

cancer, following factors are associated to no reconstruction: age over 50 (OR = 0.22; IC = 0.11–0.44; $p < 0.05$), ASA score over 1 (OR = 0.51; IC = 0.36–0.73; $p < 0.05$), radiotherapy treatment (OR = 0.57; IC = 0.38–0.86; $p < 0.05$), metastatic status (OR = 0.34, IC = 0.13–0.91; $p < 0.05$). For invasive cancer, following factors are associated to reconstruction: professional activity (OR = 2.07; IC = 1.37–3.13; $p < 0.05$), smoking (OR = 1.52; IC = 1.01–2.28; $p < 0.05$), overexpression of HER2 (OR = 1.75; IC = 1.13–2.70; $p < 0.05$).

Rate of answer to the questionnaire was 61% ($n = 81$). 80% ($n = 49$) of patients declared that no reconstruction was a personal choice, for the following reasons: refusal of new surgery (59%, $n = 36$), approval of asymmetry of the body (38%, $n = 23$), complications risk (29.5%, $n = 18$), advanced age (23%, $n = 14$), fright to hide recurrence (18%, $n = 11$), approval of body asymmetry by husband (18%, $n = 11$), financial cost (14.5%, $n = 9$), post-mastectomy pain (9.5%, $n = 4$). Information was considered as absent or deficient in 60% of the patients ($n = 38$).

Conclusion: Reasons of no reconstruction are linked to cancer prognostic, patient's characteristics and ways of live but also to personal choice. This study shows a lack of information. Personal care projects should comport optimal information about reconstruction and no reconstruction when we proposed a mastectomy for our patients.

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Poster discussion

Tumour-related Lymphatic Mapping in Multicentric/multifocal Breast Cancer: Each Tumour Shows an Individual Drainage Pattern

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Background: The purpose of this study was to evaluate the feasibility of lymphoscintigraphy, SPECT/CT, and sentinel node biopsy in patients with multiple invasive tumours. To investigate whether intralesional injection of the radiopharmaceutical in each tumour yields additional sentinel nodes compared to intralesional injection in the largest tumour only.

Methods: Patients were included prospectively in four centers in the Netherlands. Lymphatic flow was studied using planar lymphoscintigraphy and single photon emission computed tomography with computed tomography (SPECT/CT) until four hours after administration of 99mTc-technetium-nanocolloid in the largest tumour. Subsequently, intratumoural injection of the smaller tumour(s) was performed followed by the exact same imaging sequence. Sentinel nodes were intraoperatively localized using a gamma-ray detection probe, vital blue dye, and careful palpation of the axilla.

Results: Fifty patients were studied. Additional lymphatic drainage was depicted after the second and/or third injection in thirty-two patients (64%). Comparison of planar images and SPECT/CT after consecutive injections enabled visualization of the number and location of additional sentinel nodes (thirty-two axillary, eleven internal mammary chain, two intramammary and one interpectoral), of which all but two internal mammary ones could be harvested intraoperatively. The sentinel node contained metastases in seventeen patients (34%). In five patients with a tumour positive node in the axilla that was visualized after the first injection, an additional axillary involved node was found after the second injection. In one patient, isolated tumour cells were found in both an axillary sentinel node and an additional internal mammary sentinel node. In two patients, isolated tumour cells were found in sentinel nodes that were only visualised after the second injection, whilst the sentinel nodes identified after the first injection were tumour negative.

Conclusions: Lymphatic mapping of multiple malignancies within one breast using separate consecutive intratumoural tracer injections assessed by lymphoscintigraphy and SPECT/CT appears to be feasible and reliably depicts the lymphatic drainage of each tumour. The high incidence of additional sentinel nodes draining from tumours other than the largest one emphasizes that separate tumour related tracer injections in patients with multicentric or multifocal breast cancer may result in more reliable staging.

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Poster discussion

Sentinel Node Identification Rate and Further Nodal Involvement in Patients with Multifocal Breast Cancer in the EORTC 10981–22023 AMAROS Trial

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Introduction: The sentinel node biopsy (SNB) is a staging method for the lymph node status in the axilla in patients with primary, unifocal breast cancer. Multifocal breast cancer is associated with a higher risk of nodal involvement and the drainage pattern of multifocal sides may be different. For this reason, the value of the SNB for this indication is debated.

In the EORTC 10981–22023 AMAROS trial, breast cancer patients with a tumour-positive SN were randomised between axillary lymph node dissection (ALND) and axillary radiotherapy. The aim of the current side study was to evaluate the identification rate of the SN and the (non-)SN involvement in patients with a multifocal tumour as compared to a unifocal tumour. Multifocal breast cancer was defined as multiple tumours in one quadrant, sharing the same histological characteristics.

