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CLOSED HOLLOW BULB OBTURATOR: A CASE REPORT FOR PROSTHETIC REHABILITATION FOLLOWING PARTIAL MAXILLECTOMY

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Abstract: Partial maxillectomy, often necessitated by malignancies or severe traumatic injuries, can result in significant functional and aesthetic impairments for the patient. Prosthetic rehabilitation using a closed hollow bulb obturator presents a viable treatment option to address these challenges. This case report describes the successful rehabilitation of a patient following partial maxillectomy through the fabrication and utilization of a closed hollow bulb obturator. The obturator design allowed for optimal retention, stability, and improved speech articulation while restoring the patient's facial symmetry and self-confidence. The report highlights the clinical and technical aspects of the obturator fabrication process and discusses its positive impact on the patient's overall quality of life. This case serves to underscore the importance of individualized prosthetic solutions in achieving favorable outcomes for patients with partial maxillectomy.

Keywords: Partial maxillectomy, obturator, prosthetic rehabilitation, closed hollow bulb, facial prosthesis, speech articulation, facial symmetry, quality of life.

INTRODUCTION

Partial maxillectomy, a surgical procedure involving the removal of a portion of the maxilla, is commonly performed to treat malignancies or severe traumatic injuries in the maxillary region. While this procedure is crucial for disease management, it often leads to functional and aesthetic impairments for the patient. The resulting defect can significantly affect speech articulation, mastication, and overall facial symmetry, leading to emotional and psychological distress.

Prosthetic rehabilitation plays a vital role in restoring the lost function and aesthetics for patients with partial maxillectomy. Among the various prosthetic options, a closed hollow bulb obturator has gained recognition for its ability to provide optimal retention, stability, and improved speech articulation while achieving natural facial symmetry. This case report presents a successful prosthetic rehabilitation using a closed hollow bulb obturator in a patient who underwent partial maxillectomy. The report aims to highlight the clinical and technical aspects of the obturator fabrication process and discuss its positive impact on the patient's overall quality of life.

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METHOD

Patient Selection and Evaluation:

A patient who underwent partial maxillectomy due to a malignant tumor was selected for this case report. Preoperative and postoperative evaluations were conducted to assess the extent of the maxillary defect, speech articulation, and the patient's aesthetic concerns. Comprehensive dental and medical histories were obtained to ensure the patient's eligibility for prosthetic rehabilitation.

Treatment Planning:

A multidisciplinary team comprising prosthodontists, maxillofacial surgeons, and speech therapists collaborated to devise a comprehensive treatment plan. The closed hollow bulb obturator was identified as the most suitable prosthetic solution to address the patient's specific needs, providing both functional and aesthetic benefits.

Obturator Fabrication:

The fabrication process began with the acquisition of intraoral and extraoral impressions using dental alginate and silicone materials, respectively. The impressions were used to create stone models of the patient's oral and facial structures.

Defect Modeling:

The maxillary defect was meticulously modeled on the stone model to accurately reproduce the patient's anatomical situation. This involved precise measurements and careful evaluation of the surrounding tissues to achieve optimal obturator design and stability.

Closed Hollow Bulb Obturator Design:

Using the defect model as a guide, the closed hollow bulb obturator was designed using specialized software for computer-aided design (CAD) and computer-aided manufacturing (CAM). The design aimed to achieve an accurate fit, retention, and natural facial contouring.

Obturator Fabrication:

The closed hollow bulb obturator was fabricated using biocompatible materials, such as heat-cured acrylic resin, to ensure patient comfort and safety. The obturator was carefully adjusted and customized to achieve a proper fit and occlusal harmony.

Delivery and Adjustment:

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The obturator was delivered to the patient, and initial adjustments were made to optimize fit, stability, and speech articulation. Regular follow-up visits allowed for any necessary fine-tuning and adjustments to ensure the patient's comfort and satisfaction.

Evaluation and Outcomes:

The patient's functional improvements, speech articulation, mastication, and overall satisfaction with the closed hollow bulb obturator were evaluated. The impact on the patient's facial symmetry and quality of life were also assessed to gauge the success of the prosthetic rehabilitation.

By documenting this case report, we aim to share our experience with the closed hollow bulb obturator as an effective prosthetic solution for patients with partial maxillectomy. The findings from this case report may contribute to the existing body of knowledge and further advocate for individualized prosthetic rehabilitation in similar clinical scenarios.

RESULTS

The patient, a 52-year-old male, underwent partial maxillectomy for the management of a malignant tumor involving the maxilla. Following the surgical intervention, the patient experienced significant functional and aesthetic impairments, including difficulties in speech articulation and mastication, as well as noticeable facial asymmetry. The closed hollow bulb obturator was identified as the most appropriate prosthetic solution, considering its potential to address the patient's specific needs, restore facial symmetry, and improve overall quality of life.

The fabrication process of the closed hollow bulb obturator involved precise modeling of the maxillary defect and the design of the obturator using computer-aided design (CAD) technology. The obturator was then carefully fabricated using biocompatible materials and delivered to the patient after meticulous adjustments to achieve a proper fit and occlusal harmony.

DISCUSSION

The successful prosthetic rehabilitation using the closed hollow bulb obturator resulted in significant improvements in the patient's functional abilities and aesthetics. The obturator offered optimal retention and stability, effectively closing the maxillary defect and restoring the patient's speech articulation and masticatory function. Moreover, the obturator's design facilitated natural facial contouring, leading to improved facial symmetry and contributing to the patient's overall self-confidence.

The choice of a closed hollow bulb obturator was justified by its ability to effectively seal the defect and create a closed space within the obturator, which aids in speech articulation and prevents the escape of air or food particles into the nasal cavity. The obturator also served as an effective barrier, minimizing the risk of nasal regurgitation during swallowing.

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The closed hollow bulb obturator was custom-made to precisely fit the patient's oral and facial structures, ensuring maximum comfort and minimizing any potential discomfort during its use. Regular follow-up visits allowed for minor adjustments, further enhancing the obturator's performance and the patient's satisfaction.

CONCLUSION

This case report demonstrates the successful prosthetic rehabilitation of a patient following partial maxillectomy using a closed hollow bulb obturator. The obturator proved to be an effective and individualized treatment option, addressing the patient's specific functional and aesthetic concerns. By providing optimal retention, stability, and improved speech articulation, the obturator significantly improved the patient's quality of life and restored facial symmetry.

The success of this case report highlights the importance of personalized prosthetic solutions in achieving favorable outcomes for patients with partial maxillectomy. The closed hollow bulb obturator offers a valuable option for prosthodontic rehabilitation, allowing patients to regain functional abilities and enhance their emotional well-being.

Overall, the closed hollow bulb obturator represents a reliable and effective approach in the prosthetic rehabilitation of patients following partial maxillectomy. Further studies and case reports are warranted to strengthen the evidence base and promote the adoption of individualized prosthetic interventions to optimize patient outcomes in similar clinical scenarios.

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