

Case Report

Swallowing, communication and quality of life outcomes in case of hemi-glossectomy: a case study

Bhumi A. Gaikwad*, Jyoti S. Mohite, Mitali Thakar

Department of Audiology and Speech Therapy, Topiwala National Medical College, Mumbai, Maharashtra, India

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*Correspondence:

Dr. Bhumi A. Gaikwad,

E-mail: satavbhumi143@gmail.com

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ABSTRACT

The current article discusses about the assessment and detailed traditional therapeutic management in case of hemi-glossectomy patient. It also highlights how the glossectomy changes have an impact on the person's psychological status; it is also an important aspect to be worked upon in therapy. With various traditional swallowing techniques along with postural and consistencies alterations helped patient to consume from thin liquids to soft solids oral feeds. The present article also talks about improvement in the speech intelligibility that was affected as a consequence of hemi-glossectomy.

Keywords: Hemi-glossectomy, Cancer, Dysphagia, Speech intelligibility, Quality of life

INTRODUCTION

Oral cavity cancer is the sixth most common cancer worldwide, and comprises 30% of all head and neck cancers. The higher rate of this condition in Asia is believed to be due to the widespread practice of using betel nuts, tobacco, alcohol coupled with poor oral hygiene, poor diet, and viral infections.¹ Most commonly seen in middle-aged and elderly individuals. Frequently seen tumours of the oral cavity are squamous cell carcinomas (SCC), but other histological types such as minor salivary gland carcinomas, lymphomas and melanomas may rarely occur.^{1,2}

Curative surgeries for treating cancers of oral cavity has a primary major role of life saving of an individual but can create immense limitations in the speech and swallowing functions of an individual.³ The need of the study was to highlight the importance of holistic management of multifaceted deficits experienced post hemi-glossectomy.

The present case study also highlights the limitation posed by hemi-glossectomy on 53 years old female, impairing her ability of swallowing and disturbing her speech intelligibility. The impaired functions also had a great impact on her psycho-social aspects. This study also aimed in reporting the evaluation and evolution of speech swallowing rehabilitation of the client post-surgery. She was diagnosed with severe mechanical oral dysphagia. Therapy was done combining all the traditional direct and indirect approaches to improve swallowing and speech functions. The end result showed that patient could manage to have complete oral diet. Speech intelligibility improved remarkably providing her with good quality of life.

CASE REPORT

A 53 year old female reported to the department with the complaint of difficulty in swallowing food of different consistencies, reduced taste sensation, xerostomia unclear speech along with producing tongue tip sounds, and weight loss after the patient underwent tongue

reconstruction with submental flap surgery 8 months ago following which she developed severe feeding difficulty and loss of speech clarity. On biopsy it was diagnosed as recurrent squamous cell carcinoma of the tongue. History revealed that she had developed a similar ulcer in the right side of tongue 2 year ago for which she underwent surgery. However, she did not present any history of smoking, alcohol, or any other deleterious habits associated with tongue carcinoma. She reported that her nutritional intake was reduced and she had lost weight from then.

A physical examination of the oral peripheral mechanism was done using tongue depressor, gloves, oral swab, and torch on a series of oral movements. All structures were normal in appearance and adequate in functions except deformed tongue and functions severely affected with restricted movements. Lip movements were inadequate (attain posture partially), jaw mobility reduced, tongue movements such as retraction, protrusion, elevation, and lateralization were inadequate i/v/o reduced range of motion and asymmetry. Intra oral pressure was absent on right side and reduced on left side. However, soft palate movements, strength of the oral reflex during gag, hyolaryngeal elevation, approximation and strength of vocal folds during coughing, and throat clearing were within normal functioning limits. Diadochokinetic rate was slightly reduced.

Detailed clinical swallow evaluation using different consistencies (regular solid chapatti; mechanically altered, boiled rice, pureed, mashed banana, regular liquid, water, nectar, juice, and thick liquid, honey) was done to observe the oral and pharyngeal level of swallowing. Her ability to transport bolus, approximate lips and maintain closure, and rate of mastication were affected resulting in an increased number of swallows per bolus and pocketing and pooling of food in oral cavity (anterior and lateral sulci) was present. She had difficulty to subsequently manipulate bolus from one side to another, clear the material from oral cavity and propelling the bolus backward. The pharyngeal transit time and laryngeal elevation were within normal limits. Across consistencies, lateral spillage, stasis, reduced taste perception and normal temperature perception, she did not perceive any taste except moderate to severe burning sensations for sour and mild spicy taste in the oral cavity and facial discomfort was also seen. Chewing was inadequate and weak on right side and fairly preserved on left side. She had developed certain oral compensatory techniques by using buccal pressure to clear food from oral cavity. Drinking water to clear semi-solid food from oral cavity. No aspirations, coughing or discomfort noted. Oral transit time was longer for her. Post-surgery client had strictly restricted to only thin liquids as it was the most and only comfortable consistency for her to swallow orally. She was also referred to dietician for assessing and monitor her weight changes and diet plan. She weighed only 45 kgs post-surgery.

Her speech was evaluated by an experienced speech language pathologist (SLP) across the domains of respiration, voice, resonance, prosody, articulation, and intelligibility. Her speech was characterized by articulation deficits (imprecise consonants, irregular articulatory breakdown, distorted vowels, and consonant substitution) affected intelligibility (greater difficulty at conversation and word level as compared to in isolation) and prosodic deviations (short rushes of speech). Hence, photo articulation test (Hindi) was administered revealed distortion of all lingual sounds (i.e., lingua-alveolar, lingua-palatal, lingua-velar), there were compensatory errors of fricatives and affricates, produced as stops. Speech intelligibility score of 5 where one can understand speech if content is known. Overall, her voice, and functions of respiration and resonance were adequate.

