

# INTRAOPERATIVE MARGIN ANALYSIS AND OUTCOMES IN SURGICALLY TREATED T1-T2 ORAL CAVITY AND OROPHARYNGEAL SQUAMOUS CELL CARCINOMA

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**BACKGROUND:** Frozen section analysis is relied upon intra-operatively to ensure complete oncologic resection. Sampling sites for frozen section analysis are variable – resection bed or specimen driven margins are most common. False negative frozen sections lead to significant patient morbidity and potentially mortality, exposing them to further treatment modalities including re-resection, chemotherapy and/or radiation and increasing cost of treatment.

**CLINICAL QUESTIONS:** What is the sensitivity and specificity of our institutional defect-driven intraoperative margin assessment? What are the oncologic outcomes and treatment costs associated with final positive margins in T1-T2 oral cavity (OCSCC) and oropharyngeal squamous cell carcinoma (OPSCC)?

**METHODS:** Retrospective chart review of all institutional T1-T2 OCSCC or OPSCC treated with primary surgery between January 2009 – December 2014. Intra-operative margins and final pathology reports were reviewed. Kaplan-Meier survival estimates with log rank tests were used to compare patients based on final margin status. Cost analysis was performed for escalation of therapy due to positive final margins.

**RESULTS:** One hundred sixteen patients met inclusion criteria. Fifteen patients (12.8%) had positive final pathological margins not identified intraoperatively. Escalation of therapy included re-resection (7/15), radiation therapy (6/15) and chemotherapy (2/15). Recurrence free survival at 3 years was 88.4% and 50.7% for negative and positive margins respectively ( $p = 0.048$ ). Estimated cumulative treatment cost due to positive margins to the health care system was \$455,179.47.

**CONCLUSION:** Positive final margins are associated with decreased recurrence free survival and significant economic impact to the Canadian health care system. Improvement in intraoperative accuracy is a potential target to decrease rates of final margin positivity.