**Surgical Perspectives in the Treatment of Melanoma**

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**Topics for Discussion**

- Thin Melanoma and Sentinel Node Dissection
- Groin Mapping Superficial/Deep
- Timing of Sentinel Node Procedure

**Sentinel Lymph Node Biopsy**

- Elective Lymph Node Dissection (ELND) standard of care prior to 1990's
- Randomized trials failed to show survival benefit with ELND
- Standard of care drifted towards observation of regional nodal basins

**Background**

1977 Cabanas
- Lymphatic mapping for penile cancer

1992 Morton fine-tuned and developed SLN technique with accurate staging and decreased morbidity

Continued controversy of "standard of care"
MSLT-I

Multicenter Selective Lymphadenectomy Trial

- Intermediate thickness N=1269
- Observation 40%
- Regional recurrence CLND
- Immediate SLNB 60%
- Node negative Observe
- Node positive CLND
- 16% of pts undergoing SLN had positive node
- 3.4% of SLN “negative” pts recurred in nodal basin
- 15.6% in Observation arm had nodal relapse
- 19.4% total in SLN group vs 15.6% observation
- Removing unnecessary microscopic disease w/SLN

MSLT-I

- Recent update shows at 10 yrs incidence of nodal metastases in observation arm is 20.5% and in SLN arm total nodal metastases are 20.8%
- Suggests un-removed microscopic disease will progress to clinically relevant disease

MSLT-I

- Mean number of positive nodes in SLN group with CLND = 1.4
- Mean number of positive nodes in observation group with CLND = 3.3
- N1 observation arm 39% vs. 70% in SLN arm
- N3 observation arm 26% vs. 1.6% in SLN arm
- Suggests disease progression during observation period
**MSLT-I**

- Median follow-up 5 yrs
- No overall survival benefit
- Disease-free survival better in SLN group
  - 78.3% vs. 73.1% (p=0.009)
- Among patients with nodal metastasis*
  - SLN with CLND 72.3% 5yr overall survival
  - Observation with CLND at time of clinical disease 52.4% 5yr overall survival

**Case #1**

- 39 yo male
- Lower extremity melanoma 0.8mm
- Clark level IV
- No ulceration
- Wide excision alone? SLN?

**Thin Melanoma**

- Long-term follow-up of patients with lesions < 1.0mm
  - Most do well with wide excision alone
  - 3-4% will have recurrence
- What factors may predict for SLN positivity
  - Breslow depth
  - Clark level
  - Ulceration
  - Mitotic rate >0
- Age
- Male gender
- Primary tumor site
- Presence of regression

**JWCI Experience**

- 1732 pts
- Breslow depth < 1.0mm
- Wide excision alone (1cm margin)
- Prognostic variables
  - Breslow depth
  - Clark level
  - Ulceration
  - Primary tumor site
  - Age
  - Sex

Morton et al., Arch Surg, 2010
Results
- Median follow-up 13.2 years
- 51 pts (2.9%) experienced nodal recurrence
- Median time to recurrence 38 months
- Mean tumor thickness 0.50 mm

Univariate analysis
- Sex p < 0.001
- Breslow thickness p < 0.001
- Clark level p < 0.001
- Age (< 50, >50) p = 0.08

Breslow thickness
- < 0.25 mm = 0%
- 0.26-0.50 mm = 1.1%
- 0.51-0.75 mm = 4.3%
- 0.76-0.99 mm = 8.5%

Multivariate analysis
- Sex (male nearly 4x higher risk)
- Breslow thickness
- Age (grouped < 30, 30-39, 40-49, 50-59, 60-69, > 70)
  - Risk decreased as age increased
- Nomogram developed based on age, thickness, sex
  - Risk varies from 0.1% to 17.4%

High Risk Features
- Ulceration
- Increased mitotic rate
- Angiolymphatic invasion

Morton et al., Arch Surg, 2010
Case #1

- 39 yo male
- Lower extremity melanoma 0.8mm
- Clark level IV
- No ulceration

Wide excision alone? SLN?
Nomogram predicts 14%

Gannon et al., MD Anderson CC

SLN identification rate, positivity and incidence and sites of recurrence

Compared patients with and without WLE at time of SLNB

1395 patients identified
- 104 had WLE before LM/SLN
- 1291 had WLE LM/SLN at same surgery

Results

SLN identification rate
- 99% WLE prior
- 98% concomitant

Positive SLN
- 18% in WLE prior
- 17% concomitant

Number SLN identified
- 2.4
- 2.2

Multiple LN basin drainage axial lesions
- 41% vs. 31%
Gannon cont.

