

Sentinel Lymph Node Biopsy in Other Tumours

Dr. Rona Cheifetz
Surgical Oncology Update
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Sentinel Lymph Node Biopsy in Other Tumours:

An Operation Looking for an Application

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Methodology

- Initial planned review of literature for SLNBx non melanoma non breast
- Secondary review by cross referencing SLNBx with every known site of malignancy

Results

- With the exception of primary hepatobiliary tumours and brain tumours sentinel lymph node mapping has been described for every other form of malignancy
- Thus the subtitle of my second title page

“It is less important to invent new operations and new techniques of operating than to find ways and means to avoid surgery”

Bernhard von Langenbeck
1810-1887

Key Questions to Consider

- Does knowledge of the lymph node status change the type of surgery done?
- Does knowledge of the lymph node status change the adjuvant treatment offered?
- Does early detection of microscopic nodal involvement impact survival or local control?
- Is sentinel node assessment cost effective?

SLNB in Colon Cancer

- Multiple feasibility studies (common cancer, general surgery field) first 1997
- Will not impact extent of surgery
- May upstage patients allowing selective adjuvant rx (30% of stage I/II recur)
- Variable techniques: in vivo/ex vivo(compared), submucosal/subserosal (not compared), colloid/dye (not compared), non-standardized definition of SN

SLNB in Colon Cancer

- ID rates range from 58-98%
- Wide range of FN rates 0-60%
- Steep learning curve (30 cases)
- May upstage up to 40% of patients
- High rate of skip metastases in large tumours

Bertagnolli M et al. Ann Surg 2004;240(4):624-28 (multicentre)
Terwisscha van Schellinga SE et al. Scan J of Gastroent 2006; 243: 153-7
Smith J et al. Am J Surg. 2006 191(5):665-668
Saha S et al. Am J Surg 2006 191(3): 305-10 (multicentre)

SLNB in Colon Cancer

- Outcome study
- 153 patients followed for median of 5 years (minimum 2 years)
- Recurrence rate 7%
- Compared to 162 patients conventional surg
- Recurrence rate 25%
- Significant for both node + and node –

Saha S et al. Am J Surg 2006 191(3): 305-10 (multicentre)

SLNB in Rectal Cancer

- Limited by need TME and path assessment of radial margin but may aid in path identification of SN for enhanced pathology
- May ID lateral nodes in low rectal cancers with radiocolloid
- Higher failure rate if neoadjuvant rx

Saha S et al. Am J Surg 2006 191(3): 305-10

SLNB in Anal Cancer

- Review of 5 published series involving 84 patients (most with 15 patients each)
- ID 66-100%
- SLN positive 7-42%
- May guide adjuvant radiation or node dissection

Damin DC. Eur J Surg Onc 2006; 32(3):247-52

SLNB in Gastric Cancer

- Multiple studies from Japan
- Early gastric cancer (60-80% of their cases) to define extent of lymphadenectomy since <5% nodal involvement with mucosal only tumour
- 37 patients T1-2N0 endoscopic injection of blue dye and radiocolloid
- ID rate 94.6%, sens 75%, spec 100%, accur 97%
- Problems with shine-thru

Tonouchi H et al. World J Surg 2005 29(4):418-21

SLNB in Gastric Cancer

- 59 patients T1-3N0
- Endoscopic injection of radiocolloid
- D2 nodal dissection for all patients, H&E
- ID rate 96% , sens 83.3%, spec 100%, accuracy 92.9% , FN 16.6% (0% in T1)
- Sens T1>T2>T3 (100% vs 62.5%)
- 100% correct ID of drainage basin

Mochiki et al. Am J Surg. 2006; 191(4): 465-69

SLNB in Pancreatic Cancer

- Surprisingly little literature
- Evidence demonstrates that the SLN in Ca of the head of the pancreas is the posterior pancreaticoduodenal node.
- Status of this node reflects para-aortic nodal status (may limit surgery)

SLNB in Thyroid Cancer

- Feasibility studies first in 1998
- Review of literature published 2002
- ID rate 91% (66-100%)
- Accuracy when identified 80 –100%(?)
- Pitfalls-parathyroids, mediastinum, shine-thru

Wiseman SM. Surg Onc 2002 11(3):137-42

SLNB in Thyroid Cancer

- Why bother?
- No need to extend incision to clear central neck
- No impact on survival demonstrated from nodal involvement overall
- Perhaps to guide selective neck dissection of lateral compartment in skip metastases
- Perhaps to select patients for adjuvant rx

