PROTOCOL
SENTINEL NODE BIOPSY
(NON OPERATIVE)
BREAST CANCER - PATHOLOGY ASSESSMENT

Author: Dr Sally Ann Hales
On behalf of the Breast and pathology CNGs
Written: March 2005
Reviewed by CNG: June 2009 & June 2010
Revised: June 2011; and agreed at breast and pathology CNGs
Review Due: June 2014
Preliminary notes

- Not all patients will be suitable for sentinel node biopsy as an alternative to axillary clearance. Patients with clinically-positive nodes will not be treated this way.

- During the surgical training period, there is no justification for additional demands being placed on pathologists to do more detailed dissections of the axilla looking, for example, for blue nodes other than that identified by the surgeon. The surgical training period is to assess whether the node identified as the sentinel node by the surgeon is predictive of the metastatic status of the axilla.

- The implications on pathology workload of the change in surgical practice are not precisely defined, although it is likely that they will be broadly neutral. This may need auditing during implementation.

- There are no health and safety implications for laboratory staff resulting from the use of radioisotopes to localised the lymph nodes.

- At present, it is not intended to perform intra-operative frozen section or touch imprint reporting of sentinel node status. This is partly for logistical reasons, partly to reduce the impact on laboratory staff and partly so as not to prolong the anaesthetic time during the biopsy procedure. It is anticipated that only a relatively few patients will require a second operation. This may need to be audited. However the main reason for not performing intraoperative frozen section or touch imprint is the high false negative rate of these techniques.

- There are currently no national guidelines for the handling of sentinel nodes for breast carcinoma. The following guideline is based on best practice after discussion with the breast CNG pathologists and discussion at the NHS BSP QA big 18 Pathology section meeting 9th Feb 2005 with input from Dr S Pinder, Dr L Lebrow and Dr G Cserni. It is recognised that the scientific and prognostic value of the recognition of micrometastases and small numbers of tumour cells is debatable. The view taken is that the objective histological information will be recorded and that the surgeons and oncologists will decide how it should be conveyed to the patient to inform therapeutic decisions.

- This guideline is based on the pathology protocol from the Almanac trial ‘Randomized Multicenter Trial of Sentinel Node Biopsy Versus Standard Axillary Treatment in Operable Breast Cancer: The ALMANAC Trial’ Mansel et al 2006
Laboratory Procedures

Specimen receipt
- Sentinel nodes will be received as separate specimens in formalin [for cases where tissue is currently received without fixative, the nodes will be unfixed].

Specimen handling
- Describe colour (relate colour to any other lymph nodes within the axillary dissection specimen during training phase).
- Measure dimensions.

Tissue blocks
- A representative complete section of any grossly involved node is adequate.
- All other nodes should be serially sliced at intervals of 2mm or less perpendicular to long axis and blocked in their entirety.

Sections
- A single full face section should be examined for all SLNs
- Take one H&E section from each block.
- Stain by standard hematoxylin–eosin staining.
- Lymph nodes smaller than 5 mm to be bisected and stained;
- Lymph nodes 5 mm or larger to be sectioned at 3-mm intervals, and single sections stained with hematoxylin–eosin
- Slice the node at 2-3 mm intervals, embedding it in its entirety.
- Examination of levels need not be part of routine practice.

Levels may be performed if small groups of worrisome cells are identified or for further size measurement for sub classification into micro or macro metastases.

Immunohistochemistry
- Take one H&E section with immunohistochemistry only if suspicious cells are seen that need defining further

Molecular analysis
- Research tool only.

Frozen Section + Imprint Cytology
- Not to be used as a method for excluding involvement (research tool only). High risk of false negative. False positives also reported.

Reporting

<table>
<thead>
<tr>
<th>TMN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pN1</td>
<td>metastasis &gt;2mm</td>
</tr>
<tr>
<td>pN1 mic</td>
<td>larger than 0.2mm, no larger than 2mm, may have stromal reaction/proliferation</td>
</tr>
<tr>
<td>pN0 (i+)</td>
<td>no metastasis histologically, positive IHC, no cluster &gt;0.2mm.</td>
</tr>
<tr>
<td>pN0 (i)</td>
<td>no metastasis histologically, no additional examination for isolated tumour cells.</td>
</tr>
</tbody>
</table>

Definition of isolated tumour cells – Single tumour cells or small clusters of cells no more than 0.2mm in greatest dimension. Usually detected by immunohistochemistry or molecular methods, verified by H&E. Do not typically show proliferation/stromal reaction or penetration of vascular or lymphatic sinus walls.
Measurement

- If multiple foci only largest is considered.
- If single tumour cells or clusters or nests are continuous or separated by 2-5 cells measure as one focus, with largest size.
- If discontinuous and evenly dispersed measure as one.
- If discontinuous and unevenly dispersed consider as one if distance between foci is smaller than smallest cluster.

References:

1. NHS BSP QA Big 18 Pathology Section Meeting – 9 February 2005. Input from Dr S Pinder/Der L Lebrow/Dr G Cserni.


NHS Breast Screening Programme, Guidelines for Pathology Reporting in Breast Cancer Screening, NHS Cancer Screening Programmes, 2005

Early and Locally Advanced Breast Cancer; Diagnosis and Treatment, NICE Clinical Guidelines, No. 80, National Collaborating Centre for Cancer (UK); 2009.


Takei H *et al.* Axillary lymph node dissection can be avoided in women with breast cancer with intraoperative, false-negative sentinel lymph node biopsies. *Breast Cancer.* 2010;17(1):9-16.


It is intended that this protocol will be revised once National Guidelines are available in the form of an addendum to breast screening publication No 58

Sally Ann Hales, Consultant Pathologist
Accepted by the Pathology CNG and breast CNGs
Original Date March 2005; revised June 2011