Breast Cancer:
A minimally invasive approach to the axilla

By

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Introduction

- Establish the diagnosis
- Evaluate for extent of disease
- Plan stage appropriate individualised treatment
Patient pathway

- Fast track: one stop breast clinic history and examination.
- Clinical findings
- Imaging
  suspicious of breast cancer
  axillary ultrasound
Axillary Ultrasound
Examples of pathology
Breast Ultrasound
Breast MRI

- MRI guided biopsy
Extent of disease

- 95% of patients who present with breast cancer have apparently local disease.
- Indirect features to suggest systemic involvement
  - axillary lymph node metastasis
  - tumour size, grade
  - vascular or lymphatic invasion
  - Her2neu status or p53 etc
Preoperative evaluation of axilla

- Clinical examination inaccurate, false negative rate of 39-45%
- Mammography/ultrasound
  - sensitivity of 70%
- CT
- MRI
- PET
- Ultrasound guided FNAC
Rationale for axillary surgery

- Status
- Local control
- Survival impact (B04) study
  - 10 years 5-6% worse
- There is no tumour size so small that one can ignore the axilla
  - upto 20% for T1a
Issues with axillary clearance

- Maybe of limited therapeutic value
- 80% of patients maybe LN negative
- Short term drains, seroma
- Lymphoedema
- Sensory loss in area of intercostobrachial nerve
- affects the lifestyle of a third
Sentinel node concept

- First draining lymph node
- reflects the status of the axilla
- can be identified and sampled
SENTINEL NODE CONCEPT

- sentinel node refers to the "node on watch."
- this node is the first node to receive cancer cells and that if this node is positive, there may be other positive nodes upstream.
- The cancer cells don't "skip" and go to higher nodes.
- If this node is negative, all the upstream nodes are negative 99 out of 100 times
How We do it

- 35MBq of Tc99m in nanocoll 21hrs
- injected subdermal
- lymphoscintigram
- examine with hand held probe
- 2ml Patente bleu V on induction
Procedure
How We do it

- 2ml patent blue V
- Clean drape and place incision
Further steps
Practical point

After a crime, you don't interrogate a bunch of people who were two blocks away; you focus on eye witnesses at the scene of the crime."

—Marisa Weiss, M.D.
Poor candidates

- palpable lymph nodes
- Locally advanced breast cancer
- multi-focal breast cancer
- previous breast surgery (including breast reduction)
- previous radiation therapy to the breast
Can we stop after negative SNB

- Axillary relapse, most studies have median FU that is too short
- Melanoma about 3-4%
- Expect 1% for breast
- 0.4% at median FU of 84 months

Singhal 1996, MSKCC
Should you go back after SNB+

- 39% have further involved nodes
- this may be obvious at first op
- intraoperative analysis
  - cytology 10% false negative
  - frozen section
The important question

- "HOW MANY lymph nodes are positive?"

- not just "ARE lymph nodes positive?"
Sentinel Node Biopsy

Sentinel Node Biopsy

- Normal scan
- Intraoperative cytology
  - Benign
    - No further intervention
  - Malignant
    - Axillary clearance
Can pre-operative axillary ultrasound help reduce the number of sentinel node biopsies for breast cancer.
Patient selection

- 339 primary operable breast cancer cases (T1-3)
- Clinically node negative (N0).
- From June 2003 - Feb 2006.
Radiological criteria of suspicious Axillary Lymph node

- Alteration of Cortico-medullary ratio.
- Cortical thickness more than 2mm.
- Totally replaced LN.
Axillary Ultrasound images

Normal ALN
Partly involved ALN
Fully involved

HEMANT SINGHAL
ENDOSURGERY MARCH 2006
339 pts - AUS +/- FNAC

163 pts susp LN
FNA done

177 pts normal US

95 pts pos FNAC

68 pts neg FNAC

Axillary Clearance

245 pts Sentinel node biopsy

71 pts pos

174 pts Neg
Results

Axillary ultrasound plus FNAC

- False neg. rate: 20%
- Sensitivity: 80%
- Specificity: 100%
- Pos. Pred. Value: 100%
- Neg. Pred. Value: 64%
Results

- SLNB reduced by 28% (95/339 patients)
- No False Positive FNAC.
- No Delay or complications from FNAC.
Review of literature

- Sensitivity varies-
  - Improves if multiple lymph nodes involved.

- Specificity-
  - 100% in most series.
  - False positives - In pts who had neo-adjuvant chemo.

- Reduction in SLNB - 14-18% approx.
Conclusion

- Pre-operative axillary ultrasound + FNAC
  - if positive, is an accurate staging method.
  - If negative, does not accurately rule out metastasis.

- Positive patients can proceed - Axillary dissection directly.

- Significant reduction of SLNB - 28%.

- Effective in cost and time saving.

- Way forward Part of standard axillary staging.
Evaluation

Axillary evaluation

Breast lump considered malignant

- Ultrasound of axilla
  - Normal lymph nodes
  - Abnormal lymph nodes
    - Fine needle aspirate
      - Benign cells
      - Malignant cells
    - Axillary clearance