necrosis 4.7% (3) and minor infections 4.7% (3). Haematoma, epidermolysis, major infection and major skin necrosis each occurred in 1.6% (1) patients. Neoadjuvant chemotherapy was not associated with higher rate of complications.

**Conclusions:** Immediate reconstruction with silicone prosthesis after SCM is safe and effective procedure and has a low morbidity rate. Neoadjuvant chemotherapy is not a risk factor for early postoperative complications.

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**Comparing two objective methods for the aesthetic evaluation of breast cancer conservative treatment**

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**Background:** Two objective methods (software) were recently developed for the objective evaluation of the aesthetic results of Breast Cancer Conservative Treatment (BCCT): the breast cancer conservative treatment cosmetic results (BCCT.core) (Cardoso JS, Cardoso MJ. Artif Intell Med, 2007) and the breast analyzing tool (BAT) (Fitzal et al. The Breast, 2007). Both try to overcome the lack of reproducibility of subjective methodologies traditionally used in this type of evaluation. The BCCT.core and the BAT make use of a face-only photographic view of the patient. The BCCT.core analyses several parameters related to asymmetry, color differences and scar appearance while the BAT takes in consideration only asymmetry measurements. The purpose of this study is to compare the performance of the two methods regarding the aesthetic evaluation BCCT.

**Material and Methods:** Digital pictures of 59 PORTO patients and 69 VIENNA patients were submitted to BCCT.core and BAT analyses and were additionally evaluated subjectively by two different panels with the Harris scale. The PORTO photographs were evaluated by an international panel of 23 experts, the VIENNA photographs were evaluated by 4 students and 2 breast cancer specialists. The agreement of the two software programmes with the consensus over the 119 cases was calculated using the kappa (k), weighted kappa statistics (wk) and error rate (er). A kappa score of 0 was considered poor agreement; 0.01−0.20 slight agreement; 0.21−0.40 fair agreement; 0.41−0.60 moderate agreement; 0.61−0.80 substantial agreement; 0.81−0.99 almost perfect; and 1.00 perfect agreement.

**Results:** Regarding the PORTO photographs the agreement was better between the BCCT.core and the consensus ($k = 0.71$; $wk = 0.78$; $er = 0.14$) than the one obtained with the BAT ($k = 0.35$; $wk = 0.41$; $er = 0.51$) while there was almost no difference between the BCCT.core and the BAT with the VIENNA images, with both methods presenting similar values of agreement with the subjective classification. When analysing results for all the photographs, the BCCT.core performs slightly better ($k = 0.56$; $wk = 0.64$; $er = 0.20$) than the BAT ($k = 0.39$; $wk = 0.46$; $er = 0.42$) for all the studied parameters.

**Conclusions:** The BCCT.core performed significantly better than the BAT in the PORTO patients while the differences were shortened when the two sets of photographs were evaluated due to the similar result in the VIENNA patients. The results show that inclusion of multiple parameters in the software analyses could improve results.

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**The oncological safety of axillary node clearance in the lateral decubitus position in patients with immediate ALD reconstructions**

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**Introduction:** The fundamental aim of surgery must be to provide safe and successful oncological treatment. Surgical techniques which reduce operating time are very important given the increased numbers of breast cancer patients and shortages of staff and theatre resources. Lateral decubitus positioning of patients during immediate breast reconstruction with autologous Latissimus dorsi (ALD) flaps significantly shortens the time of surgery, since the oncological resection and the flap-harvest can be performed concomitantly. It has been argued that ANC in the lateral decubitus position is technically more challenging than in the supine position and, therefore, regarded as oncologically unsafe by numerous breast surgeons. The aim of this study was to determine whether patient positioning would influence the lymph node retrieval and thus the oncological safety of the axillary node clearance (ANC).

**Methodology:** This study is a prospective analysis of 140 patients who underwent ANC at two breast centres in Glasgow. The study group contained 70 patients who underwent mastectomy, level II ANC and immediate ALD reconstruction in the lateral decubitus position. The control group consisted of 70 patients who had mastectomy and ANC in the supine position. This operation was chosen because it gives traditionally the best access to the axilla and offers the best visualization of axillary surgical anatomy. The total number of lymph nodes retrieved (pNtot) and the ratio of positive nodes to total number of nodes (pNratio) were recorded. All histological specimens were examined in the same pathology department to keep the evaluation of the axillary content as consistent, as possible. For statistical analysis student's t-tests were used.

