

**Methods:** In the time interval from 1998 to 2007, 357 patients with a diagnosis of in-situ or invasive breast cancer underwent surgical treatment at two medical centers in Tehran (known as AZAR sample). According to patient's clinical characteristics, tumor features and the patient's preference they were assigned to either breast conserving therapy or modified radical mastectomy groups. Tumor size per se was not a strict criterion for selection of surgical therapy; so breast conserving surgery was performed in selected patients with tumors larger, than 5 cm or stage III<sub>A</sub> disease. Surgical team and technique, neo/adjuvant treatment plans and follow-up protocols were similar for all patients.

**Results:** Overall 204 (57%) and 153 (43%) patients underwent modified radical mastectomy (MRM) and breast conserving Surgery (BCS) respectively. 31 patients (8.75%) developed disease recurrence, namely 5 cases of locoregional (16%) and 26 cases of distant metastasis (84%). Clinical stage was the most important predicting factor for local recurrence, followed by tumor size ( $P = 0.0001$ ), and premenopausal state.

Clinical stage and degree of lymph node involvement were important predictors of distant metastasis. There was no statistically significant difference in recurrence between BCS and MRM groups in similar clinical stages.

**Conclusion:** Locoregional and systemic recurrence is associated with a significant decrease in overall and disease free survival among patients with invasive breast cancer. Tumor size, clinical stage, lymph node involvement and premenopausal state are closely related to the risk of recurrence. However, there seems no significant difference in the rate of recurrence, disease-free or overall survival in patients undergoing BCS or MRM. Moreover breast conserving therapy could be considered as a safe and effective treatment for selected patients with T3 tumors or stage III<sub>A</sub> disease.

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#### Laparoscopic oophorectomy: should it be considered in pre-menopausal women requiring aromatase inhibitors?

A. Al-Allak<sup>1</sup>, A. Chaudhry<sup>2</sup>, A. Sahu<sup>2</sup>. <sup>1</sup>Cheltenham General Hospital, General surgery, Cheltenham, United Kingdom; <sup>2</sup>Frenchay Hospital, Breast Care Unit, Bristol, United Kingdom

**Introduction:** For the last few years the role of aromatase inhibitors (AI's) in pre-menopausal women has been an area of interest to both surgeons and oncologists. In the past some women have been treated with AI's based on the absence of menses even though hormonal profiles may suggest otherwise. In these cases this had led to the resumption of their menstrual cycle. This problem has been the main drive to employ different methods to suppress the ovaries by either temporary or permanent means. At our breast care centre we have performed bilateral salpingo-oophorectomy on this specific group of women for the purpose of re-commencing AI's. The aim of this study was to review the outcome of treatment in this patient group.

**Methods:** All women who underwent surgery between June 2003 and November 2009 were identified from a prospectively maintained data base. They were all pre-menopausal women with ER positive cancer initially commenced on AI's leading to the resumption of menses. Patients with a pre-operative hormonal profile were identified.

**Results:** A total of 42 women underwent surgery during the six years. Their median age was 45 years (range 33-57). Tumours were mainly invasive ductal carcinoma grade 2 to 3 with 15 patients found to have nodal involvement. Histological assessment of the ovaries revealed one case of primary ovarian malignancy and three cases of secondary metastatic deposits. For those with hormone profiles LH and FSH were not accurate predictors of menopausal status indicating that women were post menopausal when high levels oestradiol suggested otherwise. All women were able to commence treatment with AI. Only one patient required overnight stay for a haematoma, two developed wound infections and one suffered from severe menopausal symptoms for one month, for which she required no further treatment.

**Conclusion:** This study demonstrates that there is an increasing role for laparoscopic oophorectomy in pre menopausal women being considered for AI's and should be considered. Also when assessing menopausal status then oestradiol should be included.

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#### Early complications of mastectomy

S. Gawne<sup>1</sup>, N. Barnes<sup>1</sup>, A. Kordzadeh<sup>1</sup>, F. Koussa<sup>1</sup>, R. Prasad<sup>1</sup>, J. Todd<sup>1</sup>. <sup>1</sup>Royal Albert Edward Infirmary, Breast Surgery, Wigan, United Kingdom

**Background:** Early complications of breast cancer surgery contribute to a worse experience for patients and may delay adjuvant treatment. We wished to determine predictive factors for complications and prolonged stay after mastectomy.

**Method:** We reviewed 178 patients aged 29 to 89 (median 62) who underwent mastectomy from April 07 to August 08 under three surgeons.

Haemoglobin concentration was measured preoperatively and on the first postoperative day as an indicator of peri/postoperative blood loss. Day one drain output was used as a marker of postoperative blood loss. Univariable and multivariable analysis with linear and logistic regression were undertaken using a number of possible explanatory variables. Hospital stay, wound complications and seroma formation were used as outcome measures.

**Results:** Both peri-operative and post-operative haemorrhage were significant predictors of prolonged in patient stay ( $p < 0.0006$ ). The table shows factors associated significantly with blood loss.

