



Sentinel Lymph Node Biopsy In Melanoma: A Single-surgeon, 1,000 Patient Experience

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Background

- The MSLT-I and DeCOG trials established the Sentinel Lymph Node Biopsy (SLNB) as the standard of care diagnostic, predictive and therapeutic tool in melanoma management.
- However, these trials did not include a representative head and neck patient cohort, which is important due to the high incidence of cervical and parotid lymph node metastasis in this region.
- The accuracy of SLNB has been examined, quantified, and improved. A wide range of false-negative rates (FNR) have been reported in the literature (ranging from 7% to 21%).
- To date, there is **no “gold standard” technique for SLNB** and outcomes rely heavily on surgeons’ relative experience.
- There is an unmet need to improve the accuracy of SLNB in melanoma management.

Methods

This is a single surgeon and single institution retrospective study using a prospectively held database. We evaluated the accuracy of the combination technique of gamma and indocyanine green (ICG) for SLN identification in patients with cutaneous melanoma.

- All melanoma patients who underwent SLNB by the senior author at Cleveland Clinic between February 2011 and December 2021 were included.
- Patients who lost follow up, with a follow up less than 3 months or with a non-cutaneous melanoma diagnosis were excluded.
- All nodes were assessed with standardized pathological evaluation.

Results

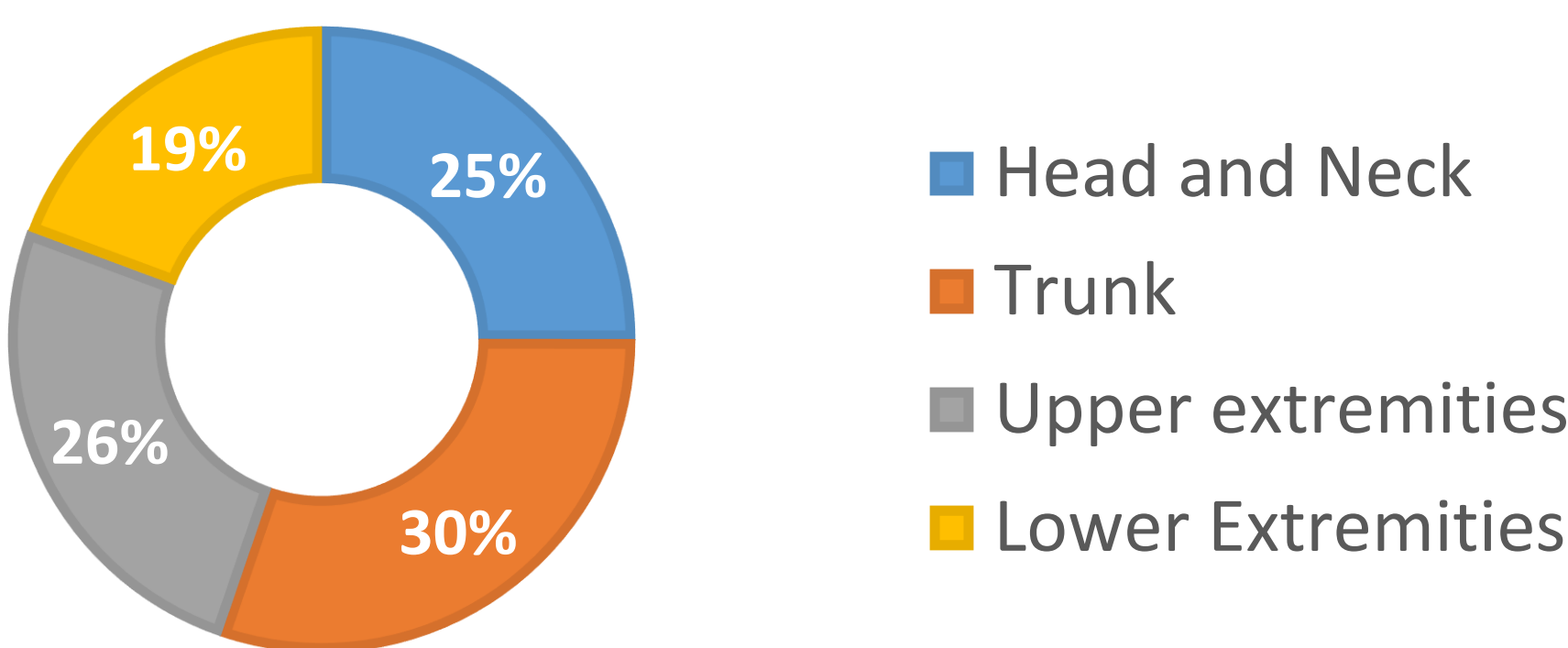
Table 1. Demographics and Tumor Characteristics

	Cohort (N=1042)	SLNB negative (n= 813)	SLNB positive (n= 229)
Age, years [mean (min, max)]	62 (18, 98)	62 (18, 98)	62 (21, 95)
Type of melanoma (n, %)			
Superficial spreading	538 (51.6)	453 (55.7)	85 (37.1)
Nodular	255 (24.4)	153 (18.8)	102 (44.5)
Breslow, mm [mean (min, max)]	2.06 (0.2 – 14)	1.67 (0.2 – 14)	2.87 (0.4 – 9)
Ulceration (n, %)			
Present	176 (16.8)	100 (12.3)	103 (44.9)
Not present	866 (83.1)	459 (56.4)	121 (52.8)
T stage (n, %)			
1	413 (39.6)	375 (46.1)	31 (13.5)
2	338 (32.4)	265 (32.5)	73 (31.8)
3	179 (17.1)	108 (13.2)	71 (31.0)
4	83 (7.9)	41 (5.0)	42 (18.3)