SLNB in Urologic Malignancy

- Despite initial reports of node mapping in penile cancer surprisingly little literature
- cN0 have 25% nodal mets
- 10 year study published in 2005
- 140 N0 Colloid and Blue dye
- Median F/U 52 months
- 138/140 ID rate
- Isolated metastases in SLN in 78% of cases

SLNB in Urologic Malignancy

- FN rate 16% (unclear how calculated)
- 8% complication rate
- 5 year disease specific survival 96% if node negative, 66% if node positive

Kroon BK. Eur Urology 2005 47(5): 601-6

SLNB in Urologic Malignancy

- Bladder cancer
- Lymph node dissection is standard component of radical cystectomy
- 2 studies published show high FN rate 19% but also note high rate of nodal mets outside usual obturator basin

Leiberg. J Urology 2006. 175(1): 84-8
Sherif A. J Urology 2001. 166(3): 812-5

SLNB in Gynecologic Cancer

- Feasibility and outcome studies
- 2006 report on 21 pts with vulvar cancer
- 27 SLNBx (some bilat) with 3 positive
- Median f/u of 4.6 yrs
- None of SLN neg had died of cancer and no distant or regional recurrence
- 3yr DFS 90% for all, 100% for SLN neg

Terada KY. Gyn Oncol. 2006 102(2):200-3

SLNB in Gynecologic Cancer

- 2004 review
- 12 studies with 353 cases of vulvar cancer
- ID rate of 92% and NPV 99%
- FN rate <1% based on clinical recurrence
- 12 studies with 323 cases of cervical cancer
- ID rate 80-86% and NPV 99% and FN rate <1%
- Radiocolloid better than blue dye alone

Plante M et al. Oncology. 2004;18(1): 87

SLNB in NSCC of Lung

- Feasibility studies
- 110 patients
- Radiocolloid- ID 100%, sens 87%, NPV 93% using IHC: sens 74% and NPV 89% using H&E only
- Blue dye-ID 27%, sens 67%

Rzyman W. Ann Thor Surg 2006; 82(1): 237-42
Rzyman W. Eur J Surg Onc. 2006; 32(4): 462-5

SLNB in NSCC of Lung

- Upstaging demonstrated in study using PCR
- But no impact on extent of surgery demonstrated
- Impact on adjuvant treatment?

Pulte D Cancer 2005 104(7): 1453-61

SLNB in Esophageal Cancer

- Mostly feasibility studies
- Controversial since no demonstrated survival advantage to esophagectomy with lymphadenectomy vs transhiatal esophagectomy
- Perhaps to ID patients with thoracic tumours who require cervical node dissection

SLNB in Mucosal Head and Neck Cancer

- Published series on application in oropharyngeal squamous cell carcinoma
- Feasibility studies only
- Impact on local control and survival unknown
- International conference reviewed results on clinical N0 from 22 centres involving 379 patients

Stoecki SJ. Ann of Surg 2005 12(11):919-24

SLNB in Mucosal Head and Neck Cancer

- ID 97%
- Node + rate 29%
- FN rate 4%
- NPV 96%
- Multiple SNs and individual drainage patterns
- Could be used to direct neck dissection

Stoecki SJ. Ann of Surg 2005 12(11):919-24

SLNB in Sarcoma

- Very little in the literature
- Case reports on the application of SLN mapping in those soft tissue sarcomas associated with a higher incidence of nodal metastases
 - Clear cell ('melanoma of soft parts')
 - Epithelioid
 - Synovial Cell, Vascular, Rhabdomyosarcoma

SLNB in Non-Melanoma Skin Cancer

- Merkel Cell Carcinoma
- Meta-analysis of 122 pts
- 32% rate of SLN +
- 3yr RR of 60% if N+ vs 20% if N-
- N+ with adj rx to nodal basin had 3yr DFS of 51% vs 0% if no adjuvant rx
- N- no benefit with adjuvant rx

Gupta SG. Arch Dermatol. 2006 142(6):685-90

SLNB in Non-Melanoma Skin Cancer

- Cutaneous squamous cell carcinoma
- High cure rate with local treatment but bad outcome with clinical node +
- Feasibility studies for high risk patients (size, depth, recurrent, immunocomp, etc)
- Small numbers but technically feasible

Conclusions

- Majority of literature is feasibility studies which do not address the critical questions
- Application of sentinel node techniques should be done in setting of clinical trial powered to detect outcome differences (to justify cost)
- Be cautious if you are asked to do mapping outside of breast and melanoma setting