Peri-operative blood loss	Post operative blood loss
Simultaneous reconstruction ( $r = 0.314$ , $p < 0.0001$ )	Simultaneous reconstruction ( $r = 0.603$ , $p < 0.0001$ )
Length of surgery ( $r = 0.275$ , $p = 0.0002$ )	Length of surgery ( $r = 0.564$ , $p < 0.0001$ )
Pre-op Temp $< 35.5$ ( $r = -0.146$ , $p = 0.0398$ )	Pre-op Temp $< 35.5$ ( $r = -0.221$ , $p = 0.0018$ )
Post-op Temp $< 35.5$ ( $r = -0.152$ , $p = 0.0325$ )	Post-op Temp $< 35.5$ ( $r = -0.215$ , $p = 0.0024$ )
Surgicel ( $r = 0.292$ , $p < 0.0001$ )	Area of breast tissue excised ( $r = 0.151$ , $p = 0.034$ )
Blade dissection ( $r = 0.385$ , $p < 0.0001$ )	Pre op MAP ( $r = 0.182$ , $p = 0.0102$ )
	Post op MAP ( $r = 0.166$ , $p = 0.0193$ )

Multivariable analysis also demonstrated smoking as a significant predictor of post-operative blood loss ( $p < 0.02$ ).

In addition to blood loss, other significant factors leading to prolonged in patient stay included diabetes ( $p = 0.0276$ ), age  $> 62$  ( $p = 0.001$ ) and ASA 3 or 4 ( $p < 0.0001$ ).

Significant predictors of wound complications included diabetes ( $p = 0.03$ ) and pre-op heart rate ( $p = 0.01$ ). Low pre-operative temperature was inversely related ( $p = 0.04$ ).

**Conclusions:** Blood loss was associated with a longer hospital stay. This study identified a number of factors contributing to blood loss including blade dissection, length of surgery, area of tissue excised, simultaneous reconstruction, pre and post operative MAP and smoking. This audit has led to a change in practice from blade dissection to diathermy. Diabetes and pre-op heart rate (HR) were associated with an increase risk of wound complications, with HR being highly significant.

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#### Endoscopy-assisted breast surgery for breast cancer: a comparison with conventional breast conserving surgery

Y.I. Hong<sup>1</sup>, H. Shin<sup>1</sup>. <sup>1</sup>Myongji Hospital Kwandong University College of Medicine, Department of Breast Care Center, Goyang-si Gyeonggi-do, Korea

**Background:** Endoscopy-assisted breast surgery (EABS) has been used successfully for plastic surgery aesthetic procedures such as breast augmentation, breast disease, and even malignant diseases of the breast without reducing the therapeutic effects. EABS can be performed with small and remote incisions that are inconspicuous after surgery. We report herein the aesthetic and treatment results of EABS in patients with breast cancer compared to conventional breast-conserving surgery (BCS).

**Materials and Methods:** To improve the cosmetic outcome, EABS, which can be performed through minimal axillary, periareolar semicircular, or both, incisions, was undertaken. A 3-cm axillary skin incision was made along the axillary skin crease; the work space was created with a wound retractor. After the retromammary space was dissected through the axillary incision, we made a periareolar incision to excise tissues, partially or totally, under endoscopic assistance. We also performed a dye- or radioisotope-guided sentinel lymph node biopsy and dissected axillary lymph nodes (level I and II) under endoscopic assistance, and carried out frozen section biopsies to assess tumor invasion at the resection margins. In 13 cases that were to undergo BCS, volume replacement with absorbable 910 polyglactin mesh was placed into the defect to minimize the breast deformity after endoscopy-assisted BCS. The following information was obtained: patients' clinical and histopathological characteristics, operative procedures, surgical outcomes, cosmetic evaluation, and patient satisfaction.

**Results:** We retrospectively analyzed 50 consecutive patients with breast cancer that underwent EABS between June 2006 and November 2008. Thirty three underwent EABS, and 17 had conventional BCS. There was no significant difference in patient characteristics, tumor characteristics, operation time, or blood tests between patients undergoing EABS

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

H.K. Park<sup>1</sup>, M.H. Hur<sup>2</sup>, C.K. Yom<sup>3</sup>, W.H. Seo<sup>1</sup>, S.Y. Park<sup>1</sup>, T.H. Lee<sup>1</sup>.

<sup>1</sup>Gachon University, General Surgery, Incheon, Korea; <sup>2</sup>Kwangdong University, General Surgery, Seoul, Korea; <sup>3</sup>Sungkyunkwan University, General Surgery, Seoul, Korea

**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 axillary 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 axillary 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

Y. Ishikawa<sup>1</sup>, T. Yoshida<sup>1</sup>, H. Takei<sup>1</sup>, M. Kurosumi<sup>2</sup>, T. Higuchi<sup>1</sup>, Y. Hayashi<sup>1</sup>, K. Inoue<sup>3</sup>, J. Horiguchi<sup>4</sup>, Y. Iino<sup>5</sup>, T. Tabei<sup>3</sup>. <sup>1</sup>Saitama Cancer Center, Breast Surgery, Saitama, Japan; <sup>2</sup>Saitama Cancer Center, Pathology, Saitama, Japan; <sup>3</sup>Saitama Cancer Center, Breast Oncology, Saitama, Japan; <sup>4</sup>Gunma University, Thoracic Visceral Organ Surgery, Gunma, Japan; <sup>5</sup>Gunma University, Emergency Medicine, Gunma, Japan

**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?

T. Kim<sup>1</sup>, K. Byun<sup>1</sup>, Y. Kim<sup>1</sup>, S. Kim<sup>1</sup>. <sup>1</sup>Pusan Paik hospital Inje University, General Surgery, Busan, South Korea

**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<sup>®</sup> 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<sup>®</sup> 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 erythema, 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

F. Brenelli<sup>1</sup>, M. Rietjens<sup>2</sup>, F. De Lorenzi<sup>2</sup>, F. Rossetto<sup>2</sup>. <sup>1</sup>State University of Campinas, Gynecology department - Breast Surgery Division, Campinas - São Paulo, Brazil; <sup>2</sup>European Institute of Oncology, Plastic and Reconstructive Surgery, Milan, Italy

**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.