

Analyzing Post-Glossectomy Swallow Function Based on Site of Resection

Celeste Kim BS¹, Brenda Capobres Villegas EdD, CCC-SLP², Laishyang M Ouyoung MS, CCC-SLP³, Canan Ipek PhD⁴, Uttam K Sinha MD²

¹Keck School of Medicine of the University of Southern California, Los Angeles, CA

²Caruso Department of Otolaryngology – Head and Neck Surgery, Keck School of Medicine of the University of Southern California, Los Angeles, CA

³Keck Medical Center of the University of Southern California, Los Angeles, CA

⁴Department of Psychology, University of Southern California, Los Angeles, CA



Introduction

In 2020, tongue cancer had an estimated incidence of 17,660 and mortality of 2,830¹.

Tongue neoplasms are often treated through surgical resection, with or without tongue reconstruction².

Oral and base of tongue play important roles in oral and pharyngeal phases of swallowing, respectively, and disruption of one site may lead to greater dysphagia than the other.

Dysphagia can profoundly impact quality of life and lead to life-threatening complications including aspiration^{3,4}.

We aim to analyze whether base of tongue resection impacts swallow function more than oral tongue resection.

Methods and Materials

This is a retrospective chart study of 103 glossectomy cases performed in 2019-2020. 28 of the total 103 cases met the final inclusion criteria:

Non-overlapping site of tongue resection: oral tongue or base of tongue

Underwent formal dysphagia evaluation (i.e. PO trials, FEES, VFSS/MBS) postoperatively with Speech-Language Pathologist

The Functional Oral Intake Scale (FOIS) was used as primary measure of swallow function [Figure 1].

FOIS was translated from postoperative SLP evaluation, which included details on patients' oral and oropharyngeal phases of swallowing, along with dietary recommendations.

Fisher's exact test was used to analyze correlations between anatomical site of tongue resection (oral vs. BOT) and whether the patient was able to achieve a diet of total oral intake (FOIS 4-7 vs FOIS 1-3).

Score	Description
1	No oral intake
2	Tube dependent with inconsistent oral intake
3	Tube supplements with consistent oral intake
4	Total oral intake of a single consistency
5	Total oral intake of multiple consistencies requiring special preparation
6	Total oral intake with no special preparation, but must avoid specific foods or liquid items
7	Total oral intake with no restrictions

Figure 1. Functional Oral Intake Scale (FOIS)

Results

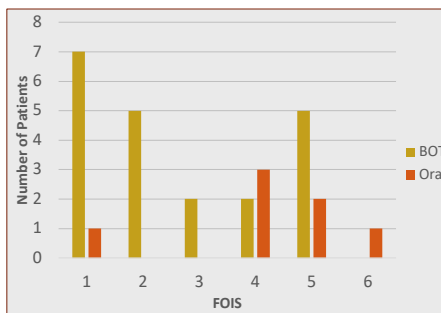


Table 1: FOIS Distribution

Results Continued

Of the 28 patients, 7 had oral tongue resected (Cohort A) and 21 had base of tongue resected (Cohort B).

29% of patients in each cohort underwent a radial forearm free flap tongue reconstruction.

Patients of both cohorts were on average, 62 years of age with T3 pathological staging.

Postoperative dysphagia evaluation was performed at 92 days for Cohort A and at 78 days for Cohort B (on average).

A correlation was found between resection of the base of tongue and subtotal oral intake (FOIS <4) postoperatively (p=0.02).

Discussion

To our knowledge, this is the only study that uses a standardized dysphagia scale (FOIS) in order to compare the effects of BOT vs oral tongue resection on post-glossectomy swallow function. These findings may help guide functional rehabilitation efforts post-glossectomy.

According to existing literature, the loss of muscle bulk in the BOT leads to a decrease in oropharyngeal propulsion force, resulting in clinical dysphagia^{2,6}.

Our data supports the notion that BOT plays a key role in the oropharyngeal phase of swallowing, and BOT resection leads to greater difficulty achieving total oral intake postoperatively².

Conclusions

Resection of base of tongue has a greater relationship with postoperative dysphagia than resection of oral tongue.

Further studies are needed to analyze the relationship between site of resection and dysphagia after longer healing times.

Contact

Celeste Kim BS
Keck School of Medicine of the University of Southern California
1975 Zonal Ave
Los Angeles, CA 90033
E-mail: celestek@usc.edu

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