Contra-indications for Sentinel Lymph Node Biopsy

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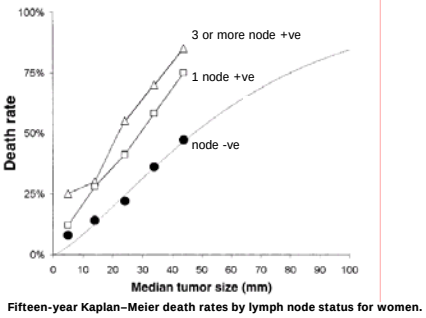
Learning Points

- What is the value of axillary assessment?
- What are the risks of SLNB over AND?
- What are the contra-indications to sentinel node biopsy?

Why assess nodes?

- Prognosis
- Guide adjuvant therapy
- Regional control
- Survival

Prognosis



Fifteen-year Kaplan–Meier death rates by lymph node status for women.

Michaelson et al, Cancer 2003;98:2133–43.

Guide adjuvant therapy

- 50% of adjuvant systemic therapy decisions need an AND*
- Post-mastectomy radiotherapy for node positive disease

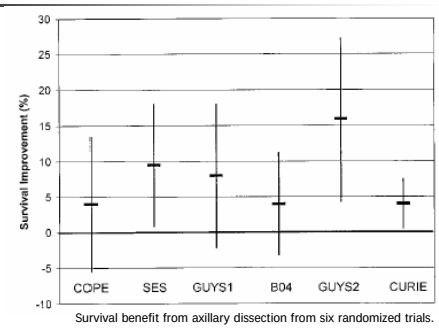
*Olivotto, Cancer 1998;83:948–55.

Regional control

Study	N	Follow-up (Years)	Treatment	Axillary Recurrence	Uncontrolled Axillary Problems
NSABP B-04 Fisher, NEJM 1985;312:674-81.	365	10	SM	17.8%	1.1% *
CRC Houghton, WJ Surg 1994;18: 117-22.	1424 1376	20	SM SM +RT	19.5% 5.7%	6.3% * 2.6%
Mid-Kent Oncology Group McKinna, Eur J Cancer, 1999;35: 1065-9. Radiother Oncol, 1999; 52:219-23.	311	10	BCS+RT	10%	6.2% #

* Presence of tumour #Presence of tumour, swelling, pain

Survival



Survival benefit from axillary dissection from six randomized trials.

Orr, Ann Surg Onc, 1999;6:109–16.

Why not assess nodes?

- Lymphedema 2 - 27%*
- Chronic pain 4 - 6%*

*The Steering Committee on Clinical Practice Guidelines for the Care and Treatment of Breast Cancer. CMAJ. 1998 Feb 10;158 Suppl 3:S22-6.

Canadian Guidelines: AND

Removal and pathological examination of axillary lymph nodes should be standard procedure for patients with early, invasive breast cancer.

The Steering Committee on Clinical Practice Guidelines for the Care and Treatment of Breast Cancer. CMAJ. 1998 Feb 10;158 Suppl 3:S22-6.

Canadian Guidelines: SLNB

Axillary dissection is the standard of care for the surgical staging of operable breast cancer.

If a patient requests or is offered SLN biopsy, the benefits and risks as well as what is and is not known about the procedure should be outlined.

The Steering Committee on Clinical Practice Guidelines for the Care and Treatment of Breast Cancer. CMAJ 2001;165(2):166-73

Risk of SLNB. What number is important?

Table 1 *
Studies evaluating the staging accuracy of lymphatic mapping and sentinel lymphadenectomy for breast cancer

Author	Year	Type	Number	Agent	SN ID	FN rate	Accuracy
Krag	1998	MV	443	IPC	91%	11%	97%
McMasters	2000	MV	806	Varied	88%	7%	98%
Tafra	2001	MV	535	IPC	87%	13%	96%
Bergkvist	2001	MV	498	IPD IPC IPD	90%	11%	N/A
Shivers	2002	MV	426	Varied	86%	4%	99%
McMasters*	2003	MV	3,975	Varied	94%	8%	97%
Chua (BC)#	2003	MV	547(93%)	Varied	88%	22%	92%

* modified from Kelley et al., Am J Surg 2004;188:49–61
# Chua et al, Am J Surg 2003;185:118-26.

Risk of SLNB. What number is important?

		AND +	AND -	Total	
SLNB	+	101	0	101	PPV=100%
	-	13	291	304	NPV=96%
	Total	114	291	405	

Sensitivity =89% Specificity=100%

Krag et al, NEJM 1998;339:941-6.

