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The role of sentinel node biopsy in patients with a pre-operative diagnosis of ductal carcinoma in situ

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Background: There is consensus that extensive high grade (HNG) DCIS on imaging which mandates mastectomy or DCIS presenting as a palpable lesion are indications for SLN biopsy. The incidental discovery of invasive disease following surgery for DCIS without initial axillary staging would require either subsequent formal axillary dissection or observation only.

Material and Methods: A retrospective analysis was undertaken of patients who had concomitant SLN biopsy at the time of definitive surgery for DCIS diagnosed on previous biopsy. The method of biopsy was either a diagnostic excision (<5%) or more usually a percutaneous needle biopsy (core biopsy [14 gauge] or Mammotome biopsy [11 gauge]). A total of 48 patients were identified between January 2005 and December 2007, the majority of whom (33) had screen-detected HNG DCIS which necessitated mastectomy (median size 53 mm; range 10–110). A minority of patients (15) underwent wide local excision together with SLN biopsy for either a) micro-invasion or foci suspicious of invasion on needle biopsy (7); b) papillary DCIS (3); c) palpable lesion (2) or focal mass lesion on imaging (MMG/US) (3).

Results: Within the mastectomy group, 8 patients (27%) with a pre-operative diagnosis of DCIS (6 high-, 2 intermediate-, 1 low-nuclear grade) were diagnosed with invasive carcinoma on final histology. A total of 4 patients (12%) were SLN positive (3 micrometastases, 1 macrometastases) of whom 3 had invasive disease with foci measuring between 1.5 and 12 mm. Despite intensive pathological examination, no invasive tumour could be found in 1 patient with DCIS (>100 mm). Amongst those patients undergoing wide local excision, half (8/15) were diagnosed with invasion on final histology; only 1 of these cases with invasion was associated with a positive SLN (macrometastases) and another had isolated tumours cells only (SLN negative). None of the 5 patients in total with a positive SLN had any further nodal involvement on completion ALND.

Conclusions: SLN biopsy appears justified in patients undergoing mastectomy for extensive HNG DCIS and in selected patients with localized HNG DCIS (clinical or pathological suspicion of invasive disease) in whom there is a significant incidence of invasion on definitive histology (up to 50%); in these patients occasional isolated sentinel node positivity is found. Such a policy avoids any subsequent potential dilemma of axillary staging for small foci of invasive disease (mean tumour size approximately 5 mm).

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Is the sentinel node biopsy for DCIS patients acceptable?

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Background: Ductal carcinoma in situ (DCIS) of the breast, defined as a proliferation of malignant epithelial cells within breast ducts without evidence of invasion through the basement membrane, should essentially not occur lymph node metastasis. Therefore, indication of sentinel node biopsy (SNB) for DCIS is theoretically not necessary. However, it is difficult to make a complete diagnosis of pure DCIS preoperatively, clinical DCIS diagnosis sometimes changes to invasive cancer postoperatively, or pure DCIS with occult invasion causes lymph node metastasis. In the present study, we investigate whether SNB for DCIS patients is acceptable or not.

Materials and Methods: Among the primary breast cancer patients who have received surgery at Niigata University Hospital between 1999 and 2007, the patients who diagnosed as DCIS pre- and/or postoperatively and also received SNB, were entered. The clinical characteristics, surgical procedure, preoperative tumor size, pathological tumor extent and sentinel node status were evaluated.

Results: A total of 364 primary breast cancer patients have received surgery, 21 patients were diagnosed as DCIS preoperatively, however, invasive cancer was found in 4 patients by postoperative pathology, therefore, accuracy of preoperative diagnosis of pure DCIS was 81%. In addition, 2 patients of suspicious for invasive cancer preoperatively, who received surgery and SNB, were diagnosed as pure DCIS by postoperative histology, therefore, the pure DCIS patients was 19 patients, and pure DCIS occupied 5.2% of surgical primary breast cancer. A total of 15 patients of pure DCIS received SNB and the sentinel lymph node (SLN) was detected in 14 of 15 cases (identification rate 93.3%). Among the 14 of pure DCIS patients with successful SNB, positive SLN was observed in one patient and the SLN positive rate was 7.1%. SNB was also performed for 4 patients of diagnosed finally as invasive cancer, SLN metastasis was detected in 2 patients (50%). No complication was observed in all SNB cases. The mean size of pure DCIS was evaluated as 47 ± 22 mm preoperatively, and 47 ± 24 mm postoperatively, however, the postoperative size of SLN positive pure DCIS patient was 35 mm.

