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The Usefulness of Routine Immunohistochemical Evaluation of Sentinel Lymph Nodes in Breast Carcinoma Patients

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Background: Each diagnostic method to detect occult metastases in sentinel lymph nodes (SLNs) can significantly change the therapeutic methods and long-term results of treatment. In the presented study, attempts to determine the usefulness of immunohistochemistry (IHC) in the pathological assessment of SLNs, have been made.

Material and Methods: A retrospective analysis concerning 728 early stage breast cancer patients with clinically negative lymph nodes, operated between 01.2004 and 05.2011, has been made. In those patients, the sentinel lymph nodes biopsy (SLNB) was performed. It was the surgeon performing SLNB, who decided about intraoperative exam of SLNs by frozen section. Postoperatively a routine hematoxylin-eosin stain (HE) was made. If the HE sections showed no evidence of metastases, cytokeratin (AE1/AE3 and CK7) immunohistochemistry was additionally used with some patients. The dependence of the number and size of removed lymph nodes on the presence of SLNs metastases was also analyzed. Moreover, the influence of the type of preoperative diagnosis of primary tumor on the presence of SLNs metastases was defined.

Results: The metastases in SLNs were diagnosed in 154 patients (macrometastases in 79.2% of cases, micrometastases – 20.8%). Using IHC techniques enabled detection of metastases in 30 patients (9% macrometastases and 59.4% micrometastases). IHC resulted in an increase in the total number of diagnosed metastases of SLNs, over 24% (by 9.9% for macrometastases, by 146.2% for micrometastases). In the majority of cases (84.9%) the intraoperative assessment of SLNs was performed. According to the analysis, the sensitivity of intraoperative evaluation of SLNs was 62% (for macrometastases 76%, for micrometastases 8%) and 100% specificity for the method. There was no statistical correlation between the type of preoperative diagnosis of primary tumor and the presence of metastases or the number and size of removed nodes.

Conclusions: The use of cytokeratin IHC for diagnoses of occult metastases in SLNs patients with early stage breast cancer is a valuable addition to standard histopathological assessment of SLNs. It enables detection of a higher number of metastases, thus modifying the adjuvant treatment.

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Do Screen-detected Breast Cancers Have Free Margins More Often Than Symptomatic Breast Cancers?

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Purpose: To determine whether women with screen-detected breast cancer have involved margins after breast-conserving surgery (BCS) less often compared to women with symptomatic breast cancer.

Methods: Women 50–75 years of age who underwent BCS for invasive breast cancer or ductal carcinoma in situ (DCIS) between July 2008 until December 2009 in the north eastern part of the Netherlands were selected from the population-based Netherlands Cancer Registry. Data were merged with the breast screening programme north and east to identify women with screen-detected breast cancer. The relation to screening history, clinical and pathological factors were evaluated for correlation with margin status.

Results: Of 1,537 women with an invasive breast cancer, 873 (56.8%) were diagnosed through the screening programme. Screen-detected tumours were significantly smaller (87% vs. 69% <2 cm), more often well differentiated (33% vs. 26%), preoperatively confirmed (98% vs. 96%), diagnosed in a non-teaching hospital (60% vs. 56%) and had more often negative lymph nodes (80% vs. 68%). In 170 of the 1,537 (11.1%) women the resection margin was involved.

A large range of involved margins was found between different hospitals (range 2–29%). In a multilevel analysis, taking hospital into account, there was no difference between women with screen-detected cancers compared to women with symptomatic cancers. Nevertheless, margin status was affected by other factors. Larger tumour size, multifocality, positive lymph

nodes and the absence of preoperative confirmation were all predictors of involved margins. No difference was found with the number of patients operated per surgeon. Of women with involved margins, 90% underwent a re-excision or amputation. In women with pure DCIS, margins were involved in 60 out of 187 (32.1%) women.

Discussion: Women with breast cancer diagnosed through the screening programme do not have a lower risk of involved margins after BCS than women with symptomatic breast cancer. Factors influencing involved margins were type of hospital, larger tumour size, multifocality, positive lymph nodes and the absence of preoperative confirmation.

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Implant Based Immediate Breast Reconstruction Utilising Strattice™ Mesh and Its Impact On Adjuvant Treatment

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Background: The UK national mastectomy and breast reconstruction audit reported improved patient satisfaction with mastectomy and immediate breast reconstruction (IBR). One technique being increasingly used is implant based IBR utilising Strattice™ mesh. However, there are concerns that this technique may delay adjuvant treatment. Given this, we reviewed all cases of IBR using Strattice™.

Methods: Case series of all implant based IBR using Strattice™ performed between March 2009 and March 2011 in our unit.

Results: 21 implant based IBR utilising Strattice™ in 17 patients were studied, 4 were bilateral procedures. 2 patients both BRCA gene carriers had bilateral risk reducing mastectomies and IBR. Mean age at surgery was 52 (range 30–66) years. BMI ranged from 19–35.8 (median 26) kg/m². All patients were non-diabetics, 2 of whom were smokers. 10 patients had complications, 9 required a clinical intervention. 4 patients had a 'red flare reaction' associated with a seroma. 5 patients had a wound breakdown with eventual loss of the implant and one patient had an early contracture following radiotherapy. 25% of patients requiring adjuvant radiotherapy had a delay in starting treatment. Half of patients requiring adjuvant chemotherapy had a delay in commencing treatment. 50% of patients requiring chemotherapy also experienced delays between cycles resulting from complications.

Conclusions: 53% (9/17) of patients had complications requiring clinical intervention. We suggest these complications may be addressed at three points; Pre-operatively consideration should be given to the necessity for adjuvant treatment and the type of skin sparing mastectomy procedure. Inter-operatively thorough washing of the mesh, the use of drains and the choice of implant to minimize tension on the skin wound. Post-operatively patience with repeat aspiration of seroma rather than the assumption of mesh infection in patients with a 'red flare' reaction. Utilizing these measures complications could be reduced.

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Effect of One Step Molecular Intraoperative Method in Detection of Micrometastasis in Sentinel Node and Management of Them

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Background: The implement of molecular intraoperative analysis of sentinel lymph node in breast cancer has changed the scene of the axillar management.

The OSNA (One-Step Nucleic Acid Amplification) method measures the tumoral burden of the node, and theoretically this is different from the classical pathological criteria of node involvement, that guides the classification and treatment of breast cancer patients.

So it's expected that due OSNA method the number of metastasis and micrometastasis in sentinel nodes has increased, and we don't know if this fact means a better staging or on the other hand it would be an overstaging.

The aim of our study is to analyze the impact of OSNA method in our population, and discuss which could be the best accurate management of these patients.

Materials and Methods: We compare the results from the analysis of sentinel lymph node dissection (SLND) 1 year before and after OSNA method implement in our Hospital (2010 April). In the first period the nodes were analyzed intraoperative (in frozen section) and delayed (in formalin fixed each 200 micrometers sections) with hematoxylin eosin (HE). In the second period the sentinel nodes were fully analyzed by detection of cytokeratin 19 mRNA.