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Recuperation of glossal defect with an acrylic prosthesis – A case report

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Abstract

The tongue is a vital muscular organ that is involved in a variety of important functions, including speaking, tasting, swallowing, and maintaining oral hygiene. It also helps in mastication by physically crushing food against the hard palate. The tongue's sensory nerve endings allow us to distinguish between different textures and consistencies of food. When we are ready to swallow, the tongue helps to clear food debris from the mouth's floor and buccal vestibule.

The tongue also plays a key role in speech production. It is responsible for shaping the mouth and pharynx to produce vowels, and it constricts airflow to create consonants.

When a person undergoes a glossectomy, either partial or complete, it can have a significant impact on their ability to perform these functions. A prosthodontist can

help to restore some of the lost function by creating a tongue prosthesis.

This case report describes the fabrication of a tongue prosthesis for a patient who had undergone a total glossectomy and hemi mandibulectomy. The patient was happy with the prosthesis' retention, stability, and functionality.

Keywords: hemi mandibulectomy, glossectomy, tongue prosthesis, soft liner

Introduction

The tongue is a moveable muscular organ that is utilised for speaking, tasting, swallowing, and oral cavity cleansing, helps in mastication by physically crushing the meal against the hard palate's rugae. The cheek and tongue muscles regulate the food bolus by moving it onto the occlusal surfaces after each chewing stroke; saliva then mixes into the bolus. The texture and consistency of the meal are distinguished by sensory nerve endings in the tongue. The tongue assists in clearing food debris from the mouth's floor and buccal vestibule when the bolus is ready to be swallowed.

When creating speech, the tongue plays a key role in air modulation. The mouth and pharynx are shaped by the tongue to produce vowels. Moreover, it inhibits airflow to create consonants like k, g, t, d, s, and z.

Partial or complete glossectomy may be required as treatment for carcinoma of tongue. A major part of replacing the lost tongue with a prosthesis is done by prosthodontists. Support, stability, retention and patient’s comfort should be considered when designing a prosthesis.

Defect Classification with Treatment Option

There are two types of tongue (glossal) defects: partial and total. The likelihood of restoring the tongue with prosthesis is influenced by the presence or absence of teeth and the type of treatment combined with the glossectomy (e.g., mandibulectomy, palatal resection, radiation therapy). Partial glossectomy patients (those who have had less than 50% of their tongue removed) have minimal functional impairment and don't need a prosthesis. Rehabilitation with either a palatal or lingual augmentation prosthesis is necessary when more than 50% of the tongue is removed. A total glossectomy causes a wide mouth cavity, speech loss, and saliva and liquid to accumulate. A complete glossal prosthesis is necessary for patients who had a total glossectomy. In individuals with missing teeth, a lower partial denture can be used to secure the glossal prosthesis to the mandibular teeth.

Case report

A male patient named Yesudas, 72 years of age came to the department of prosthodontics with the chief complaint of drooling of saliva from the mouth due to insufficient lip support. During the intraoral examination, it was noticed that the patient had undergone a total glossectomy and hemi mandibulectomy on the right side due to carcinoma 15 years back, after which an autogenous graft was placed in mandible. Upon examination, the patient had an unsupported lip, a deviated mouth towards the right side and only a few teeth in the mandibular arch were left in left quadrant. Patient has been facing difficulty in swallowing, mastication, speaking, and has a poor facial appearance. Fabrication of tongue prosthesis was planned to fulfil the patient's needs.

Intra -oral photographs of Maxilla and Mandible

The lower arch's primary impression was made using alginate on a maxillary stock tray, and the cast was poured with dental stone.

Alginate impression made with stock tray

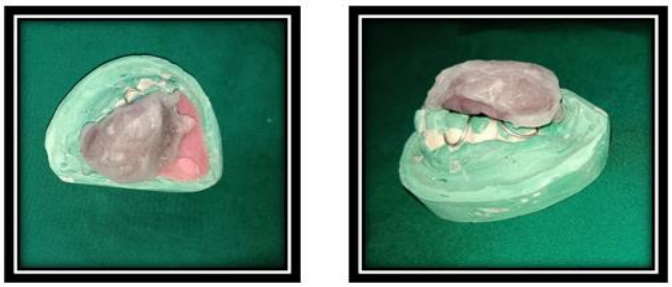
Mandibular Cast

Surveying and block out was done on the cast. Subsequently, temporary denture base was fabricated, and wrought wire clasps were made to fit over the remaining teeth to hold the prosthesis in place. On the polished surface of the denture base, 3 acrylic projections were designed in order to hold the impression material that was used to record the tongue space.

Denture base with clasps

Denture base with tissue stops

Green stick and impression compound were softened, and placed on the patient's denture base. The patient is advised to repeatedly perform the swallowing so that material could be properly adopted on the roof of the oral cavity. The surface of impression compound was scrapped and cotton fibres were incorporated, final impression was made using soft liner. Denture base was re-seated on the cast and sealed. flasking, Dewaxing was done.



