



Hemiglossectomy: Rehabilitative Insights

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Received: June 16, 2020

Published: September 28, 2020

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Abstract

Case report of hemiglossectomy intended to highlight the rehabilitative insight as comparison to the pre surgical condition. 40 years male diagnosed with tongue cancer was monitored and assessed during pre-post-surgery and post speech and swallowing treatment. He was under intubation during post-surgical condition and further rehabilitation provided after the removal of the same. Intensive care and rehabilitation had provided better improvement for the patient and highlighted the need of speech and swallowing therapy after the surgical resection in this patient.

Keywords: Glossectomy; Rehabilitation; Speech; Swallowing; Tongue

Introduction

The surgical removal of either total or a little part of the tongue is known as glossectomy. When there is tumour present on or lateral sides of the tongue the resection is generally suggested as it is very much required to avoid any further complications. Depending on the size and spread of the tumour, if it is lateralized towards either sides of the tongue, a partial resection or hemiglossectomy is performed which means that parts of the tongue are surgically removed.

The tongue is a vital organ of the oral cavity with highly specific functioning. The tongue has three parts known as the tip, body, and base. The anterior, mobile and pointed part is the tip. The part right posterior to the tip is known as the body of the tongue, it has 2 surfaces superior surface is the dorsal and inferior one is ventral surfaces. Process of swallowing begins with insertion of food in the oral cavity. Tongue being able to move freely plays major role here,

as it helps in mastication and its movements in contact with palate and posterior pharyngeal wall helps in backwards and downwards movement of the prepared bolus. There are several causes for cancer of tongue, for example, Human Papilloma Virus (HPV) can lead to cancer at the base of tongue, the reason is not specific and is still under research. The other causes of tongue cancer include alcohol abuse, tobacco and intake of other teratogens. Also, other causes include family history, genetic mutation, improper oral hygiene etc. Symptoms like pain, bleeding, otalgia, odynophagia, dysphagia and voice changes like hoarseness are observed in patients with such problems [1].

The diagnostic procedures consists many imaging and histopathological tests like Fiberoptic laryngoscopy, Computed tomography, Magnetic resonance imaging (MRI), Positron emission tomography, Panendoscopy (direct laryngoscopy, esophagoscopy, bronchoscopy), biopsy of lesions etc [2]. The surgery is recom-

mended when the lesion has grown in size such that it has started creating problem in vital activities such as chewing, swallowing etc. The cancer of tongue poses threat as there is high chance that it can get spread over other lymph glands. Most surgical oncologists recommend surgical removal of the cancerous tissue. Followed by the methods such as chemotherapy or radiation therapy whichever suits better according the patient's condition. Also, after resection the rehabilitative measures should be taken such as swallowing therapy, speech therapy etc. Need of further rehabilitation is questionable since professionals are not much aware about the requirements at least in Indian context and parents tend to get adapted with the disabilities. This led the light towards the need for present study, which aim is to understand and monitor the course of treatment before and after the surgical removal of half of the tongue.

Case Report and Discussion

A 40 years old male was considered for the study with the history of alcohol consumption and tobacco abuse for over 10 years. The patient was reported of growth over the left side of the tongue, with pain. Along with other reported complaints as excessive saliva secretion with drooling, problem in taste perception, and change in voice along with complaint of slurring of speech due to lump over the tongue.

Pre-surgical findings

The patient was diagnosed with tongue cancer classified as (T3, N0, MX) by International classification of diseases, tenth revision, clinical modification (ICD-10-CM). The MRI reports reporting evidence of an ulcerated hyperintense area in postero-lateral margin of anterior 2/3rd of tongue on left side with extension upto tip of the tongue measure 21 mm. Size dimensions 31 mm X 21mm (AP X TR) with cranio caudal extension measuring 45 mm with adjacent tongue muscles and sublingual space as mentioned above consistent with malignant tongue mass. Few enlarged group of nodes (level I, III and IV on left side). The pre-surgical swallowing assessment was carried out administering gugging swallowing screen checklist (GUSS [3]) scores of Indirect Swallowing Test (IDST) scores 4 and Direct Swallowing Test (DST) scores 9. Total score of 13 was interpreted as moderate dysphagia with risk of aspiration. The speech sample was assessed for articulatory processes and the slurring due to the lesion as increased mass has affected the tongue movement and hence it has evidently distorted the speech of the client. Narration of speech was taken as speech samples and

analysed perceptually. Three trained speech language pathologists were rated intelligibility of narration sample based on open set method [4]. Interjudge reliability was 0.79 for pre-surgical speech perceptual measure and it was scored as 45 % intelligible to listeners.