Omission of AND

Low risk of nodal mets (<15%)*

No lymphovascular invasion

+

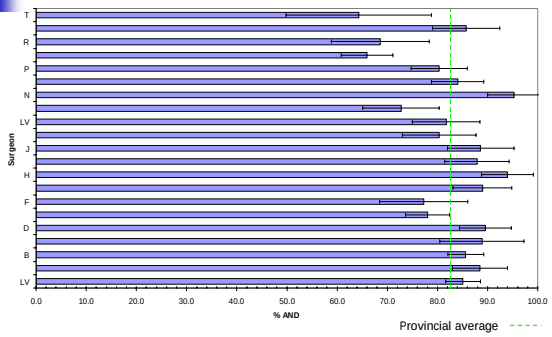
Non-palpable <2cm

or

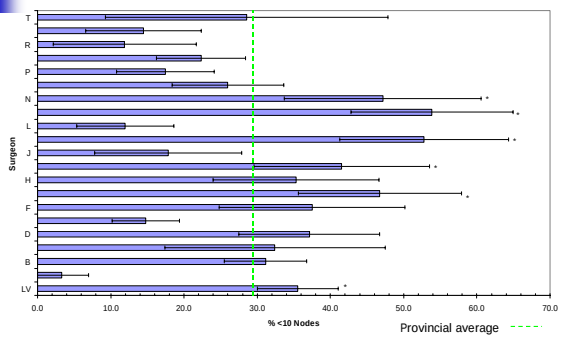
Palpable <1cm

* Olivotto et al, Cancer 1998;83:948–55.

Rates of AND by Surgeon in Manitoba
Stage I+II+III+Unknown Patients, 1995-2001
Active Surgeons



<10 Nodes in AND by Surgeon in Manitoba
Stage I+II+III, 1995-2001
Active Surgeons



Why assess nodes?

- Prognosis
- Guide adjuvant therapy
- Regional control
- Survival

Indications for SLNB

- T1-2 adenocarcinoma with clinically negative axillary lymph nodes.

Contra-indications for SLNB

- Absence of experienced surgeon + team
- DCIS
- Prophylactic mastectomy
- Multifocal tumours
- Locally advanced cancer
  - T3
  - Inflammatory
- Clinically palpable nodes
- Previous breast surgery
- Previous axillary surgery
- Previous breast radiation
- Pre-op chemotherapy
- Pregnancy
- Breast feeding
- Allergies

Absence of experienced surgeon + team

Surgeon experience is <u>the</u> most important factor in sentinel node identification.

DCIS

As 20% of core biopsies with DCIS will have invasive disease, when proceeding to mastectomy consider SLNB.

DCIS

Study	N	Node Positive
Klauber-DeMore et al Ann Surg Oncol 2000;7:636-42.	76	12%
Cox et al Am Surg 2001;67:513-9	224	10%

DCIS

A 10-20% rate of nodal metastasis does not match the clinical reality that more than 98% of these patients are cured with appropriate surgical treatment.

Kelley et al, Am J Surg 2004;188:49–61.

Prophylactic Mastectomy

- 0.1- 4% incidental cancers

Goldflam, Cancer 2004;101:1977-86.

King, Cancer 2004;101:926–33.

Locally advanced breast cancer

TABLE 2. *SLN Identification Rate and False Negative Rate by Tumor Stage*

T Stage	N	SLN ID Rate*	TP	FN	NPV*	Sensitivity*	FN Rate*	Overall Accuracy*
T1	1496	1378 (92.1%)	315	32	97.0%	90.8%	9.2%	97.7%
T2	545	508 (93.2%)	248	18	93.1%	93.2%	6.8%	96.5%
T3	44	43 (97.8%)	32	1	90.9%	97.0%	3.0%	97.7%

Wong et al, Am Surg 2001;67:522-6.

Multiple tumours

Study	N	Node Positive	SLN ID Rate	FN Rate
Layeeque et al, Am J Surg 2003;186:730-5.	40	63%	100%	0%
Tousimis et al, J Am Coll Surg. 2003;197:529-35.	70	54%	100%	8%
ALMANAC Trialists Group EJSO 2004;30:475–479.	75	45%	94.7%	8.8%

Clinically palpable nodes

- Common contra-indication
- Up to 30% false positive rate
- FNA node?

Previous breast surgery

Breast Implants

- N=11
- Identification 100%
- False negative rate 0%.

Other Breast Surgeries

- Is AND appropriate?

Gray et al Am J Surg 2004; 188:122-5.

Previous axillary surgery

- N=32

Recurrence SLNB/AND	69%
Recent failed SLNB/AND	22%
Unrelated axillary surgery	9%

- 75% identification
- 13% positivity

Gray et al Am J Surg 2004; 188:122-5.

Pre-op chemotherapy

Table 1
Sentinel lymph node biopsy after neoadjuvant chemotherapy

	No. of patients	Identification rate (%)	False negative rate (%)	Positive nodes (%)
Mamounas et al. [10]	340	85	12	41
Stearns et al. [11]	34	85	38(6)	45
Miller et al. [12]	35	86	0	26
Montgomery et al. [13]	33	88	6	62
Brady [14]	14	93	0	77
Julian et al. [15]	31	94	0	38
Breslin et al. [16]	51	94	12	55
Nason et al. [17]	15	87	33	67

Bland, Breast J. 2003;9:374-9.

Summary

- Axillary assessment in breast cancer at diagnosis is important for prognosis and adjuvant therapy decisions. It has little benefit in regional control and a possible small survival advantage.
- SLNB has minimal risks relative to AND.

Summary
Contra-indications ✓ for SLNB

- ✓ Absence of experienced surgeon + team
- ✓ DCIS
- ✓ Prophylactic mastectomy
- Multifocal tumours
- Locally advanced cancer
  - T3
  - ✓ Inflammatory
- Clinically palpable nodes
- Previous breast surgery
- Previous axillary surgery
- Previous breast radiation
- Pre-op chemotherapy
- Pregnancy
- Breast feeding
- ✓ Allergies

Thank you!