Conclusion: Our results suggest that SNB for DCIS patient is acceptable because complete diagnosis of pure DCIS before surgery seems to be quite difficult, SLN metastasis may occur in the case of not so large size of pure DCIS, and SNB procedure is very safe.

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Ductal carcinoma in situ of the breast: review of a single institution's experience

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Purpose: To assess our clinical experience regarding the surgical and radiotherapy management of women diagnosed with ductal carcinoma in situ of the breast and treated at Centre Deschenes-Fabia and Hotel-Dieu de Québec

Methods and Materials: We analyzed 580 cases of ductal carcinoma in situ of the breast without micro invasion: those patients were diagnosed and treated in the same center; Breast Disease Center Deschenes-Fabia and most of them received their radiotherapy at Hotel-Dieu de Quebec between 1990–2004.

Results: The median follow-up time was 4.8 years. Mean age was 56 years old. In the group, 76% were post menopausal women. Four hundred sixty nine patients (80%) underwent a conservative breast surgery. Among the 108 cases (19%) of total mastectomy, 31.5% underwent a simultaneous reconstruction of the breast.

Adjuvant radiotherapy was given to 88% among the group of breast conservative surgery and of this group, 45.5% received a boost.

During the past years, prevalence of ductal carcinoma in situ increased. This augmentation was seen after the setting of the provincial breast cancer screening program in the Quebec City area. However, the number of conservative surgery and total mastectomy were similar. Patients younger than 50 years old had more often total mastectomy than the others. Regarding radiotherapy, the proportion of treated patients increased significantly, especially after 1992 followed by another augmentation after 2000. More over, the use of boost technique increased since 1997. Women older than 70 years old received radiotherapy less often.

Finally, in this cohort of 580 cases, the local recurrence rate was 6.21% (36 patients). All of them were among patients whose underwent conservative breast surgery. Half of local recurrences were infiltrative carcinoma.

Conclusion: In this study of a group of patients treated by one team, surgical and radiotherapy management changed during the past years in accordance with literature. Our recurrence rate was similar to others series.

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Predictors of invasive breast cancer in DCIS initially diagnosed on core biopsy

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Background: A proportion of patients who are initially diagnosed with DCIS on core biopsy would eventually have their disease upstaged to invasive carcinoma – thus warranting some form of axillary staging. This study aims to identify predictors of invasive breast cancer in DCIS diagnosed by core biopsy, which would then help clinicians decide which cases of DCIS diagnosed on core biopsy should have concurrent sentinel lymph node biopsy during excision.

Materials and Methods: The records of 95 consecutive patients diagnosed with pure DCIS on 100 core biopsies from Jan 2005 to August 2007 were retrospectively reviewed. The clinical, radiological, and pathological characteristics of these 100 cases were correlated with presence of invasion or microinvasion on open surgical biopsy.

Results: In this study, the rate of upstaging of DCIS initially diagnosed on core biopsy to definite unequivocal invasive carcinoma on final excision was 21%. Two factors were found to be significantly associated with upstaging: size of target lesion on radiography $\geqslant$20 mm [OR 6.738 (1.050−43.236), p = 0.044] and 10 or less cores obtained on core biopsy [OR 22.343 (2.351–212.385), p = 0.007].

Conclusions: Underestimation of invasive cancer in core biopsy leads to the need to perform a second procedure to stage the axilla. The study has found that patients with these factors have a nearly 40% risk of having invasive cancer on final histology. With the introduction of sentinel lymph node biopsy, these patients may be considered for concurrent SLN biopsy so as to avoid a second procedure.