**Results:** The two groups were comparable in terms of age, tumour size, grade and stage. The average numbers of lymph nodes retrieved were $12.96 \pm 4.1$ (5−23) in the decubitus position and $14.96 \pm 4.7$ (8−34) in the supine position ($p > 0.05$). The average pNratio was $15 \pm 22\%$ in the decubitus position and $27.5 \pm 29\%$ in the supine ($p > 0.05$).

**Conclusion:** The results show that within the confines of this study there is no statistically significant difference between the numbers of lymph nodes retrieved in either the lateral decubitus or supine positions. This suggests that ANC in the lateral decubitus position is an oncologically safe procedure in patients undergoing immediate breast reconstruction with ALD flap.

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**Breast reconstruction with extra-projection medium size implants**

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**Background:** Several manufacturer have introduced new extra-projection implants during the last few years. Reconstructive surgery in the past aimed to recreate a symmetrical breast mound t using large and invalidating myo-cutaneous flaps and avoiding any contra-lateral procedure. Nowadays new anatomical prosthesis allow us to mould for all women undergoing breast reconstruction a cosmetically effective medium size bosom.

**Methods:** Two-hundred-thirty-four women received 238 extra-projection breast implants. Degree of ptosis, firmness, and symmetry were examined in outpatient clinics. Patients satisfaction and surgeons opinion was recorded; pre- and postoperative photographic evaluation was performed.

**Results:** Two-hundred-thirty-eight extra-projected implants were inserted (four bilateral procedures, mean follow-up 18 months). Thirty-two patients were lost to follow up, leaving 206 valuable implants. Mean volume was 456 cc; the mean volume according to contra-lateral procedures was 397 cc for augmentation, 441 cc for contra-lateral mastopexies, and 533 cc for reductions. A total of 197 patients received contra-lateral procedures, including 82 augmentations, 55 mastopexies, and 60 breast reductions. The complication rate was 9.5%. Baker Grade III capsular contracture was observed in 32 (15.5%) of 206 breasts. No cases of Baker Grade IV were described. Outcome evaluation at one year is reported for the whole population and in three subgroups subdivided according to contra-lateral technique. Hundred-and-thirty-six patients (66%) at examination reported a good opinion of result, shape and symmetry was considered good by plastic surgeons in 113 (54.8%), and 155 (75.2%). Subpopulations subdivided according to contra-lateral procedures revealed the highest rate of positive opinion in patients who underwent augmentation (74%, $P = 0.001$) and the highest rate of bad opinion in those who received a mastopexy (10.4%,

P = 0.001). Similar results are reported by surgeons regarding symmetry assessment.

**Conclusions:** Extra-projection devices have set the pace for the contemporary goal of reconstructive surgery. Our new approach creates a medium-size breast, highly projected, with a little to moderate ptosis. Myocutaneous flaps loose their role in large breast reconstruction and they can be offered only to radio-treated patients. The best results are obtained in patients who undergo contra-lateral augmentation.

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**Individualized implementation strategy of breast cancer surgery in 24 hours admission: successful without loss of quality of care as perceived by patients**

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Breast cancer surgery in a day care or 24 hours setting is an accepted and safe protocol but not yet common practice though the whole of Europe yet. Goals of this study were to develop an ultra short (admission, surgery, and discharge the same day or within 24 hours) admission programme for patients operated on for breast cancer, and to implement this programme at several institutions. Fundamental aspect of the programme is an adequate recovery in the home situation. To achieve these goals tailor made implementation strategies were applied. Quality of care was measured through the patients' eyes to test whether it had decreased in the measurement after as compared to the measurement previous to implementation.

The study design was pre-post uncontrolled, and was performed in four early adopter hospitals in the Netherlands. The intervention concerned the ultra short admission programme as developed by the University Hospital Maastricht. The implementation strategies involved several aspects such as regular multidisciplinary meetings combined with outreach visits. They were dependent on and adjusted to the needs of each hospital, and were based on results of diagnostic analyses which had been performed before the intervention. Clinical outcome measures concerned the percentages of patients treated in ultra short admission, number of complications, number of ER visits, number of readmissions, and number of reoperations. These data were collected six months before and six months after the implementation period of also six months. Also, patients were asked to assess quality of care through the QUOTE breast cancer in both measurements.

