and those that had a conventional BCS. In the EABS group, 23 patients underwent BCS and 10 underwent a skin-sparing total mastectomy. Six out of 10 patients had a nipple areola complex sparing mastectomy. Seven patients underwent axillary dissection under endoscopic assistance. Thirteen patients had immediate mesh replacement. A total mastectomy was performed due to positive margins on the final biopsy report in one patient. The wounds healed without noticeable scarring. Among 82% of the evaluated cases there was good to excellent results. There was a significant difference in the wound scar ($p = 0.034$) and patient satisfaction ($p = 0.012$) with the cosmetic outcome. Almost all patients were satisfied with the outcome of surgery.

Conclusion: EABS was effective for patients with breast cancer and can be regarded as a surgical option with better aesthetic results; it can be performed via a small and remote wound that becomes inconspicuous after surgery. However, further study with more patients and long-term follow-up is needed.

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The factors influencing axillary lymph node metastasis in patients with T1 invasive ductal carcinoma

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Background: Due to the increment of general interest in breast cancer and the early screening examination, the rate of early breast cancer diagnosis has been relatively increasing. Even at the early stage of breast cancer, the state of axillary lymph node metastasis plays a significant role in treatment and prognosis of the cancer. Therefore, the aim of this study is to identify the state of axillary lymph node invasion and factors influencing the lymph node metastasis among the patients with T1 sized breast cancer.

Materials and Methods: From January 2003 to May 2008, 204 patients diagnosed as infiltrating ductal carcinoma after the breast cancer resection at Gachon University Gil Hospital were enrolled in this study. Age, size and location of cancer, number of tumor, tissue and nucleus grade, lymph vessel infiltration, immunohistochemistry test results such as ER, PR, p53, HER2, Ki67, and state of axillary lymph node metastasis were compared.

Results: Out of 204 patients, 10 patients had cancer size smaller than 0.5 cm (T1a), 22 patients had cancer sized between 0.5 cm and 1 cm (T1b), and 172 patients had cancer size larger than 1 cm (T1c). In regard to the rate of axillary lymph node metastasis, 1/10 (10%), 2/22 (9.1%), and 54/172 (31.3%) patients showed axillary lymph node metastasis in T1a, T1b, and T1c group respectively. Difference of axillary lymph node metastasis among T1a, T1b, and T1c group was statistically significant ($p = 0.039$). The number of tumor was sorted as 1, 2, and more than 3, and each group consisted of 179, 17, and 8 patients respectively. The rate of axillary lymph node metastasis according to the number of tumor was 48/179 (26.8%) in 1 tumor group, 5/17 (29.4%) in 2 tumors group, and 4/8 (50%) in more than 3 tumors group. Their difference was also statistically significant ($p = 0.007$). Furthermore, lymphovascular invasion was statistically significant in patients with axillary lymph node metastasis ($p = 0.000$). In the mean time, we could confirm the result of preoperative axillar ultrasonography in 169 cases. Sensitivity, Specificity, Positive predictive value, Negative predictive value and Accuracy were 48.9%, 86.3%, 56.4%, 82.3%, and 76.3% respectively. The rate of axillary lymph node metastasis did not show the statistical significance in respect of the age of patient, location of cancer, tissue and nucleus class, and immunohistochemistry test result.

Conclusions: We found that size and number of tumor, and lymph vessel infiltration are the significant factors influencing axillary lymph node metastasis of the T1 invasive ductal carcinoma. Furthermore, we expect that size and number of tumor, and state of axillar lymph node in preoperative ultrasonography will provide helpful information at choosing whether to use the axillary lymph node dissection or the sentinel lymph node biopsy.

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True recurrences and new primary tumours have different clinical features in invasive breast cancer patients with ipsilateral breast tumour relapse after breast-conserving treatment

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Background: Ipsilateral breast tumor relapse (IBTR) after breast-conserving treatment (BCT) may represent two distinct types of lesion, including a true recurrence (TR) or a new primary tumor (NPT). The aim of this study was to ascertain the difference between TRs and NPTs and to show the clinical significance of classifying IBTR into these two types of recurrence.

Materials and Methods: Patients ($n = 2,075$) with unilateral *invasive* breast cancer who underwent BCT between 1987 and 2005 at Saitama Cancer Center were analyzed. IBTR was classified into TR and NPT, which was based on all clinical and pathological features of both a primary tumor and IBTR that can be evaluated. IBTR-free survival and the risk factors were analyzed in order to compare the findings for TR and NPT. In addition, the salvage surgical methods for IBTR and overall survival after IBTR were analyzed.

Results: Sixty patients with IBTR were classified into 52 with TR and 8 with NPT. IBTR-free survival was significantly shorter in the patients with TR than those with NPT. Young age, *tumor size*, a positive surgical margin and omission of radiation therapy were significant risk factors for TR. Omission of radiation therapy was the only significant risk factor for NPT. In 27 patients who underwent a repeat lumpectomy for TR, *four* had a second IBTR.

