into subareolar plexus. The Visiport docked with Telescope was inserted through a low transverse axillary incison (1.5 cm size) lateral to pectoralis major. During the dissection, we identified sentinel nodes by following blue stained lymphatics directly into blue lymph nodes. The identification rate and false negative rate was evaluated. We compared the value of two methods for identification of endoscopic sentinel lymph node biopsy using either only blue dye (n = 17) or combination of blue dye and radioactive tracer (n = 24).

Results: The mean number of sentinel nodes was 1.12. The identification rate and false negative rate of th sentinel node were 92.7% (38/41) and 7.7% (1/13) respectively. We compared endoscopic sentinel lymph node biopsy with using only blue dye (n = 17) vs combination of blue dye and radioactive tracer (n = 24). Sentinel lymph node identification rate were 95.8% (23/24) vs 88.2% (15/17). There was no statistical significant achived (p = 0.35).

Conclusion: The endoscopic technique of sentinel node biopsy can minimize the operative bleeding by handling the nife of Visiport pallelel to exposed vessels under endoscopic monitor analysis and keep better operative visual field and less invasiveness. Our experience of endoscopic sentinel node biopsy demonstrates a high sentinel node identification rate and low false negative rate.

371 Poster

Accuracy of frozen section in sentinel lymph node biopsy for breast cancer

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Background: Sentinel lymph node biopsy (SLN) is an integral part of breast cancer surgery. Intraoperative assessment of the SLN with frozen section (FS) assists in surgical decision making for axillary clearance. We evaluate the accuracy of intraoperative FS of SLNs in breast cancer.

Methodology: All successful SLN biopsies for breast cancer from October 2005 to December 2007 were retrospectively analyzed. All patients received dual modality lymphatic mapping with radioactive and blue dye tracer. Intraoperatively, nodes were bisected for FS. For paraffin sections, nodes were serial sectioned at 200μm intervals. Immunohistochemistry was performed if H&E stains were negative.

Results: A total of 201 patients were studied. All had preoperative diagnoses of breast cancer. Median age was 50 years and mean size of the invasive tumour was 17.9 mm. Mean number of SLN harvested per patient is 2.6.

A total of 516 SLNs and 101 non-SLNs were assessed intraoperatively with FS. Of the SLNs, 65 (12.6%) were positive on paraffin, including 42 macrometastases, 19 micrometastases and 4 with isolated tumour cells. Among these, 18 (3.5%) were misdiagnoses on FS. Fourteen were false negatives, including 10 micrometastases, 2 macrometastases and 2 with isolated tumour cells. The remaining 4 were false positives. FS diagnosed 1 micrometastasis and 3 with atypical cells, but paraffin sections concluded all 4 were negative.

Among the 101 non-SLNs, only 7 (6.9%) were positive for cancer on paraffin sections. FS diagnosed all but 1, where the node contained a 0.8 mm metastasis seen only on paraffin section. There were no false positives.

FS misdiagnosis affected 16 (8.0%) patients in the cohort. Eight patients had false negatives necessitating completion axillary clearance. Only 5 underwent the second surgery, with none found to have further positive nodes. One patient with a false positive SLN on FS underwent axillary clearance; no further metastatic nodes were present. In the remaining 7 patients, the error in FS diagnosis did not alter intraoperative surgical management.

Conclusion: Intraoperative assessment of SLNs is crucial to decision making in breast cancer surgery. In our series, FS misdiagnoses occurred in 3.5% of SLNs and 8% of non-SLNs. A small fraction of patients may hence receive inappropriate treatment. Despite this, SLN biopsy remains a useful procedure that eliminates unnecessary routine axillary clearance in the majority of patients with early breast cancer.

372 Poster

Research on the radiological safety of the sentinel lymph node biopsy in breast cancer

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Background: Sentinel lymph node biopsy (SLNB) in breast cancer has become a standard procedure in patients with T1/T2 tumor and clinically negative axilla. The combination of radiotracer and blue dye could improve the SLNB success rate with 1.3% and decrease the false negative rate with 2.5%. Radiotracer could also shorten the learning curve, detect SLNs outside axilla, and gamma-probe could help to localize SLN in vitro. However, this may also produce concerns of radiological safety both for patients and medical stuff. The aim of this study was to study the radiological safety issues of SLNB in breast cancer.

Materials and Methods: SLN was detected with the combination of methylene blue and 99mTc-sulfur colloid. 0.5−1.0 ml 99mTc-SC (activity, 22−44 MBq) was injected at least 3 hours before SLNB. Forty patients consistent with indications of SLNB enrolled from Oct. 2006 to Jul. 2007, with breast conserving surgery+SLNB and mastectomy+SLNB for 20 cases, respectively. The thermoluminescent dosimeters (TLD) were used to detect radiation dose received by patients and medical stuff. The TLDs were set at the sites representing breast injection site, thoracic gland, and cavitas pelvis gonad of patients, and dominant hand index finger, thoracic gland, cavitas pelvis gonad and ocular lens of medical stuff.