Hearing assessment was also performed such as pure tone audiometry to rule out hearing loss, which revealed bilateral normal hearing sensitivity.

Psycho-social aspects were also assessed as patient and her spouse reported that she had stopped and restricted herself from attending all the social gathering, choir singing in the church, talking to relatives on the phone. She appeared upset, less interactive, socially withdrawn. Occasional sudden episodes of crying spells were also noted during sessions. Quality of life was assessed using University of Washington quality of life scale version 4 (UW-QOL v4) scale which revealed significant scores affecting her quality of life significantly.

After evaluation, an impression of communication and participation restriction in a known case of severe mechanical oral dysphagia was drawn. Swallowing and speech rehabilitation was carried out for 30 sessions (45 min duration) over the period of 4 months with focused counselling on the altered swallowing maneuver. To improve swallowing, direct (range of motion exercises) and compensatory techniques (postural adjustments with the placing bolus on the normal side in posterior region, head back posture, diet alterations, consistencies and taste alterations and food presentation strategies, using coffee stirrer stick to help facilitate bolus movement from one side to another and to clear the food from the oral cavity) were employed. Proprioceptive neuromuscular facilitation (PNF) and tongue exercises were given to enhance the sensitivity, strength, range of motion of the tongue, and improve intra oral pressure. Speech intelligibility was improved by working on the identification of target sounds, discrimination among similar sounds, self-evaluation of intelligibility and behavioural modifications involving consistency in substitution and modification of rate. Open mouth approach, slow rate of speech and phonetic placements were practised to improve the articulation.

DISCUSSION

Post-therapeutically, re-evaluations revealed that she was able to decrease her speech rate, and articulate fairly

better within the limits of her structural defect at word and sentence level but required minimal prompts during conversation. Open mouth approach with slow rate of speech did improve her overall speech clarity at sentence level significantly. Her tongue movements had fairly improved in terms of mobility and strength. However range of motion was still limited. She could fairly build and sustain intra oral pressure in right side cheek. Her speech intelligibility had improved at level of 2 with occasional repetitions. Furthermore, she was able to take complete oral full diet using swallowing maneuvers across different food consistencies without any difficulty. Occasional use of stirrer still required in case of soft solids to re-position the bolus in oral cavity. Overall feed time improved from 45 min to 25-30 min. Oral transient time was reduced from 5 sec to approximately 2 sec. Her weight had increased to 49 kgs and follow up with dietician still continued to monitor her nutrition intake and weight. Her social interactions and social activities showed positive change and same were noted on the UW-QOL v4 scale with pre & post therapy scores difference suggesting improved quality of life post therapy.

Surgical resection of cancers in the oral cavity can negatively impact speech, mastication, and swallowing in a very significant way. With tumour ablation and the subsequent loss of a significant portion of the tongue, the manipulation and formation of the bolus (the oral preparatory phase) and the transfer of bolus from the anterior oral cavity to the posterior tonsillar area (the initiation of the swallowing reflex) are severely restricted. Lingual peristalsis and oral control may be severely reduced in cases with more than 50% of tongue resection, As a result patient's diet may be restricted to liquids and thinned paste, and tilting of the head backward to allow gravity to carry material into the pharynx is often required.¹

Xerostomia is perhaps the most commonly reported oral sequela among patients receiving radiotherapy for head and neck cancers.⁴ these changes occurs due to irreversible damage to glandular tissue and loss of salivary fluid secretion, It has been show that doses greater than 30 Gy can usually result in permanent or semi-permanent xerostomia.^{3,4}

It is estimated that about 50% to 75% of the cancer patients receiving chemotherapy, radiotherapy, or both will suffer from distorted or impaired ability to taste (Dysgeusia).⁴

A study carried out by Jain et al on 50 patients with glossectomy to evaluate the effectiveness of speech and swallowing therapy post operatively reported speech and swallowing functions were significantly improved in 40 patients that attended regular therapy than compared to patients who had not taken therapy.⁵ Only few patients are referred for therapy whereas, most of them accept this

as inevitable side effect and learn to live with the speech, swallowing and social restriction.

Another study carried out by Bacher et al in Tata Hospital, Mumbai on 25 patients to assess the patients speech and deglutition status post operatively and also to provide and study the efficacy of rehabilitation therapy, their finding revealed that patients who taken therapy post operatively did reported improvement in speech and swallowing functions over the period of 3months postoperatively.⁶ The speech and swallowing complications reported in previous literature were in consensus with the findings observed in our current case study.

CONCLUSION

To conclude, the present case study it was observed that oral cancer and the surgery can have immense impact on individual quality of life and basic daily functions such as communication and feeding. The role of an SLP as an important team member in the rehabilitation of such cases and enhancing their quality of life. However with timely diagnosis and appropriate rehabilitation management accompanied with regular follow up one can bring significant improvement in these impaired functions. Also it is very important for the therapist to provide simple strategies and techniques to patients on managing swallowing in therapy sessions as well as at home grounds which can be carried out independently by patients or with minimal assistance of family members to ensure uncompromised quality of life.

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