conserving surgery, especially in the patients which had small to moderate sized defect on breasts.

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Oncoplastic Techniques for Reconstruction of Partial Breast Defectsbased On Tumor Location and Excised Breast Volumein Small- to Moderate-sized Breast

J. Yang[1], J. Lee[1], K. Nam[2], J. Lee[2], W. Kim[2], J. Jung[2], H. Park[2], Y. Lee[3]. [1]*KyungPook National University Hospital, Plastic and Reconstructive Surgery, Daegu, Korea;* [2]*KyungPook National University Hospital, Surgery, Daegu, Korea;* [3]*Hyosung Hospital, Surgery, Daegu, Korea*

Background: Oncoplastic breast surgery has become an increasingly popular treatment for breast cancer. However the average breast size of Korean women is not as large as that of western women, many women may compromise the cosmetic outcome especially with small to moderate sized breasts. This study provides a comprehensive overview of oncoplastic techniques based on tumor location.

Materials and Methods: From January of 2007 to June of 2011, 134 women underwent breast-conserving surgery with various oncoplastic techniques. If the excised breast volume in patients with small to moderate sized breasts was less than 100g, the patients were divided into three groups: superiorly-located group, centrally-located group (the location of breast cancer was within 2 cm from areolar margin) and inferiorly-located group. In superiorly-located group, from inner quadrant to outer quadrant, rotational flap, tennis racket technique, reduction technique (inverted T, vertical type), thoracoepigastric flap, intercostal artery perforator (ICAP) flap and lateral thoracodorsal flap were applied. In centrally-located group, purse string suture, linear suture, reduction technique, thoracoepigastric flap, ICAP flap and adipofascial flap were applied. In inferiorly-located group, tennis racket technique, reduction technique, thoracoepigastric flap and ICAP flap were applied. Regardless of the location of breast tumor, if excised mass weight was over 100g, volume replacement technique was required. If excised mass weight was from 100g to 150g, ICAP flap and thoracodorsal artery perforator (TDAP) flap was performed. And if over 150g, latissimus dorsi myocutaneous flap was performed.

Results: The patients who had superiorly-located breast cancers underwent oncoplastic techniques including rotational flap (n = 14), tennis rocket technique (n = 13), reduction technique(n = 4), thoracoepigastric flap (n = 2), ICAP flap (n = 8), lateral thoracodorsal flap (n = 2) and latissimus dorsi myocutaneous flap (n = 17). The patients who had centrally-located breast cancers underwent oncoplastic techniques including purse string suture (n = 8), linear suture (n = 8), reduction technique (n = 2), thoracoepigastric flap (n = 2), ICAP flap (n = 7), adipofascial flap (n = 2) and latissimus dorsi myocutaneous flap (n = 3). The patients who had inferiorly-located breast cancers underwent oncoplastic techniques including tennis racket technique (n = 7), reduction technique (n = 15), thoracoepigastric flap (n = 1), ICAP flap (n = 5), TDAP flap (n = 3) and latissimus dorsi myocutaneous flap (n = 11). The average specimen weight was 129.7g. Contralateral breast surgery (mastopexy, augmentation or reduction mammoplasty, and so on) was performed, if needed to restore the symmetry. The majority of patients were satisfied at the cosmetic result that evaluated in 15 months.

Conclusion: Oncoplastic techniques in patients with small to moderate sized breasts also can be reliable and useful procedure in the correction of the breast deformity after breast conserving surgery.

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Radioactive Seed Localization for Non-palpable Breast Cancer – a Systematic Review

M. Barentsz[1], M.A.A.J. van den Bosch[1], W.B. Veldhuis[1], A.J. Witkamp[2], P.J. van Diest[3], H.M. Verkooijen[4]. [1]*University Medical Center Utrecht, Radiology, Utrecht, The Netherlands;* [2]*University Medical Center Utrecht, Surgery, Utrecht, The Netherlands;* [3]*University Medical Center Utrecht, Pathology, Utrecht, The Netherlands;* [4]*University Medical Center Utrecht, Imaging Division, Utrecht, The Netherlands*

Background: Radioactive seed localization (RSL) is an alternative to guidewire localization (GWL) to guide surgical excision of non-palpable breast cancer. This systematic review provides an overview of the available evidence on feasibility and accuracy of RSL in patients undergoing breast conserving surgery.

Material and Methods: Pubmed, Embase and Cochrane were systematically searched in October 2011 for studies addressing radioactive seed localization for non-palpable breast cancer, using an Iodine-125 seed. Studies were deemed eligible if they reported on proportion of patients with tumor positive margins after RSL, proportion of patients needing re-excision after RSL, and procedural complications.

