



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2020; 6(2): 229-231
© 2020 IJADS
www.oraljournal.com
Received: 16-02-2020
Accepted: 18-03-2020

Dr. Ruchika Iyer
Post Graduate Student,
Department of Prosthodontics,
Bangalore Institute of Dental
Sciences, Bangalore, Karnataka,
India

Dr. Divya Hegde
Professor and Head of the
Department, Department of
Prosthodontics, Bangalore
Institute of Dental Sciences,
Bangalore, Karnataka, India

Dr. Vijayalakshmi CR
Senior Lecturer, Department of
Prosthodontics, Bangalore
Institute of Dental Sciences,
Bangalore, Karnataka, India

Dr. Khushboo Mishra
Post Graduate Student,
Department of Prosthodontics,
Bangalore Institute of Dental
Sciences, Bangalore, Karnataka,
India

Dr. Akansha Priya
Post Graduate Student,
Department of Prosthodontics,
Bangalore Institute of Dental
Sciences, Bangalore, Karnataka,
India

Dr. Cora Coutinho
Post Graduate Student,
Department of Prosthodontics,
Bangalore Institute of Dental
Sciences, Bangalore, Karnataka,
India

Corresponding Author:
Dr. Khushboo Mishra
Post Graduate Student,
Department of Prosthodontics,
Bangalore Institute of Dental
Sciences, Bangalore, Karnataka,
India

Palatal augmentation prosthesis for a patient with partial glossectomy: a case report

Dr. Ruchika Iyer, Dr. Divya Hegde, Dr. Vijayalakshmi CR, Dr. Khushboo Mishra, Dr. Akansha Priya and Dr. Cora Coutinho

Abstract

Cancers of the tongue are generally treated with primary surgical resection, partial glossectomy being one of option. Treatment for oral cancer may optimize survival, decrements in speech and swallowing function and quality of life often result and moreover it affects communicative function, swallowing ability, and quality of life after primary surgery. This case report describes the fabrication of a palatal augmentation prosthesis for a patient who underwent partial glossectomy due to squamous cell carcinoma of the right lateral border of the tongue. In this case, anterior palatal augmentation was attempted.

Keywords: Dental, partial glossectomy, cancers of the tongue primary surgical

Introduction

The prevalence of oral carcinomas is approximately 40% of the cancers inflicting human beings. Out of this, the malignant lesions affecting the tongue account for 18%; most commonly affecting the posterior two thirds or the lateral border of the tongue [1]. The treatment option for such cases is surgical intervention which is then followed by radiotherapy and chemotherapy [2]. The patients undergoing either partial or total glossectomy are left with impairment of speech, mastication, deglutition, saliva control as well as a possible facial disfigurement. This degree of impairment is directly proportional to the extent of tissue loss [3]. The rehabilitation of such patients after surgical intervention can be done by modifying the dental prosthesis, Palatal Augmentation Prosthesis (PAP) in combination with speech therapy [4] and oral exercises [5]. According to GPT 9 the palatal augmentation prosthesis (PAP) has been defined as a removable maxillofacial prosthesis that alters the hard and/or soft palate's topographical form adjacent to the tongue; it allows reshaping of the hard palate to improve tongue-palate contact during speech and swallowing to compensate for impaired tongue mobility as a result of surgery, trauma, or neurologic/motor deficits [6].

This case report describes the fabrication of a palatal augmentation prosthesis for a patient who underwent partial glossectomy due to squamous cell carcinoma of the right lateral border of the tongue.

Case report

A 71year old male patient reported to the Department of Prosthodontics with the chief complaint of missing teeth in both the maxillary and mandibular arches as well as difficulty in speech and mastication. On eliciting history, the patient revealed that he was diagnosed with squamous cell carcinoma of the right lateral border of the tongue for which he underwent partial glossectomy. The patient underwent post-operative radiation therapy and had reported to the department after 1 year of completion of the radiation therapy.

Extra oral examination

- Slight deviation of the mandible to the unaffected side i.e. left side (Fig 1a)
- Increased deviation of mandible to the unaffected side on smiling (Fig 1b)
- Collapse of the lip and cheek on the right side of the face (Fig 1c)



Fig 1: Extra Oral Examination (Fig 1a, 1b, 1c)

Intra oral examination

- Completely edentulous maxillary arch (Fig 2a)
- Completely edentulous mandibular arch with obliteration of the right distolingual sulcus due to tongue tie (Fig 2b)
- Deviation of tongue toward the affected side on protrusion (Fig 2c)



Fig 2: Intra Oral Examination (Fig 2a, 2b, 2c)

Clinical Procedure

Maxillary primary impression was made using impression compound whereas the mandibular primary impression was made using the admixed technique (Fig 3). The steps from secondary impression till the try in were carried out in the conventional manner (Fig 4 – Fig 6). While recording the jaw relation, it was taken into account to keep the occlusal plane at the level of the tongue or slightly below the tongue which would aid in a more convenient placement of food on the occlusal table.



