

with positive resection margins underwent re-excisions and were margin-free diagnosed by intraoperative pathological frozen section analysis. The shave margins were re-excised more often by palpation-guided localization (23.4%) than by the ultrasound-guided procedure (13.3%). Tumor size, histological grade, invasion of lymph vessels and lymph nodes were associated with increased risk of positive excision margins.

Conclusions: Ultrasonography is an effective method for intraoperative tumor localization and can thus enable the surgeons to obtain clear surgical margins by BCS and reduce re-excision rates.

Disclosure of Interest: No significant relationships.

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Oncologic and surgical outcomes after nipple-sparing mastectomy: a single-institution experience

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Aims: The oncologic safety of nipple-sparing mastectomy (NSM) and patient selection criteria remain controversial among various randomized or matched cohort studies. The aim of this study is to investigate the oncologic and surgical outcomes in NSM for early-stage breast cancer.

Methods: Patients undergoing NSM at our institution from June 2011 to May 2016 were identified and the oncologic and surgical outcomes were analyzed. Eligibility for NSM in patients consulting for a therapeutic mastectomy evolved throughout the time period of the study. In general, clinical nipple-areola complex (NAC) tumor involvement (Paget's disease and nipple invasion) was an absolute contraindication. The applied clinical contraindications also included clinical T0-T2 primary breast cancer patients with tumors >5 cm in maximal dimension or <1 cm away from the nipple. Presumed or actual need for neoadjuvant or adjuvant therapy was not a contraindication to NSM. Patient tumor characteristic, neoadjuvant or adjuvant therapy, as well as oncologic and surgical outcomes were collected. Only patients with long-term follow-up (>12 months) were included in the final analysis. Sharp dissection was used to dissect the nipple-areola complex from the underlying breast tissue. Inversion of the nipple with excision of the nipple tissue below the level of the dermis was recommended.

Results: 315 women were included in the analysis, for a total of 324 procedures. NSM performed per year was found to be rising. Patients undergoing NSM were subject to the usual complications after mastectomy, including infection, and seroma. Complications specific to NSM included NAC ischemic injury and necrosis. NAC necrosis rate was 4.0% (NAC ischemic injury was occurred in 3 cases, and the NACs were necrosis finally), and seroma rate was 2.8%. Median follow-up was 33 months. Overall, there were six breast cancer recurrences occurred during follow-up for an overall recurrence rate of 0.2%, one incidence of local recurrence, two isolated regional relapse and two cases of distant metastasis, and in one patient, regional and distant metastases coincided. Two deaths were registered.

Conclusion: NSM is conceived to improve aesthetic outcomes after mastectomy by facilitating breast reconstruction and it appears to be oncologically safe in selected breast cancer patients.

Disclosure of Interest: No significant relationships.

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Long-term outcome of radiofrequency ablation therapy for early breast cancer from single institutional study

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Aims: Radiofrequency ablation (RFA) is one of the non-surgical ablation therapies for early breast cancer (EBC) replacing breast-conserving surgery. Although there are many papers of RFA for EBC

concerning tumor coagulation rate, adverse events and short-term outcomes, long follow-up outcome report is rare in this field. We evaluated long-term outcome of RFA for EBC in our institute.

Methods: We conducted study of RFA for EBC with approval of institutional review board. Major eligibility criteria were invasive ductal carcinoma with tumor size ≤ 2.0 cm, single tumor without ductal spread estimated by MRI, N0 and written informed consent. A single-needle, 17-gauged electrode 10 cm in length with a 3-cm tip exposure (Cool-tip, Valleylab, Boulder, Co, USA) was used for RFA. The tip of the needle was stuck into the center of tumor under ultra-sound image-guide. The tumor cells became inviable by Joule heat.