Patients and Methods: The first 4,000 patients participating in the AMAROS trial were evaluated. A group of 342 patients with a multifocal tumour was compared to an unmatched, randomly selected control group of 684 patients with a unifocal tumour.

Results: From the 1026 patients, 1016 underwent SNB. The SN was identified in 97.9% (664/678) of the unifocal patients and 95.8% (324/338) of the multifocal patients. When analysing the location of the identified SN, in 2.7% of the unifocal patients and 3.4% of the multifocal patients, the SN was not located in the ipsilateral axilla. The majority of these sentinel nodes that were found outside of the axilla were located in the internal mammary chain. From the unifocal patients undergoing SNB, 27.9% turned out to have a positive axillary SN compared to 49.7% of the patients in the multifocal group. The distribution of macrometastases, micrometastases and ITC's in the SN was similar in both groups. Further nodal involvement in patients with a positive axillary SN that underwent ALND was found in 38.6% (39/101) in the unifocal group and 40.4% (38/94) the multifocal group.

Conclusion: With a 95.8% detection rate in this prospective international multicenter study, the SNB procedure is highly effective in patients with a multifocal tumour. The distribution and identification rate of the sentinel node appears to be similar to patients with a unifocal tumour. The sentinel node was more often positive in patients with a multifocal tumour, however, further nodal involvement after a positive axillary SN was similar in both groups. Therefore, the sentinel node procedure seems to be adequate for patients with multifocal breast cancer.

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Poster discussion

Sentinel Node Biopsy in Extensive Ductal Carcinoma in Situ (DCIS) Results of the French Prospective Trial CINNAMOME

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Background: DCIS has no metastatic potential. However, the risk of occult invasive disease (ID) exists when the initial diagnosis is performed by vacuum-assisted macrobiopsy (VAMB). ID is usually discovered during the histological analyses following mastectomy, and the only option for patients is complete axillary lymph node dissection (ALND). The aim of this study was to evaluate the number of ALND that can be avoided by using the sentinel lymph node (SLN) procedure to identify patients with ID but negative SLN.

Material and Methods: Patients with extensive microcalcifications on mammography and DCIS diagnosed by VAMB treated by mastectomy were included in the study. The SLN procedure was performed and intraoperative evaluation on frozen sections was carried out. If the SLN was positive an

ALND was performed. If the SLN procedure failed or was negative an ALND was not performed.

Results: Fourteen French cancer centers took part in this protocol over 2 years (2008–2010). 228 patients were enrolled, including 197 DCIS on VAMB. The SLN was identified in 193 cases (98%) but one case was excluded leaving 192 valid cases for analysis.

Table: Distribution of SLN results and histological lesions found on mastectomy specimens in the series

Initial VAMB result	Mastectomy result	SLN results	N (treatment outcome)
192 DCIS	DCIS – 116	Positive	2 (ALND)
		Negative	114 (no ALND)
	DCIS and micro ID – 20	Positive	4 (ALND)
		Negative	16 (ALND avoided)
	DCIS and ID – 56	Positive	21 (ALND)
		Negative	35 (ALND avoided)

ALND, axillary lymph node dissection; ID, invasive disease; SLN, sentinel lymph node; VAMB, vacuum-assisted macrobiopsy.

ALND was not performed for non-ID and negative SLN (n = 114) and ID or micro-ID and negative SLN (n = 51). This meant that ALND was avoided for 67.1% of the patients with ID (51/76, 95% CI [56.5–77.7]), or 26.6% of patients overall (95% CI [20.3–32.8]), whereas these patients would have previously received ALND without the use of the SLN procedure. We observed 39.6% (76/192) of discordance between VAMB results and definitive results from histology analysis after mastectomy across all patients.

Conclusions: SLN is a useful procedure for patients with DCIS diagnosed by VAMB treated by mastectomy and presenting extensive microcalcifications. For patients for whom ID is later identified on the mastectomy specimen, the use of this procedure makes it possible to spare over a quarter of them from ALND and the associated morbidity.

Biological analyses are currently underway to determine predictive factors of invasive disease associated with DCIS.

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Poster

Is the Accumulation Pattern of Lymphoscintigraphy a Predictive Factor of Positive Sentinel Node?

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Background: To accomplish sentinel lymph node (SN) mapping, we routinely perform lymphoscintigraphy (LSG) preoperatively. LSG provides significant information about SN location. However, it is unknown whether the accumulation pattern is a predictive factor of positive SN. Thus, we now investigate the relationship between accumulation pattern and SN positivity.