Fig 3: Maxillary and Mandibular Primary Impressions (Fig. 3)

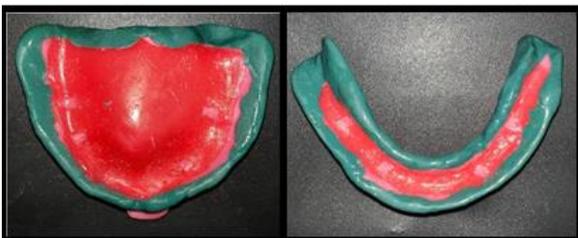


Fig 4: Maxillary and Mandibular Border Molding



Fig 5: Maxillary and Mandibular Final Impression



Fig 6: Teeth arrangement in Class 1 molar relation

After the try in was done and verified in centric relation, the next step was the palatal augmentation of the maxillary denture. The anterior palatal augmentation was carried out in this case. For this purpose, modelling wax was heated and placed onto the palatal aspect of the denture in the anterior region. The waxed-up denture was placed in the patient's mouth and the patient was asked to say words beginning with the letter's 't' and 'd' (Linguo-alveolar sounds). This procedure was repeated till the mandibular anterior teeth almost made indentations on the wax which also helped in the better pronunciation of the fricatives and affricatives (palatal lingual sounds) like 's' 'sh' 'z' 'zh'. This was carried out till there was some amount of improvement in the speech of the patient (Fig. 7). Once the palatal augmentation was done the denture was processed, finished and polished in the conventional manner (Fig. 8) after which the denture insertion was done (Fig. 9, Fig. 10).



Fig 7: Anterior palatal augmentation



Fig 8: Final finished and polished dentures



Fig 9: Denture insertion



Fig 10: Pre-operative and Post-operative view

Discussion

Speech is one of the oldest and the most important mode of communication and expression of thoughts and it has a great impact on the psychological status and social interactions of an individual. Unintelligible speech or difficulty in speaking is not acceptable for any individual even for a short period of time [7]. Cantor *et al* were the first ones to report about the palatal augmentation prosthesis in literature [8]. According to a study conducted by Skelly *et al*, patients who undergo partial glossectomy use the residual tongue stump to perform adaptive movements similar to normal articulatory movements; however total glossectomy patients develop truly compensatory patterns of speech [9]. The palatal augmentation prosthesis is fabricated only for partial glossectomy patients so as to enable the tongue-palate contact which is done by re-establishing the palatal vault at a lower level than normal. This enables appropriate palate-lingual contact during speech and swallowing even though there is less mobility and bulk of the tongue [1]. In this case, only anterior palatal augmentation was attempted as the amount of wax to be added in order to perform posterior palatal augmentation was excessive due to the tongue tie in the anterior region. Also, the wax would extend below the occlusal plane of the maxillary denture which would compromise the retention of the prosthesis as the weight of the prosthesis would increase to a great extent and would cause difficulty in mastication as well as swallowing. After the denture delivery was done the patient was recalled after 1 day, 1 week and 1 month. The patient was given a set of oral exercises and was also asked to start speech therapy after one month of denture insertion. The patient was satisfied with the dentures and also showed improvement in speech, mastication as well as aesthetics.

Conclusion

Rehabilitation of a patient who has undergone partial glossectomy is a challenging task due to the reduced mobility of the tongue. Fabricating a palatal augmentation prosthesis for such patients has proven to improve the speech, mastication and esthetics to a certain degree. This in turn increases the confidence of the individual in terms of social acceptance.

Clinical Significance

References

1. Marunick M, Tselios N. The efficacy of palatal augmentation prostheses for speech and swallowing in patients undergoing glossectomy: A review of the literature. *J Prosthet Dent.* 2004; 91:67-74.
2. Kumar PR, Hasti A, Jagadeesh HG, Thoudam B. Rehabilitation of a partial glossectomy patient: Palatal

augmentation prosthesis. *J Indian Prosthodont Soc.* 2019; 19:190-6.

3. McKinstry RE, Aramany MA, Beery QC, Sansone F. Speech considerations in prosthodontic rehabilitation of the glossectomy patient. *J Prosthet Dent.* 1985; 53:384-7.
4. Lauciello FR, Vergo T, Schaaf NG, Zimmerman R. Prosthodontic and speech rehabilitation after partial and complete glossectomy. *J Prosthet Dent.* 1980; 43:204-11.
5. Furia CL, Kowalski LP, Latorre MR, Angelis EC, Martins NM, Barros AP, *et al*. Speech intelligibility after glossectomy and speech rehabilitation. *Arch Otolaryngol Head Neck Surg.* 2001; 127:877-83.
6. Glossary of Prosthodontic Terms, Edition 9, *J Prosthet Dent.* 2017; 117(5S):1-105.
7. Woo AS. Velopharyngeal dysfunction. *Semin Plast Surg.* 2012; 26:170e177.
8. Cantor R, Curtis TA, Shipp T, Beumer J 3rd, Vogel BS. Maxillary speech prostheses for mandibular surgical defects. *J Prosthet Dent.* 1969; 22:253-60.
9. Skelly M, Donaldson RC, Fust RS. *Glossectomy Speech Rehabilitation.* Springfield, Charles C Thomas, Publishers. 1973; 3:5-164.