Results: Out of the 152 hits, six studies addressing RSL in 1615 patients with non-palpable breast lesions, were included. Overall complete resection rates ranged from 73% to 97%. Three studies included over 300 patients, and complete resection rates in these studies varied between 89% and 97%. Surgeons indicated a strong preference for RSL. Risks of seed migration and placement failures were acceptable, ranging from 0−0.6% and 0−7.2% respectively.

Conclusion: Localization and subsequent resection of non-palpable breast lesions can be successfully performed using guidance of radioactive seeds. The current available scientific evidence suggest that RSL is comparable to GWL in terms of achieving complete resection rates and in reoperation rates. Additional advantages of RSL include higher efficiency and flexibility in scheduling operative procedures.

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Oncoplastic S-shaped or Reverse S-shaped Rotation Flap Reconstruction After Quadrantectomy as a New Option for Lower Half Located Breast Cancer

J. Kim[1], J. Lee[1], E. Chang[1], J. Yoo[1]. [1]*Chungnam National University Hospital, Surgery, Daejeon, South Korea*

Background: When performing breast conserving operations, inferior cosmetic outcome has been reported in lower half breast tumors, particularly in women with small firm breasts. We report here about the use of S-shaped or reverse S-shaped rotation flap reconstruction to improve cosmetic outcome in patients with lower half-located breast cancer.

Methods: Thirty three patients with invasive breast cancer located in the lower half of the breasts, which were more than two centimeter apart from the nipple, were included. After completing quadrantectomy, single S-shaped or reverse S-shaped incision was made from axilla to tumor site. Two triangular skin islands, one on the axilla and one overlying the tumor were marked for excision. Once the fibroglandular tissues and the additional fatty tissue of the lateral chest wall were appropriately mobilized, the breast defect was closed at the mid-point of the parenchymal thickness in order to keep the natural position of the inframammary fold.

Results: Median tumor size was 2.3 cm, ranging from 0.7 to 3.5 cm. With a median follow up of 18.5 months, ranging from 3 to 27.5 months, cosmetic outcome were good (31/33) to fair (2/33) after the radiation therapy and there was no local or systemic recurrence.

Conclusion: Clearly, this type of rotation flap reconstruction is an oncologically safe and a cosmetically sound procedure. Hopefully this rotation flap reconstruction will become more widely available and perhaps a standard procedure for lower half located breast tumors, especially in the small to medium sized breasts.

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Initial Experience with Ultrasound Detectable Clips for Intra-operative Tumour Localization by Surgeons

M. Carmon[1], I. Nikitin[2], D. Gekhtman[3], O. Olsha[4]. [1]*Shaare Zedek Medical Center, Breast Health Center, Jerusalem, Israel;* [2]*Shaare Zedek Medical Center, Radiology, Jerusalem, Israel;* [3]*Shaare Zedek Medical Center, The Rachel Nash Comprehensive Breast Clinic (Hala), Jerusalem, Israel;* [4]*Shaare Zedek Medical Center, Surgery, Jerusalem, Israel*

Background: Biopsy of suspicious breast lesions is often followed by insertion of a metal clip to verify the location of the lesion, simplify surgical procedures that follow, or mark lesions to be treated by neo-adjuvant chemotherapy. Most clips are difficult to detect by ultrasound and require mammographic localization prior to surgery. Hydromark clips (Biopsy Sciences, Clearwater, FL) absorb water molecules, expanding to become visible by ultrasound and containing a metal clip detectable by mammography. Our objective was to check whether Hydromark clips can detected during surgery using intra-operative ultrasound by the surgeon without the need for pre-operative needle localization.

Materials and Methods: Five patients had surgery for breast cancer after Hydromark clip placement. The clip was placed by the radiologist during biopsy in two of the patients. Three additional patients had the clip inserted by the surgeon using ultrasound guidance during surgery for sentinel node biopsy before neo-adjuvant chemotherapy. In the patients having neo-adjuvant chemotherapy, monthly ultrasound was preformed to monitor the rate of decay of the sonographically detectable part of the clip. At surgery, the margins of resection were determined by intra-operative ultrasound performed by the surgeon in 4 patients, without pre-operative needle localization. One patient elected to have a mastectomy.

Results: Initial tumor size in the patients having neo-adjuvant chemotherapy was 2, 4.2 and 5 cm. The Hydromark clip remained easily detectable by ultrasound until the time of surgery at 140 to 182 days after placement. Tumor size in the patients with surgery as initial treatment was 1.8 and 0.9 cm. Closest surgical margins in the four patents who were

treated with breast conservation was 7 mm. One patient had mastectomy after neo-adjuvant chemotherapy. No patient required a second operation.