Patients and Methods: One hundred twenty-nine patients were enrolled in this study. Informed consent was obtained from all patients. There was no axillary lymph nodes involvement clinically in all patients. Negative nodes were confirmed by preoperative breast MRI. LSG was performed in all patients 1 hour after subcutaneous injection of a radioactive agent in the areola area. The radioisotope (RI) used was ^{99m}Tc-labeled tin acid. The average dose of RI administered was 11.1 Mbq. After performing LSG, we checked SN accumulation and classified the accumulation patterns into two types: normal pattern (NP), which was defined as accumulation in only one node in LSG, and variant pattern (VP), which was defined as accumulation in two or more lymph nodes in LSG. After surgery, we compared SN positivity with the accumulation pattern.

Results: In the pathologically negative SN group, 72 cases were NP type and 27 cases were VP type. On the other hand, 16 cases were NP type and 14 cases were VP type in the positive SN group (p = 0.00457). These results suggest that lymphatic tract occlusion caused by the cancer cells leads to the generation of collateral pathways to alternative SNs. The data are summarized in the table.

LSG	Pathology	
	SN negative	SN positive
NP	72	16
VP	27	14

p = 0.00457

Conclusion: Accumulation in one SN was associated with a significantly lower metastasis rate than accumulation in two or more SNs in LSG. This classification may be a useful predictor for SN metastases. In this conference, we will show further data about the relationship between semi-quantitative measurement of LSG accumulation and SN positivity.

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Poster

Sentinel Lymph Node Biopsy After Neoadjuvant Chemotherapy for Breast Cancer – We Need to Define the Group of Patients Who Will Benefit

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Background: The use of sentinel lymph node biopsy (SLNB) to stage the axilla in patients who have undergone neoadjuvant chemotherapy (NAC) for locally advanced disease is controversial and has yet to be validated, despite growing evidence of its feasibility and accuracy. There are concerns that chemotherapy treatment effects include fibrosis of lymphatics with consequent impediment of tracer flow, and that the potential differential sterilization of sentinel and non sentinel lymph nodes by chemotherapy render the sentinel nodes no longer representative of the pathology of the nodal basin.

We report the detection rate and accuracy of SLNB after NAC for locally advanced breast cancer achieved in a prospective pilot study performed in our institution.

Methods: Patients with locally advanced breast cancer who have undergone NAC and have **clinically negative nodes after NAC** were recruited. These patients had SLNB using either blue dye, radio colloid tracer or both, prior to a standard axillary clearance.

Results: Between April 2009 and April 2011, sixteen patients with a clinically negative axilla after NAC underwent SLNB prior to axillary lymph node dissection.

Among the patients with no axillary nodal disease prior to NAC, the identification rate and accuracy of SLNB were 100% respectively.

The sentinel node was not identified in four patients. These patients had large tumours, significant nodal disease prior to NAC and had good response to chemotherapy. During surgery, unusual tracer flow patterns were noted in the patients who had mapping with blue dye. Three patients had a falsely negative sentinel node, with overall false negative rate of 42.8%.

Conclusion: Neoadjuvant chemotherapy affects lymphatic drainage in the breast and axilla, limiting sentinel node identification and accuracy. This effect is noted in patients with large or multicentric tumours with significant nodal disease prior to NAC and who demonstrate a good response to chemotherapy. Patients with tumours less than 5 cm and no nodal involvement prior to NAC do not seem to be affected. We therefore suggest that before embracing the use of sentinel node biopsy to stage the axilla after NAC, larger studies to define the subsets of patient that may safely benefit are needed.

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Systematic Review: Immediate vs Delayed Breast Reconstruction Post-mastectomy

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Background: The mainstay of breast cancer treatment remains surgery, with or without adjuvant or neo-adjuvant therapy. In many women, post-mastectomy breast reconstruction is essential to restore body image and improve quality of life. Timing of reconstruction may be immediate or delayed following mastectomy. Outcomes such as psychosocial morbidity, aesthetics and complications rates may differ between the two approaches. The objective of this systematic review was to assess the evidence on the effects of immediate versus delayed reconstruction following surgery for breast cancer.

Methods: We searched the Cochrane Breast Cancer Group's Specialised Register, MEDLINE, EMBASE and the WHO International Clinical Trials Registry Platform (ICTRP) on 26 August 2010. From the electronic searches, including the recent updates (August 2010), we retrieved 411 references to studies. We looked for randomised controlled trials (RCTs) comparing immediate breast reconstruction versus delayed or no reconstruction in women of any age and stage of breast cancer. After examination of the 411 titles and abstracts, we eliminated all of those which did not match our inclusion criteria and those which were clearly ineligible from the review. We obtained full text copies of the remaining 9 potentially eligible trials for further evaluation. The review authors discussed the eligibility of these trials and resolved any remaining uncertainties by consensus. Subsequently only 1 study proved to be eligible for inclusion in this review.

Results: We included only one RCT that involved 64 women. We judged this study as being at high risk of bias. Post-operative morbidity