- Recurrences at 51 month median follow-up
  - WLE prior 4/19 SLN+ pts had recurrences
  - All distant with one concurrent local
  - WLE prior 7/85 SLN- pts had recurrences
  - 3 local only, 2 distant only, 2 local/distant
- NONE had recurrences in mapped or unmapped basin

Conclusion

- Previous WLE does not appear to affect ability to perform SLN or accuracy of procedure
- Patients with previous WLE may require more extensive surgery to accurately detect SLN


Previous Wide Local Excision of Primary Melanoma Is Not Contraindicated for Sentinel Node Biopsy of the Trunk and Extremity, McCready et al., J Surg Onc, 2003

Case #1

- 39 yo male
- Lower extremity melanoma 0.8mm
- Clark level IV
- No ulceration
- Wide excision alone? SLN?
- Nomogram predicts 14%
Single channel draining 2 nodes -

Superficial and deep?

Superficial node below inguinal ligament

Superficial node only

Superficial node and Deep node

If Superficial node positive?

Sentinel Node Dissection

Extent of completion dissection?
Indications for Pelvic SLN/Complete Dissection
- Deep SLNB if separate lymphatic channel
- Pelvic dissection if superficial SLN positive?
  - 4 or more positive inguinal nodes identified
  - Gross inguinal disease identified during groin dissection
  - Pelvic nodal metastases identified clinically or radiographically
  - Lymphoscintigraphic drainage into pelvis that was not biopsied during original SLN (case specific)

Sentinel Node Dissection
- Single node removed superficial groin
  - Ex-vivo count 18,500
- Deep node
  - In-vivo count ~150
- Final pathology
  - Negative node

Lower Extremity
- 36 yo male 2.7mm melanoma with no high risk features
- Lymphoscintigraphy
  - Drainage pattern appeared to be to both superficial and deep groin

Lymphoscintigraphy
Intra-op unable to identify superficial node
Only deep node “hot”

Excised node along external iliac through mini-transplant incision
Final pathology negative

Lower Extremity examples
- One channel to superficial and deep
  - Superficial node is positive
  - CLND superficial and possibly deep
- One channel to superficial only
  - Superficial node positive
  - CLND superficial only unless gross disease or > 3+ SLN
- Presents with palpable disease or evidence of pelvic disease on CT or PET
  - CLND superficial and deep

Case #2
- 53 yo male with melanoma of arm
- 4.3mm Breslow Depth
- Clark level IV
- No ulceration
- Mitotic rate = 0
- Clinically node negative

SLN
- Yes?
- No?
Is there a benefit to SLNB in patients with T4 melanoma?

- Single institution review
- 227 pts with T4 melanoma underwent SLNB
- 107 (47%) positive
- Angiolymphatic invasion and ulceration strongest predictors of nodal involvement
- Median f/u 43 months

SLNB and T4 Melanoma

- Localregional recurrence rate (LRR) overall 22%
  - SLN- LLR = 11%
  - SLN+ LLR = 34%
- Distant disease-free survival (DDFS) at 5 years
  - SLN- DDFS = 85.3%
  - SLN+ DDFS = 47.8%
- Overall survival (OS)
  - SLN- OS = 80%
  - SLN+ OS = 47%

CONCLUSIONS

- Clinically node negative T4 pts should be offered SLNB
- SLN status is the most significant prognostic sign among these patients
- T4 patients with negative SLN in the absence of ulceration have an excellent prognosis and should not be considered candidates for adjuvant Interferon

* Most did not receive adjuvant Interferon
Thank You