MAVEN

CASE REPORT

PROSTHODONTIC REHABILITATION OF COMPLETELY EDENTULOUS PATIENT WITH PARTIAL GLOSSECTOMY– A CASE REPORT

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ABSTRACT

Oral carcinomas accounts for about 40% of all carcinomas prevalent amongst the human beings. Those involving the tongue results in mild to severe defi- ciencies of phonation, deglutition, mastication and taste depending upon the degree and extent of tissues involved. Rehabilitation of such patients pose a challenge for the clinician and involves a careful observation and evaluation of the residual oral function. This article presents a case report of prostho- dontic rehabilitation completely edentulous patient, who underwent partial glossectomy following surgical resection of the squamous cell carcinoma in- volving left lateral border of the tongue. An attempt was made to restore the comfort, speech and function of the patient with additional assistance through speech therapy and simple oral exercises. (2017, Vol. 01; Issue 01: Page 64 - 69)

Keywords: Partial glossectomy, speech therapy, oral exercises

INTRODUCTION

Malignant lesions involving tongue have shown to have a higher preva- lence alongthe posterior two-thirds and lateral borders of the tongue. The success rate of prosthetic reha- bilitation depends mainly on the form and extent of remaining oral tissues following surgical resection. Hence proper diagnosis and treat- ment plan is important to conserve the oral structures (1). Complete or partial glossectomy results in mor- bidity related to speech and deglu- tition, due to altered residual tongue volume and mobility (2).

Speech disorders include impaired articulation, reduced speech intelligibility and precision, altered oral and nasal resonance impaired voice quality, and reduction in global speech proficiency (3). Radiation therapy further adds to these com- plications in form of xerostomia, acute mucositis, fibrosis, and tris- mus. The treatment options include modified dental prosthesis, speech therapy (4,5), oral exercises (6). This case report describes the pros- thetic rehabilitation of the completely edentulous patient with par- tial glossectomy along the left lat- eral border of the tongue, following surgical resection of the squamous cell carcinoma involving the tongue.

CLINICAL REPORT

A 60 year old female patient re- ported with the chief complaint of difficulty in chewing due to missing teeth in upper and lower arches and impaired speech due to partial re- section of tongue along the left lat- eral border following the surgery. The patient had been diagnosed with squamous cell carcinoma involving the left lateral border of the tongue 1 year back. She underwent partial glossectomy with radical brachytherapy for the same. Gen- eral examination indicated no gross asymmetry, normal mouth opening and absence of any mandibular de- viation.

Intraorally, completely edentulous maxillary and mandibular residual alveolar ridges were intact and were not included in the surgical resec- tion (Fig. 1). The overlying mucosa was firm and resilient. The lingual sulcus was almost completely lost on the resected side. The floor of the mouth was also compromised with musculature partially covering the mandibular residual alveolar ridge on the left posterior region. The tongue was compromised with re- sected left lateral border, flaccid, with altered posture and restricted- movements (Fig. 2). A complain of dry mouth was also reported. The treatment plan included maxillary and mandibular complete dentures, with monoplane occlusal scheme.

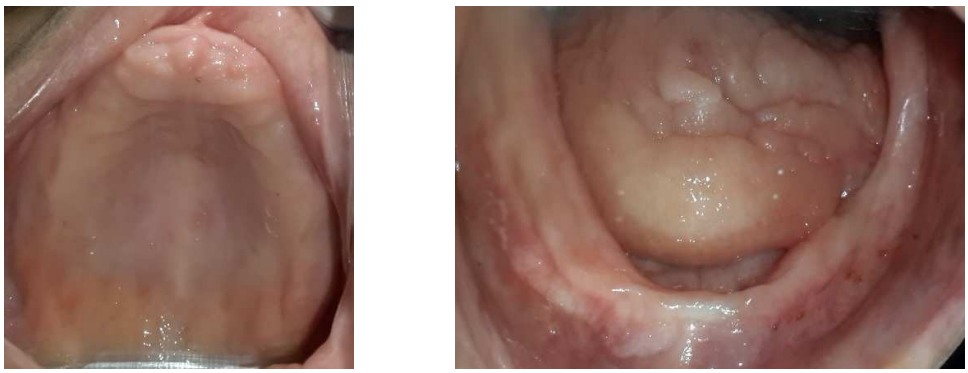

Fig. 1: Well developed Maxillary arch residual alveolar ridge and partially re- sorbed mandibular residual alveolar ridge

Fig. 2: Partially resected tongue on left lateral border

The maxillaryand mandibular pri- mary impressions were made with impression compound (Pinnacle, DPI) in a stock metal tray using the conventional technique (Fig. 3). To avoid the burning sensation of zinc oxide eugenol impression material due to xerostomia, polyether (Im- pregum, 3M ESPE) was used as the material for final impression (Fig. 4).