Impression made with compound and green stick and transferred on cast

Flasking done

Dewaxing done

after application of separating media, two layers of lead foil was placed to create space for the application of soft liner, and packing was done with heat-cure acrylic resin. Thermocol balls were used to reduce the weight of the prosthesis. After that, processing was done in conventional method.

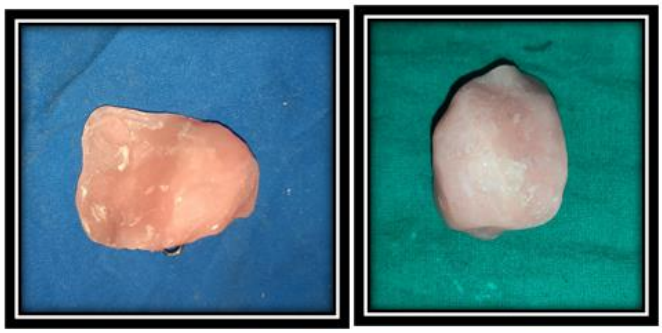
Lead foil adapted for soft liner application

Thermacol balls placed to reduce the weight

Acrylic material placed

A tongue prosthesis was obtained after deflasking. Finishing and polishing were completed and placed in the patient's mouth to ensure the fit. A self-curing acrylic soft liner was placed over the prosthesis, and the patient was instructed to repeatedly swallow for improved adaption.

The patient was happy with the prosthesis' retention, stability, and functionality.



Acrylic tongue prosthesis

Prosthesis with soft liner

Intra oral placement of tongue prosthesis

Extra oral photographs frontal and lateral views

Discussion

All phonemes, with the exception of bilabial, labio-dental, and glottal sounds, are produced primarily with the tongue. The oral cavity's shape and the resonance properties that give rise to various consonants are altered by tongue motions. Even after flap reconstruction, the muscle and nerve's ability to coordinate is compromised in glossectomy patients.

The ability to masticate, swallow, and produce vowels and consonants for speech sounds is significantly impaired when a patient has a partial or complete glossectomy. The degree of difficulty in speaking or swallowing depends on the size, location, and severity of the impairment.

The surgical resections that impair tongue function include total glossectomy, lateral (partial) glossectomy, removal of the tongue's base, and the anterior tip of the tongue. Moore (1972) proposed tongue prosthesis as the preferred treatment option for total glossectomy. Rarely does this method help people regain their ability to speak and swallow.

Silicone, RTV-Silicone (Silastic 382, Silastic 399), Acrylic Resin, and Silicone (MDX 4-42010) are some of the several materials used for tongue prostheses. In the past, polymethylmethacrylate (PMMA) resin has been the material of choice. Acrylic resin is simple to work with and is hygienic and long-lasting. It has various benefits, including ease of intrinsic and extrinsic coloration and higher strength compared to silicone. The heat PMMA is recommended over the auto polymerizing PMMA and it is compatible with most adhesive systems (Presence of free toxic tertiary amines), alterations can be easily done.

Lowering the palatal vault is frequently a part of the prosthodontic treatment for patients with partial tongue resection, while mandibular tongue prostheses are typically needed for total glossectomy patients (Cotert HS,1999).

Conclusion

Patient was comfortable with the tongue prosthesis in restoring speech and swallowing. The role of the tongue in various functions like speech, swallowing, and taste is highlighted. The need for a tongue prosthesis after a glossectomy is emphasized. The case report describes the fabrication of a tongue prosthesis for a patient who had undergone a total glossectomy and

hemimandibulectomy. The patient was satisfied with the retention, stability, and functionality of the prosthesis.

References

1. Jenny N. PROSTHETIC MANAGEMENT OF GLOSSECTOMY PATIENTS: A REVIEW. International Journal of Recent Scientific Research. 2018 Jan;9(1):23302-305.
2. Balasubramaniam MK, Chidambaranathan AS, Shanmugam G, Tah R. Rehabilitation of Glossectomy Cases with Tongue Prosthesis: A Literature Review. J Clin Diagn Res. 2016 Feb;10(2):ZE01-4. doi: 10.7860/JCDR/2016/15868.7184. Epub 2016 Feb 1. PMID: 27042596; PMCID: PMC4800663
3. Pigno MA, Funk JJ. Prosthetic management of a total glossectomy defect after free flap reconstruction in an edentulous patient: a clinical report. The Journal of prosthetic dentistry. 2003 Feb 1;89(2):119-22.
4. Ballard JL, Kerner E, Tyson J, Ashford J, Rees R. Adenocarcinoma of the tongue complicated by a hemi mandibulectomy: soft tissue support for a tongue prosthesis in an edentulous glossectomy patient. The Journal of Prosthetic Dentistry. 1986 Oct 1;56(4):470-3.