Figure 1. SLNB using ICG fluorescence-based imaging



MELANOMA LOCATION DISTRIBUTION



POSITIVE SLNB ACCORDING TO NODAL SITE (%)

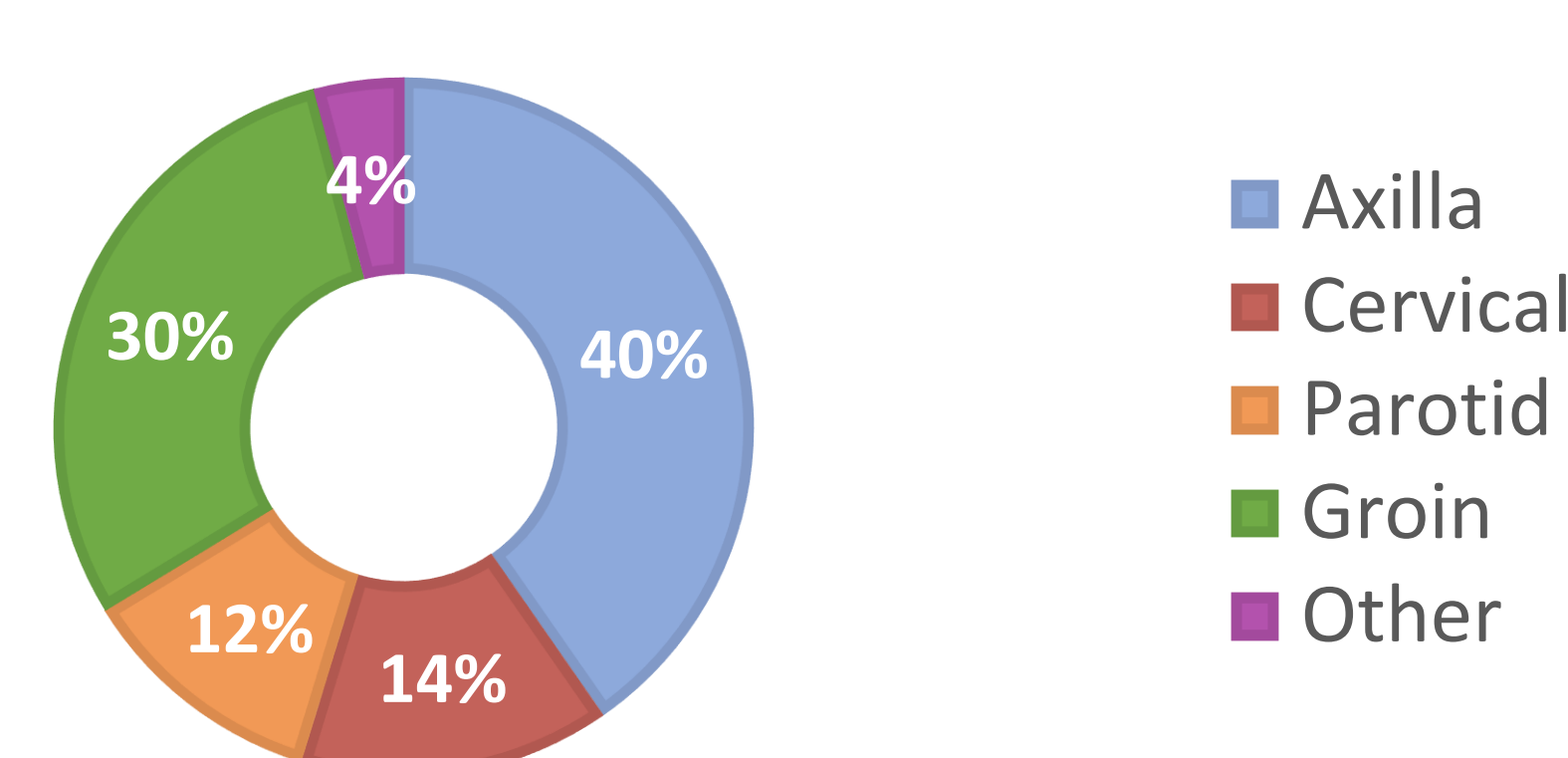


Table 2. SLNB results and Recurrence Rates

	Cohort (N= 1042)	Head and Neck Cohort (n= 260)
No. of positive nodes (n, %)	303 (100.0)	72 (24%)
No. of positive nodes found with		
Gamma and ICG	276 (91.0)	65 (90%)
Gamma only	22 (7.2)	4 (2.6%)
ICG only	2 (0.6)	1 (1.4%)
Blue dye and gamma	4 (1.3)	1 (1.4%)
No. of SLNB-positive patients with positive nodes found with gamma and ICG (n, %)	204 (89.0)	49 (86%)
No. of patients with regional recurrence (n, %)	64 (6.1)	19 (7%)
True-positive patients (n, %)	229 (21.9)	58 (22.3)
True-negative patients (n, %)	767 (73.6)	191 (73%)
False-negative rate (%)	15%	13%
Adjusted false-negative rate (%)	6.7%	7.5%
Time to recurrence, days [mean, (min, max)]	427.31 (12, 2004)	457.15 (12, 2004)

Conclusions

- ✓ The combination technique of gamma and ICG is a reliable method for detecting nodal involvement in melanoma patients.
- ✓ The head and neck subgroup, representing 25% of the cohort, exhibited similar outcomes with regard to recurrence and false negatives.
- ✓ This is the largest reported cohort of melanoma patients to date, with the largest representation of head and neck cases.
- ✓ The study's findings reveal one of the lowest false negative rates reported.

References

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