Conclusions: Clips detectable by ultrasound can simplify surgical treatment in breast conserving surgery for breast cancer. The clips may be inserted during the initial percutaneous breast biopsy or under anesthesia during sentinel lymph node biopsy prior to neo-adjuvant treatment. Pre-operative localization can then be omitted. Hydromark clips are detectable by mammography, are MRI compatible and remained easily visible on ultrasound six months after insertion in our patients. Surgical margins were adequate. Further investigation should focus on comparing this technique with standard pre-operative localization.

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Factors Other Than Margin Status Predict for Recurrence in Borderline and Malignant Phyllodes Tumours

Q. Lu[1], H.M. Liu[1], E.Y. Tan[1], J.J.C. Chen[1], C. Teo[1], M.Y.P. Chan[1]. [1]*Tan Tock Seng Hospital, Breast Unit, Singapore, Singapore*

Background: Borderline and malignant phyllodes tumours (PTs) have the potential for disseminated disease. Surgical resection with adequate margins is therefore advocated. However, there is no consensus as to what constitutes an adequate margin, and furthermore, recurrence and disseminated disease may still occur despite apparently complete resection. In this study, we aim to review the outcome of surgical resection of borderline and malignant PTs, as well as to identify factors that may predict for recurrence.

Material and Methods: Retrospective review was performed of 56 patients diagnosed with borderline and malignant PTs at our institute from 1st January 2000 to 10th October 2011. All patients, except 1 with a malignant PT, underwent surgical resection. A margin of 1 mm was considered adequate. Primary endpoints evaluated included local and distant recurrence.

Results: Of the 56 patients, 38 had borderline PTs and 18 had malignant PTs. There was no significant difference in the age at presentation. Median tumour size in those with borderline PTs was 50 mm (15–215 mm), and was 65 mm (25–250 mm) in those with malignant PTs. Of those with borderline PTs, 24 patients underwent excision biopsy, 6 wide local excision (WLE) and 8 a simple mastectomy; 10 patients underwent further surgery for inadequate margins. Final surgical margins were considered inadequate in 20 patients, but only 2 of these developed local recurrence. Two other patients who developed local recurrence had adequate margins. None developed disseminated disease over a median follow-up of 21 months (1–144 months). In those with malignant PT, 8 patients underwent excision biopsy, 3 WLE and 6 mastectomy. Eight patients underwent a second surgery. Final surgical margins remained inadequate in 4 patients (all had undergone mastectomy). One of these received post-operative chest wall irradiation, but developed recurrent disease (both local and disseminated) after completion. Of the remaining 3 patients, 1 further patient developed recurrent disease and 2 others defaulted follow-up. Among those with adequate margins, 3 patients developed recurrent disease, which was disseminated in 2. Two patients died from disseminated disease.

Older patients were more likely to develop recurrent disease (P = 0.02). A malignant histology (P = 0.04, OR 5.26, 95% CI 0.04–0.89) and high mitotic count (P = 0.01, OR 7.30, 95% CI 0.02–0.76) correlated significantly with the likelihood of recurrence. Although larger tumours were more likely to recur, this did not reach statistical significance. Margin status did not correlate with recurrence.

Conclusions: Recurrence following surgical resection with a 1 mm margin was 10.5% for borderline PTs and 27.8% for malignant PTs. Surgical margin status did not correlate with recurrence. Rather, age, malignancy and the degree of mitotic activity appeared to predict for recurrent disease.

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Harmonic Scalpel Vs. Electrocautery Dissection in Modified Radical Mastectomy − Randomized Controlled Trial

S. Khan[1], S. Khan[1], M. Sheikh[1], N. Haroon[1]. [1]*Aga Khan University Hospital, Surgery, Karachi, Pakistan*

Background: To compare outcomes between harmonic and Electrocautry dissection in female adult patients who underwent modified radical mastectomy (MRM).

Methods: In this randomized controlled trial, the adult females who underwent MRM during 1st april 2010 to 30th may 2011 were randomized to receive either intervention A (harmonic scalpel) or B (electrocautery) by lottery method. The procedure was standardized except raising of the flaps that was performed as per randomization. Two drains were placed i.e. one in axilla and other in flap. Patients were followed up in clinic for four weeks. The outcomes were estimated blood loss (EBL), operating time, drain Volume and drain Days, seroma formation, surgical site infection and postoperative pain. Comparison of groups was done with T-test for continuous and chi-square for categorical variables. Multiple linear regression was done to control the effect of age, BMI, breast volume, tumor size and neoadjuvant chemo radiotherapy.