Results: Twenty-nine EBC patients including one bilateral breast cancer underwent RFA and sentinel LN biopsy between February 2006 and May 2009. The mean tumor size was 12.8 mm (5–19 mm). The mean coagulation time for RFA was 11.4 min (6–20 min). The mean coagulation temperature of the tumor was 89.6°C (78–100°C). Axillary LN dissection was done in 7 patients due to positive sentinel LN. All patients received adjuvant radiotherapy (50 Gy $\pm$ boost 10 Gy) to the breast and optimal adjuvant systemic therapy according to the histological feature of the tumor. Median follow-up time was 96 Mo (87–125 Mo). Two patients had intra-breast recurrences. One had ER–/HER2+ tumor without LN metastasis, the other ER+/HER– tumor with 3 positive LN which disease-free survivals were 65 and 50 Mo respectively. Salvage mastectomy was done for each patient. One patient died from secondary renal cancer at 73 Mo after RFA. None of distant metastasis and breast cancer related death was observed.

Conclusions: RFA is promising and safe treatment option for EBC replacing breast-conserving surgery. Phase II trial of RFA for EBC is ongoing in collaboration with 12 institutions including our site in Japan.

Disclosure of Interest: No significant relationships.

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No association of a positive superficial and/or deep margin with local recurrence in invasive breast cancer treated with breast-conserving surgery

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Aims: We aimed to evaluate the effect of positive superficial and/or deep margins on local failure in breast cancer patients treated with breast-conserving surgery.

Methods: We analyzed 3403 stage I and II invasive breast cancer patients treated with breast-conserving surgery followed by radiotherapy at Asan Medical Center, Seoul, Korea, from January 2000 to December 2008. These patients were divided into 3 groups: group 1 (n = 3195), clear resection margins for all sections; group 2 (n = 121), positive margins in superficial and/or deep sections; and group 3 (n = 87), positive peripheral parenchymal margins regardless of superficial and/or deep margin involvement. Local recurrence was compared between these 3 groups.

Results: The 3 study groups did not differ significantly with respect to age, nodal status, or Her2 status. Group 3 had more patients with a positive extensive intraductal component (EIC), hormone receptor positivity, and without chemotherapy (Table 1). In Cox proportional hazards modeling, a positive superficial and/or deep margin (group 2) was not a significant predictor of local recurrence (P = 0.654). The five-year local recurrence rates of groups 1–3 were 1.9%, 1.7%, and 7.7%, respectively (P = 0.001). There was no difference in the local recurrence rate between patients with a negative margin (2.8%) and those with a positive superficial and/or deep margin (1.7%) with a median follow up of 92.5 months (P = 0.401).

Conclusion: Superficial and/or deep margin involvement following breast-conserving surgery does not affect local recurrence. Routine excision of skin, subcutaneous fat, retromammary fat, or pectoral

fascia during breast-conserving surgery is not recommend to achieve a negative superficial and/or deep margin. It also leads to poor cosmetic results.

Disclosure of Interest: No significant relationships.

Table 1

Multivariate Analysis of the Predictive Factors for Local Recurrence

Variable	HR (95% CI)	p-Value
Age at diagnosis (years)		0.001
>40	1	
≤40	2.12 (1.37–3.29)	0.001
T stage		0.068
T1	1	
T2	1.77 (1.09–2.87)	0.020
T3	0	0.980
Node metastasis	0.92 (0.53–1.62)	0.780
Histologic grade		0.697
1	1	
2	0.74 (0.35–1.54)	0.420
3	0.72 (0.32–1.63)	0.425
EIC present	1.29 (0.75–2.22)	0.359
Hormone receptor status		<0.001
Positive	1	
Negative	2.90 (1.67–5.06)	<0.001
Adjuvant chemotherapy	0.67 (0.36–1.25)	0.207
Resection margin involvement		0.001
Group 1	1	
Group 2	0.56 (0.16–2.69)	0.654
Group 3	4.10 (1.96–8.59)	<0.001

*Cox proportional hazard model.