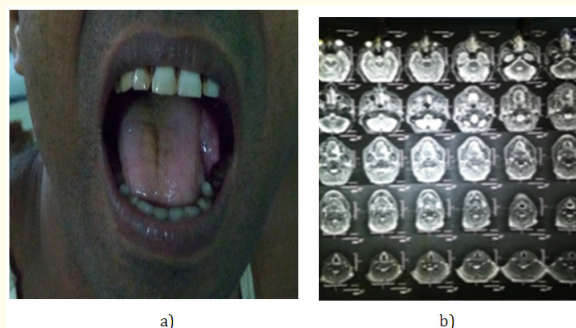


Figure 1: a) Image of neoplastic growth of tongue. b) MRI.

Post-surgical findings

The patient was operated for posterolateral marginal carcinoma of the tongue and surgery was done by midline lip split incision of the lower lip and mandibulectomy at the level of first premolar for the better access to the oral cavity after which the cheek flap was raised and hemiglossectomy was done along with sublingual gland excision following which the mandible was joined again using inter wire, wound sealed in layers and was kept under observation. Swallowing and speech evaluation had done one week post-surgery and patient had complained difficulty in speaking post operation; difficulty in swallowing solids, liquids; oromotor weakness; pain in neck region; drooling; excessive throat clearing and coughing. In GUSS checklist, IDST was scored 5 and DST score was 5 and a total score of 10 interpreted as moderate dysphagia with a risk of aspiration, to deal with it patient was intubated soon after surgery. Post surgery the patient had problem in controlling the tongue movement as well as the drooling.

Speech intelligibility was severely affected and rated as 35% intelligible speech secondary to poor tongue mobility and reduced range of movement followed by surgery [5]. The compensatory articulation has just begun as the patient has started to adjust with

the situation post surgery. The tongue mobility had reduced; lateralization and elevation of tongue were more affected followed by protrusion and retraction.

Speech and swallowing treatment

Present case was recommended for regular therapy after the feed Ryles tube gets removed and no obvious pain present. Motivation level noticed to be high for the patient and attended eight sessions of speech and swallowing therapy where the activities included were focused to improve swallowing and gain intelligible speech. Single subject design was used to understand the effect of treatment and pre-post comparison measurement provided the road for the same. Each session initiated with explanation of present status followed by clinician assisted tongue movements. Desensitization and oromotor exercises to increase the range of movements were included in the sessions and initial sessions were not included any speech production tasks. It had introduced in the fourth session onwards where the stimuli consisted of bisyllabic words with initial tongue tip or lateral phoneme.

Post speech and swallowing therapy assessment showed improved swallowing where in GUSS checklist, IDST was scored 2 and DST score was 1, overall indicated as no risk of aspiration. Intelligibility was scored better with 0.84 inter judge reliability and quantified as 79% which was more than pre surgical and post surgical conditions.

Conclusion

The patient with hemiglossectomy secondary to lingual cancer was taken into consideration for the study and observed for pre-post operative and post speech and swallowing therapy findings. The pre-operative findings were indicative of major general health issues than specific speech and swallowing difficulties, whereas post surgery the patient had generalized weakness and reduced range of movements of the structures of the oral cavity, pain in neck region, swallowing deficits in liquids, semisolids and in solids the problem was reported to be most severe. Speech intelligibility was also affected as after the surgical removal of half of the tongue and due to the surgical procedure followed, the active articulators were wounded. Patient was recommended for regular therapy and assessed soon after the eight session and found to have considerable improvement. Residual tongue, motivation level of the patient and home training had played role along with intensive treatment approaches.

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