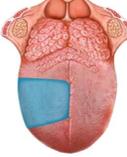




# Evaluation of Post-Operative Functional Outcomes in Operable Tongue Cancers



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## BACKGROUND

- Tongue cancer is a common cancer in Indian subcontinent. Resection of tongue leads to functional deficits related to speech and swallowing. The appropriate method of tongue reconstruction is critical for better functional outcomes. Adjuvant Radiation also affects the long term functional outcomes significantly.

## AIM

- The aim of this study was to determine the optimal reconstructive method for restoring postoperative function based on the extent of resection and the effect of adjuvant radiation on functional outcomes.

## METHODOLOGY

- We prospectively observed 50 patients with operable anterior tongue cancer who underwent glossectomy within the hemi tongue between February 2019 to June 2020.
- Tongue mobility – based on measurement from incisors
- Articulation, speech intelligibility – measured on a validated scale by a speech pathologist
- Swallowing - Functional outcome of swallowing scale
- All these outcomes were assessed at 1, 6 and 12 months, and were analyzed according to extent of glossectomy, the method of reconstruction and the need of adjuvant treatment.

## SALIENT FINDINGS

- In our study, most of the patients were of the middle age group with majority being less than 50 years of age. Mean age of occurrence of tongue cancer in our study was  $47.44 \pm 11.50$  years.
- Majority of the patients were male (43 out of 50) in this study
- Majority patients (48 out of 50) had tongue cancer localised to lateral border of the tongue.
- 32 patients (64%) underwent Partial Glossectomy and 18 patients (36%) underwent Hemi glossectomy in our study.
- 18 patients underwent Primary/rotation, 19 patients had secondary intention healing and 13 patients underwent Free flap reconstruction.
- Primary closure (14 out of 32 patients) and Secondary intention (14 out of 32 patients) were the most common method of reconstruction used in partial glossectomy patients.



Primary Closure in a partial glossectomy



MSAP Free Flap



Primary closure one year after surgery



Secondary intention one year after surgery

- With the increased resection of tongue as in hemi glossectomy, free flap reconstruction (9 out of 18 patients) was the most common method used for reconstruction.
- 36 patients in our study took adjuvant radiation alone or with concurrent chemotherapy.
- We assessed the functions such as speech articulation, speech intelligibility, tongue mobility and swallowing at 1-, 6- and 12 months post operatively.

- Speech intelligibility, tongue mobility and Swallowing scores were significantly better with Partial glossectomy than Hemi glossectomy. Speech articulation scores were higher with partial glossectomy but did not reach statistical significance.
- In partial glossectomy, patients with primary closure or secondary intention had higher mean scores for speech and swallowing than free flap group but only the swallowing score reached the statistical significance.
- In patients with Hemi glossectomy, tongue mobility and speech mean scores were higher with free flap group than others. but they did not reach statistical significance. Swallowing scores were no different across three groups.
- Patients with Adjuvant RT had significantly worse functional outcomes than those who did not receive Adjuvant RT.
- All the functions did improve over the time in a given patient, which emphasized on the importance of speech therapy and swallowing exercises and the subjective adaptation with time.

## CONCLUSION

- Resected tongue volume is inversely correlated with post-operative functional outcomes including speech, swallowing and tongue mobility after resection of tongue cancer.
- Oral tongue reconstruction should aim at restoration of mobility and restoration of bulk.
- Primary closure or secondary intention is a good method of reconstruction for patients with partial glossectomy with better functional outcomes.
- With increasing extent of tongue resection, Free flap reconstruction is necessary to restore tongue volume and to have better functional outcomes in patients with hemi glossectomy or more.
- In case of limited availability of resources, even Primary closure or secondary intention is an acceptable method of reconstruction in patients with hemi glossectomy with few functional compromise.
- Adjuvant RT negatively affects post-operative speech and swallowing outcomes and tongue mobility.