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The value of peroperative radiographic scanning by biovision (FAXITRON®) at operation theatre for localization of breast lesions in women with early breast cancer

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Aims: Peroperative location of a non-palpable, margin suspicious breast lesion or diffuse microcalcificates is a diagnostic tool-helping surgeon to localize lesion during operation, minimize breast structure damage and achieve safe surgical margins. The most used method is a radiologic scan of the removed sample during surgical procedure. We aimed to describe efficacy and additional value of radiologic peroperative specimen control of breast lesions in patients with early breast cancer, nonpalpable lesions or diffuse microcalcificates.

Methods: A case-based study included 42 patients describing a modern approach of x-ray scanning of surgically removed breast specimen using The BioVision system (Faxitron®). The system raises the standard of care for patients undergoing surgical excision by saving the time in the operation room applying x-raying specimen intra-operatively. The efficacy of scanning was analysed and described.

Results: The BioVision (Faxitron®) x-raying system intra-operative was applied in all enrolled cases (42/100%) patients who underwent surgical excision for breast cancer stage T1-2 with or without microcalcifications. The two (4.8%) patients had a re-operation because of positive margins. Intraoperative was surgical extent modified in 9 (21.4%) cases to achieve complete tumour/califications removal controlled by x-ray scanning. Median age was 52 (range

38–86). They have been followed up at least 24 months (range 6 months – 3.1 years). There was only 1 local recurrence with conversion to mastectomy in the studied group. Moreover, peroperative segmentectomy/quadrantectomy/mastectomy specimen radiography has increased workflow efficiency, decreased costs and pathology report time together with shortening in time interval for beginning with adjuvant treatment.

Conclusion: The x-ray intra-operative scanning by BioVision (Faxitron®) system at the operation room is a sensitive diagnostic tool, which can be used for a comfortable localization of non-palpable breast lesions and microcalcificates to achieve free surgical margins. It is a useful adjunct in helping to achieve low incomplete excision rates, and bring benefits in management of the patients by focusing on the quality improvement in surgical, pathological and oncological processes.

Disclosure of Interest: No significant relationships.

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Single incision approach for breast conservation surgery and sentinel lymph node biopsy

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Introduction: The advent of breast conserving surgery (BCS) and the increased overall survival in breast cancer have placed greater emphasis in optimizing aesthetic outcomes for breast oncological surgery. During breast conservation, oncological safety is balanced with good aesthetic outcomes. In keeping with this trend, placement of incisions is an important consideration. In this study we review a series of breast conservation surgery cases performed via a single incision in the axillary fold to evaluate the oncological safety and aesthetic outcomes of this technique in an Asian population.

Materials and Method: Patients who underwent BCS with sentinel lymph node biopsy (SLNB) using blue dye tracer through a single axillary fold incision at the National Cancer Centre Singapore from October 2012 to October 2016 were retrospectively reviewed.

Patients who underwent BCS for early breast cancer, defined as tumour up to 5cm in the upper outer quadrant of the breast with clinically node negative disease, were identified and selected for this procedure.

Ultrasound intraoperative skin marking of the tumor was done. An incision was made along a skin fold just inferior to the hairline in the axilla. After harvesting the SLN, wide excision was done through the same incision by raising a skin flap. The tumor cavity was not closed using oncoplastic techniques.

Results: A total 13 cases were identified. Median tumor size was 2.5 cm (5.4 to 55mm). An Average age was 51.8 years old (39 to 70 years old). 10 patients had invasive ductal carcinoma, 1 had invasive lobular carcinoma and 2 had mixed invasive ductal and lobular carcinoma. 2 (15.4%) patients had positive margins and went on to receive a completion mastectomy. In 2 (15.4%) patients, SLN was positive for metastases and subsequently underwent axillary clearance. There were no significant post-operative complications and patient reported aesthetic outcomes were excellent. At median follow-up of 25 months, there has been no loco-regional recurrence nor systemic disease in these patients

Conclusion: Single axillary fold incision is an oncologically safe option for women with tumours in the upper outer quadrant. It also produces aesthetically superior outcomes by avoiding a scar in the breast without the need for additional oncoplastic surgery. The authors argue that a longer axillary incision is cosmetically more acceptable than a scar on the breast and hence this technique can be performed safely for carefully selected patients.