Conclusions: The overall survival after IBTR was worse in patients with TR than NPT. TR and NPT show quite different clinical features. Classifying IBTR into TR or NPT can therefore help to select the most appropriate treatment for IBTR.

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What is a suitable method for immediate reconstruction after partial mastectomy in Korean woman with small or medium sized breast?

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Background: Breast conserving surgery has become increasingly popular. However, it is difficult for many patients to maintain breast shape and similarity. Most Korean women with A- and B-cup breast sized breast have defects and asymmetry after partial mastectomy. Oncoplastic surgery is a relatively new but increasingly used technique in the breast surgery. The absorbable mesh insertion technique following breast conserving surgery (BCS) has been used recently in Korea and Japan, which is easy and time-saving method. This study described the comparison of the cosmetic outcomes between the oncoplastic technique and the mesh insertion technique for Korean woman with small or medium sized breast.

Material and Methods: We tried to apply oncoplastic mammoplasty in 16 patients and insert absorbable Vicryl Mesh® in 29 patients after BCS. 14 of 16 mammoplasty were performed parenchymal rearrangement and 2 were performed latissimus dorsi myocutaneous flap after BCS. 29 cases were inserted absorbable mesh wrapped by absorbable adhesion barrier Interceed® into the defect after BCS. The cosmetic outcome was compared between the two techniques.

Results: The cosmetic outcomes for the oncoplastic mammoplasty were excellent in 9, good in 4 and fair in one. The cosmetic results for absorbable mesh insertion technique were excellent in 2, good in 15, fair in 8 and poor in 4. Absorbable mesh insertion had many adverse effects such as erythma, seroma, contracture, and chronic pain. Two cases of mesh insertion had to undergo reoperation because of severe contracture and pain. There was no adverse effect after oncoplastic mammoplasty.

Conclusions: Parenchymal rearrangement with the volume displacement after BCS showed satisfactory cosmetic outcomes for most Korean woman with small or medium sized breasts and the volume replacement with mesh insertion showed acceptable outcomes for some Korean women.

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Autologous fat graft after breast cancer: Is it safe? − a single surgeon experience with 194 procedures

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Background: Fat grafting is a current plastic surgery technique and its use has been applied in breast surgery, specially in correction of defects due to breast conservative surgery (BCS) and breast reconstruction for cancer. The efficacy of this procedure was improved with Coleman's technique, but it is still controversial. There is lack of data about the safety of this procedure in such patients. **Objectives:** To determine the efficacy, the oncological safety of this procedure and the incidence of mammographic lesions that could be attributable to this procedure.

Material and Methods: One hundred and fifty-eight patients that underwent 194 breast fat grafting procedures were studied. All patients were previously submitted to a breast cancer surgery. Fat grafting technique used was the Coleman's technique and performed by a single surgeon. Patients were followed up with clinical and radiological examination.

Results: Mean follow up time was 18.3 months (range from 6 To 49 months). It was performed after BCS in 77 cases (62 patients) and after breast reconstruction in 114 cases (93 patients). Most of the patients required just one procedure. Immediate complication was observed in 7 cases (3, 6%) and consisted of liponecrosis and cellulites. Follow up was made at least once after 6 months of the procedure. Only in 4 cases (5.9%) of the BCS group mammogram became abnormal after the procedure but always classified as benign lesion, with no need of further investigation. In 54 cases (70.1%), mammogram did not changed.

During the follow up, there was just one case of local recurrence (LR) that was misdiagnosed in the day of the procedure. Therefore we do not associate this LR to the procedure. Three patients were metastatic (bone metastasis) before the procedure. During the follow up the lesions were stable. No further events were identified.

Conclusion: This study is pioneer one and shows that breast fat grafting technique is effective and safe after breast cancer surgery. It is a simple procedure with minimal surgical complications. Local and distant disease control was not affect by the procedure. Mammographic changes were not found in the follow up. Of course further studies and longer follow up is needed to support our data, but no doubt this is a very promising technique with wide indication in the field of breast reconstruction.

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Promoting quality of care through a regional breast cancer surgery community of practice

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To promote uniform high quality breast cancer surgical care in a defined geographic area (population 1.2 million), we implemented a unique Communities of Practice (CoP) model in 2006. The Champlain Regional Breast Cancer Surgery CoP is a network of healthcare practitioners and administrators in eight hospitals that links performance data and quality initiatives with individual and group learning. It leverages the clinical insights and commitment of practitioners and the system-oriented perspective of hospitals. We describe the experience of the CoP and lessons learned.

The CoP has functioned through a process of collaborative priority setting and annual workshops, quarterly journal clubs and weekly diagnostic/planning rounds (video-conferenced with regional hospitals), participant surveys, and e-mail newsletters and meeting summaries. Participants represent surgery, diagnostic imaging, pathology, medical and radiation oncology, nursing, social work, and hospital program leaders and administrators. Retrospective data (e.g. clinical volumes, mastectomy rates, re-operation rates) have been developed and shared. More detailed quality indicators (e.g. wait times, sentinel node procedure rates, positive margin rates) are currently being acquired.