Although ultra short admission was already common practice in one of the hospitals, the percentage of patients treated in ultra short admission had increased in the other three hospitals: hospital 1: 5% during the pre and 74% during the post measurement; hospital 2: 24% during the pre and 74% during the post measurement; hospital 3: 94% during the pre en 95% during the post measurement: hospital 4: 40% during the pre and 85% during the post measurement. Mean number of visits to the emergency room, complications, readmissions, and reoperations were comparable for both measurements (P > 0.05). Results of the QUOTE breast cancer showed no clear decrease in the post as compared to the pre measurement. However, in an ultra-short admission setting extra attention should be paid to information about drains, prostheses, and exercises following surgery.

Using a hospital-specific approach for implementation, this study shows that introducing an ultra short admission programme for breast-cancer surgery is possible without a decrease in quality of care, as formulated and assessed by breast-cancer patients.

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**Late complications of 100 breast reconstructions using permanent expander**

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**Background:** Breast reconstruction with the use of permanent expanders may be an attractive alternative due to relative technical simplicity, but complications may result in an unacceptable final effect. We evaluate late complications in a group of patients with postoperative follow-up longer that 2 years.

**Material and Methods:** A group of 100 patients, aged 30−71 (mean 50), with complete data on post-operative course, were assessed for late complications after breast reconstruction performed with the use of saline-filled permanent expander. The follow-up period ranged between 2 and 5 years.

**Results:** Late inflammatory process (observed several months or even years after initial surgery) resulting in removal of an implant, occurred in 9 cases. Such process, treated successfully with antibiotics, with implant salvage, occurred in additional 3 cases. Thus, late inflammation (infection) of various intensity was noted in 12% of patients.

Implant deflation requiring exchange for a new device was observed in 8%.

Severe capsular contracture and improper implant positioning, requiring capsulotomy or capsulectomy occurred in 9 cases. The same condition concomitant with implant exchange was observed in additional 4. Thus, a total number of implants removed reached 21 (21% of all cases).

Only 5 patients of the whole group had radiotherapy before reconstruction. This low number does not allow to draw definite conclusions, but it's noteworthy that 3 of them had their implants removed due to extensive scarring.

**Conclusion:** The frequency of severe late complications after breast reconstruction with the use of permanent expanders is considerably high, and deserves further detailed studies.

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**Factors affecting aesthetic outcome in screen detected breast cancer**

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**Background:** Breast cancer treatment mandates that the therapeutic outcome is acceptable to patients. Aesthesis is a critical measure of outcome in breast cancer survivors. Many factors influence aesthetic outcome following breast cancer surgery, and these may be influenced by surgical planning. To explore this we examined outcome in patients following breast conserving surgery.

**Materials and Methods:** We identified 100 patients following completion of treatment from the National Breast Screening Program. We utilised a previously validated questionnaire and further developed this to measure aesthetic outcome. Patients were invited to score their treatment plan and outcome. This was then correlated with surgical variables.

**Results:** When asked to score their treatment 1−10 (poor-excellent) the mean score was 8.2 with a median of 9. For aesthetic outcome (score 1−5, very dissatisfied – completely satisfied) the mean score was 4.6. However, we identified re-excision of margins, wide margins and excision of skin for breast conservation as independently poor indicators of aesthetic outcome ($p < 0.05$).

**Conclusion:** Patients detected through population based screening score highly for overall satisfaction following therapy. Aesthetic outcome is also good; however several surgical factors do correlate with a poorer aesthetic result.

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**Latissimus dorsi flap for total or partial breast reconstruction – the experience of the European Institute of Oncology**

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**Background:** Total or partial breast reconstruction is currently considered a keystone step on breast cancer multidisciplinary care. Latissimus dorsi flap (LDF) for breast reconstruction is a good option when reconstruction is not feasible with an implant only.

**Material and Methods:** From October 1995 to February 2007, 132 patients underwent a LDF breast reconstruction. All patients underwent surgery at the IEO. Immediate reconstruction was performed by a double team. Delayed reconstruction was performed by the plastic surgery team only. When necessary, breast implant was inserted behind the flap. Data were gathered from our electronic patient medical records.

**Results:** Mean follow up was 24.5 months. Total breast reconstruction was performed on 113 (86%) patients, and partial reconstruction on 19 patients (14%).

All patients who underwent breast conservative treatment (BCT) received adjuvant radiotherapy, and the frequency of re-operation for local recurrence and/or reshaping was 0%.

Indications for LDF in the mastectomy group were: local recurrence after BCT in 80 patients (71%), locally advanced breast cancer in 4 patients (3%) and mastectomy without radiotherapy in 29 patients (26%).