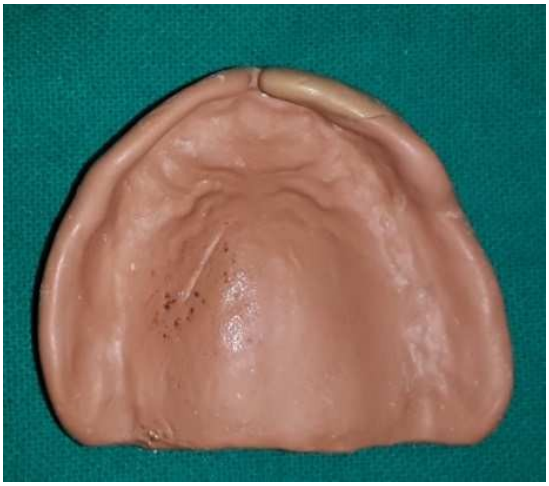

Fig. 3A: Primary impressions of maxillary arch

lar arch

Fig. 4A: Final Impression using pol- yether impression material

Fig. 4B: Final Impression using polyether impression material

The master cast was poured with type III dental stone. Jaw relation was recorded, decreasing the verti- cal dimension of occlusion slightly by reducing the height of the occlu- sal plane on the mandibular den- ture. Posterior teeth with reduced buccolingual width and cuspless teeth were selected. These would aid inproviding the stability to the mandibular denture as well as re- duce the stress transmitted on to the underlying ridge, hence slow down the further resorption of the bone and aid in comfort to the thin mucosa. The teeth arrangement was done with the anterior teeth ar- ranged closed to prevent the escape of air between them and posterior in monoplane occlusion. Try-in was done to verify the retention, stabil- ity and esthetics of the prosthesis. The final prosthesis was fabricated using heat activated polymethyl methacrylate (Heat Cure, DPI). Af- ter the denture was cured, it was finished and polished (Fig. 5). The lingual border on the affected side was asymmetrical due to los of ves- tibular depth (Fig. 6). Following in- sertion the patient regularly under- went the speech therapy and oral exercises. After insertion of den- ture, follow up was done after 24 hours, 1 week, 1 month and period- ically after every 6 months. The pa- tient expressed satisfaction and gratitude for the rehabilitation ef- forts.

Fig. 5: Lateral view of complete denture in centric relation position showing the anterior teeth placed close to each other to aid in pho- nation

Fig.6: Final mandibular prosthesis showing asymmetrical lingual bor- ders

SPEECH THERAPY

The average speech session lasted for 30 minutes, following which pa- tient was asked to repeat the exer- cises 3times daily. In producing al- veolar plosives /t/, /d/, which re- quires tongue articulation, modified

gesture similar to the production of labial plosives /b/, /p/ with the lips coming to each other. In pro- ducing the alveolar fricatives /s/, /z/, the speakers blew the air through closed teeth instead. In producing stop consonants, differ- ent degree of labial protrusion and retraction was followed (7, 8).

ORAL EXERCISES

Patient was instructed that all exer- cises are five repetitions daily (9, 10).

1. Opening her mouth as wide as possible for stimulation of tongue base.
2. Next was pushing the non-af- fected side of tongue against a tongue depressor for count of three and was relaxed.
3. Attempt to lick the alveolar ridge with her tongue, left to right, then right to left.
4. Attempt to lick her lip, left to right, then right to left.
5. Attempt to push non-affected cheek out with her tongue and hold for the count of three.
6. With her teeth together and lips closed, attempt to push tongue for- ward and hold for count of three.

DISCUSSION

The complete rehabilitation of glos- sectomy patient, aims at reduction in the size of the oral cavity thereby improving the resonance, develop- ing altered articulating surface as well as the pattern which would di- minish the deficiencies related to speech and deglutition (11).

The vertical height was decreased because slight reduction on the mandibular denture allows the re- sidual tongue to more conveniently place the food bolus on the occlusal table (12). Posterior teeth with re- duced buccolingual width and re- duced cusp were arranged to pro- vide monoplane occlusion. This of- fered better stability and comfort.

Georgian, Logemann & Fisher sug- gested that speech therapy helps the patients develop compensatory strategies to produce speech sounds in an altered way (13). Strategies for improving communi- cative efficiency, such as maintain- ing good eye contact with listeners and speaking at a slower rate, bring a positive change in the prognosis of the prosthesis. Apart from devel- oping new places of articulation, other aspects of speech, such as the intonation, rhythm and speech rate, need to be modified for the bet- terment of the patient.

CONCLUSION

Meticulous observation and evalua- tion of residual oral functions play a key role in the prosthetic rehabil- itation of partial glossectomy pa- tients. Patients often present with diverse complaints and deficiencies related to speech and swallowing. Factors such as the extent of the surgical resection, type of recon- struction, the mobility of the resid- ual oral and paraoral tissues, neu- romuscular coordination, mental proficiency, and motivation dictate the degree to which the patient's impaired oral functions may be re- habilitated and were kept in mind while rehabilitating this patient. A well planned effort could provide appropriate and successful rehabil- itation, thereby restoring the com- fort and function of the patient.

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