The CoP has met with high levels of satisfaction and has strengthened relationships among practitioners and hospitals as evidenced by survey responses. Multidisciplinary and academic/community practitioner participation have been sustained. As an early priority, the CoP developed regional recommendations for managing patients with early stage breast cancer based on a process of evidence review and consensus. Standardized patient education materials have been developed and centralized educational programs established. Clinical mentoring and institutional collaboration have led to the establishment of sentinel node procedures in five hospitals. Clinical pathways reflecting combined best practices have been adopted across the region. Participants have placed a high value on the promotion of regional linkages and a culture of collaboration by the CoP, support of individual innovations, and the development of regional standards. A majority have indicated the intention to modify their practices based on CoP activities.

The Champlain Regional Breast Cancer Surgery CoP is a unique model that promotes collaborative learning and high quality care across a network of healthcare practitioners and hospitals. Active management of the CoP, support for the necessary infrastructure, ensuring the clinical relevance of CoP activities, executive sponsorship, and accurate and timely performance data are key success factors. Competing personal priorities are the main barrier to full CoP participation. There remains the need for more detailed data to support CoP and related activities and to formally evaluate the impact of the CoP on quality of care and clinical outcomes.

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The QUEST Trial: a multi-centre randomised trial to assess the impact of the type and timing of breast reconstruction on quality of life following mastectomy

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Aims: To evaluate Health Related Quality of Life (HRQL) as a primary outcome measure in women undergoing Latissimus Dorsi breast reconstruction (LDBR)

Background: Breast reconstruction is performed to improve HRQL for women facing mastectomy, but there is a paucity of high-quality evidence to suggest optimal type or timing of surgery to guide patients and their surgeons in making informed decisions regarding their options in the future. This is particularly evident in the context of post-operative radiotherapy. A randomised clinical trial (RCT) is required, but as this is a novel approach internationally, a feasibility study is essential to assess acceptability of randomisation.

Methods: Funding has been awarded for a multicentre RCT consisting of two parallel phase III trials. Trial A compares autologous extended LDBR (ALD) with implant-assisted LDBR (LDI) for women where post-operative radiotherapy is not required; Trial B compares immediate with staged-delayed ALD (with initial temporary subpectoral tissue expander) for women where post-operative radiotherapy is anticipated. Centres can opt to participate in one or both trials.

Results: The trial is currently in development with extensive consumer input regarding the patient information sheets and the production of a patient information DVD. Their contributions have optimised communication in relation to the concept of randomisation and the trial design. Detailed patient and Health Care Professional (HCP) questionnaires and interviews will be used to gauge perceptions of equipoise evidence and randomisation.

Conclusion: As the rate of survival of breast cancer increases, HRQL is an increasingly relevant outcome. It is only through a RCT, however that Level I evidence can be produced to allow women to make informed decisions regarding their reconstructive options in the future. A randomised trial in breast reconstruction is a challenging proposal for both patients and their surgeons, but one which is desperately needed.

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Mammographic volumetric assessment to predict specimen weight after BCS for breast cancer: development of a new tool for quality assurance

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Background: Breast conserving surgery (BCS) is well established in the management of breast cancer. Good local control can be achieved once margins are clear. To achieve margin clearance surgeons excise a variable amount of tissue with often unnecessary and extensive radial margins. Large unnecessary excisions have potential adverse cosmetic effects. There is no requirement at present to record specimen weight and none is recorded in operation notes or pathology reports. There is no established pre-operative planning and quality assurance tool to help surgeons minimise excessive tissue loss during BCS. We describe a simple tool to predict specimen weight after BCS for breast cancer which can be developed into a QA measure.

Method: Consecutive patients from September 2009 undergoing BCS for breast cancer were included in the study. Volumetric assessment of the cancer was made from the mammogram. The maximal antero-posterior (a) and medio-lateral (b) dimension was measured in cm from the cranio-caudal view of the mammogram and the cranio-caudal (c) measurement was taken from the oblique view. Volume, in cubic centimetres, can be measured by multiplying a, b and c. The dimensions of the proposed excision were taken as a+1, b+1, and c+1 and the volume calculated. The volume in cc co-relates with weight in grams. For each tumour size a predicted weight of the excision specimen was made. The proposed excision dimensions were marked on the skin and the lesion excised by a peri-areolar incision or a curvilinear incision over the lump. The cavity walls were clipped, for radiotherapy purposes, using titanium clips. Complete excision was confirmed either by palpation or specimen ultrasound of lesions in dense breasts where palpation was difficult.

Results: 30 patients were included in the study. Two had bilateral cancers, therefore a total of 32 procedures were performed. The age range of patients was 34 to 72. Tumour size varied from 7 mm to 43 mm. All