Results: In each intervention group, 75 patients were recruited consecutively. Both the groups were comparable for baseline variables with age of 48.5±14.5 and 50.5±12.2 years, respectively. Harmonic dissection yielded better outcomes as compared to electrocautry with lower EBL (182±92 vs. 100±62, p-value: 0.00), operative time (187±36 vs. 191±44, p-value: o.49), drain volume (1035±413 vs.631±275, p-value: 0.00), drain days (17±4 vs. 12±3 p-value: 0.00), seroma formation (21.3% vs. 33.3%, p-value: 0.071), surgical site infection (5.3% vs. 23%, p-value: 0.006) and postoperative pain (3.4±1 vs. 1.8±0.6, p-value: 0.00).

Conclusion: Although the harmonic didn't reduce the operative time, however, it significantly reduced post operative discomfort and morbidity to the patient. Based on our results we recommend harmonic dissection in MRM.

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Why Some Surgeons Omit Sentinel Node Biopsy in Breast Cancer Patients? Barriers to Popularize Sentinel Node Biopsy in Low Resource Areas

N. Alavi[1], M. Ebrahimi[2], M. Rezai[1]. [1]*Iranian Center for Breast Cancer Academic Center for Education Culture and Research, Surgery, Tehran, Iran;* [2]*Iranian Center for Breast Cancer Academic Center for Education Culture and Research, Lymphology, Tehran, Iran*

Background: Sentinel node biopsy (SLNB) is now standard of care in early breast cancer, but there are still some limitations for surgeons in low resource areas like some areas in Iran, to do this beneficial method for their patients. Popularizing a new technique like SLNB is the matter that is as important as standardizing it and may be more difficult than it. If we know the reasons for omission of SLNB by surgeons, we can find the ways to encourage them to do it routinely and prevent unwanted side effects of axillary dissection.

Materials and Methods: 105 General and breast surgeons of IRAN participating in CME programs answered questionnaire about if they do sentinel node biopsy for their patients when it is indicated and cause of omission if the answer was not. Surgeons also answered questions about their place of work and percent of their work that was related to breast and how they learned sentinel node biopsy.

Results: 65.75% of the surgeons said that they do not perform sentinel node biopsy routinely for their patients with early breast cancer. This rate was 55% for the surgeons that more than 30%of their surgeries were on breast cancer. Overall the cause of omitting SLNB was lack of facilities such as radioactive injection and detection probe(72.4%), lack of trustable pathologist for sentinel node assessment (6.8%) and Difficulty in discussion for the patients because of unawareness and fear of losing the patient's trust (3.6%). Also 17.2% of surgeons said that they are not educated for sentinel node biopsy or haven't passed the learning curve besides not access to equipments.

Conclusion: Even in present time that sentinel node biopsy is a known standard of care for early breast cancer, some surgeons omit it mainly because of insufficient facilities. If we could offer a low cost method for SLNB in district areas that do not have access to radio labeled drugs or detection probes, it can be done for most breast cancer patients that have tumors with clinical negative lymph nodes.

The low cost method may be using only dye for injection as some researchers reported it with good results (like experience of surgeons in Brigham and Women's Hospital in Boston). Education of pathologists and surgeons and raising awareness of the patients are also helpful to popularize this method.

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Minimally Invasive Nipple Sparing Mastectomy − One Year Monoinstitutional Experience of a Novel Technique

A. Ferrari[1], A. Sgarella[1], S. Zonta[2], A. Scotti-Foglieni[2], D. Grasso[3], F. Dionigi[4], A. Della Valle[1], E. Bombelli[1], M. De Martino[1], E. Trotti[5]. [1]*Fondazione IRCCS Policlinico S. Matteo, Breast Unit, Pavia, Italy;* [2]*Fondazione IRCCS Policlinico S. Matteo, General Surgery 1, Pavia, Italy;* [3]*Fondazione IRCCS Policlinico S. Matteo, Oncology, Pavia, Italy;* [4]*Fondazione IRCCS Policlinico S. Matteo, Psychology, Pavia, Italy;* [5]*University of Insubria, Psychology, Varese, Italy*

Background: Minimally invasive breast surgery is in its infancy, since early reports from Oriental countries failed until now to find out a safe and reproducible procedure. We propose a new video-assisted nipple sparing mastectomy technique (V-NSM) aiming to avoid breast's scars