Results: The mean radiation dose received at the breast injection site (5.946mSv) was significantly higher than that at the thoracic gland (0.425mSv) and cavitas pelvis gonad (0.219mSv) of the patients (both p = 0.000). The mean absorbed dose of operating surgeon's index finger of dominant hand, thoracic gland, cavitas pelvis gonad, and ocular lens was 0.178mSv, 0.166mSv, 0.169mSv and 0.150mSv, respectively. That of the assistant surgeon's corresponding site was 0.186mSv, 0.155mSv, 0.147mSv, 0.145mSv, respectively. No significances of the mean radiation dose received were found among the different sites of different medical stuff (all p > 0.05), and were far lower than basic criterion of radiological health protection set by the Department of Health of P.R.China and ICRP. According to this criterion, it would be safe for surgeons to perform 1000 SLNBs annually.

Conclusions: The SLNB in breast cancer was radiological safe both for patients (even with pregnancy) and medical stuff. It would be safe for surgeons to perform 1000 SLNBs annually, and no radiological protection was needed during operation.

373 Poster

Blue dye alone technique for sentinel node biopsy is safe and accurate in selected early breast cancer – a single centre experience

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Background: The aim of this study was to assess the safety and accuracy of omitting radiolabelled colloid and lymphoscintigraphy in sentinel node biopsy for selected cases of early invasive breast cancer

Materials and Methods: Study subjects consisted of patients with histologically proven invasive breast cancer with a calculated a priori risk of axillary node involvement of less than 20% based on pre operative imaging and large core needle biopsy. Following informed consent these patients underwent sentinel node biopsy with intradermal injection of patent blue dye. Histological assessment of the sentinel node was carried out using intraoperative frozen section as well as formal step sectioning and immunohistochemical staining Patients with negative sentinel nodes did not undergo further axillary dissection and were followed up and three monthly intervals for clinical local or systemic recurrences.

Results: The sentinel node was successfully identified in 94% (204/217) of consecutive patients from 2002 to 2007, of which 24.5% (50/204) were positive for sentinel node metastasis on frozen sections and immunohistochemical examination (45 and 5 patients respectively). These patients underwent axillary clearance. Of the remaining 154 patients in which further axillary clearance was omitted, 5% (8 patients) had evidence of micrometastasis or isoloated tumour cells in the sentinel nodes. Following a median follow-up of 36 months no axillary recurrences have been detected. One patient has suffered an ipsilateral breast recurrence at 30 months post surgery. The one morality was from leukemia related causes.

Conclusions: Sentinel node biopsy using with the omission of radiocolloid and lymphoscintigraphy is safe and accurate in selected early invasive breast cancer.

374 Poster

Submission of blue dye sentinel node for intraoperative frozen section does not impact on operating time

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Background: A large randomised trial has confirmed that in experienced hands blue dye alone is as good as combined technique for localising sentinel node [1]. Intraoperative frozen section of blue dye sentinel nodes in our hands has been shown to be effective alternative to two stage operative procedures for the axilla with a high accuracy of pathological assessment of lymph nodes with low false positive rate [2]. Two Consultant

Surgeons in our unit operate on approximately 300 cancers in a year. We therefore conducted a prospective study to see if this policy impacted on our operating time.

Material and Method: 32 cases since December 2007 have been included in this study. Start and finish times of each operation was recorded. The time when sentinel node was sent to the laboratory and time when results were received were recorded. The number of blue nodes sent was noted. Sentinel nodes were identified using 2 mls of 2.5% Patent Blue injected in the subareolar plane. The lymph node was sent for assessment while wide local excision was carried out. Wounds were closed while waiting for the result. If axillary disease was confirmed the axilla was reopened and axillary clearance completed. Frozen section of the sentinel node was done. Nodes less than 5 mm were sectioned whole. Nodes between 5−10 mm were bisected then cut as larger nodes. Nodes more than 10 mm were cut into 3 slices, each slice step-sectioned in normal 1 mm steps, 2/3 sections taken at each step.

Results: 32 cancers were operated on in the study period. Sentinel nodes was retrieved in all cases. A total of 45 sentinel nodes were sent for frozen section analysis. 5 cases had positive lymph nodes requiring axillary clearance. Mean operating time was 60 minutes (range 35–120 minutes). Mean times for frozen section result was 35 minutes.

Conclusion: Frozen section of sentinel node does not impact on the overall operating time and theatre utilisation remains the same. At the present moment we are conducting an ongoing study to establish the role of frozen section of blue nodes in the management of axillary disease in breast cancer.

References

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375 Poster

Sentinel node biopsy for nonpalpable breast tumors after previous breast surgery – preliminary results

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Sentinel lymph node biopsy (SLNB) is an alternative to complete axillary lymph node dissection (ALNB) in clinically node-negative breast cancer patients. A previous breast biopsy has been considered a relative contraindication to SLNB. This study evaluate the accuracy of SLNB by following the axillary relapses after the procedure in patients who had undergone a breast biopsy before SLNB.

Up to January 2008 nine patients with the diagnosis of nonpalpable invasive breast cancer underwent SLNB after an excisional biopsy. The patients were submitted to SLNB by lymphoscintigraphy and isosulfan blue dye performed periareolar (lymphoscintigraphy) and in the biopsy area (blue dye). We follow these patients every six months focusing on the research of axillary relapse of disease.

In seven of cases the sentinel node was negative. In two of cases the sentinel node was positive. The sentinel node was identified in 100% of cases. The follow up period is eighteen months. There is no axillary lymph node relapse.

SLNB after an excisional biopsy with lymphoscintigraphy and blue dye for evaluation of the axilla can be considered a standard procedure.