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PROSTHETIC TREATMENT OF A PATIENT WITH RESECTION OF THE HARD PALATE WITH AN OBTURATOR WITH A SILICONE BASE

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Abstract: The most commonly used treatment method for maxillary resection patients is with an obturator, closing the communication between the oral and nasal cavity. Prosthetic methods and means with different types of materials are used for its fabrication. The purpose of the described clinical case is to track the opportunity for treatment of a patient with resection of the hard palate, with an obturator with a silicon base.The clinical case tracks the treatment of a patient with maxillary carcinoma. Preliminary alginate impressions were taken from the jaws. A custom tray with which a functional impression with a silicone material was taken, was fabricated for the mandible. The height and the central position of the mandible were determined with record bases with wax rims. The dentures were finished with heat cured resin. The upper denture was used as a custom tray for taking a functional impression of the prosthetic field with silicone cream material. After packing in the laboratory, the impression material was replaced with permanent soft relining material Molloplast B (Detax). The finished dentures were adjusted and articulated until bilaterally balanced occlusion was achieved. Treatment results showed good retention and stability of the prosthetic construction. Functional impression shaping and subsequent replacing with silicon material ensured a good and tight hermetic seal in the area of the defect. The use of permanent soft relining material allowed a trauma-free transmission of masticatory pressure and a stable connection with the plastic base of the obturator. The patient's eating and speech as well as the fluid intake were successfully restored. The achieved results improved the quality of life of the patient and his self-esteem. Prosthetic treatment with an obturator with a silicon base provides good retention and stability of the prosthetic construction which allows successful restoration of the patient`s eating and speech.

Keywords: *maxillary resection, maxillary defect, obturator, soft relining material, Molloplast B*
Field of the paper: Medical sciences and Health.

1. INTRODUCTION

Prosthetic treatment methods are the main means of restoring impaired functions after maxillary resection (Artopoulou, I. et al., 2017). The main purpose of the treatment is hermetic sealing of the created defect, via which the free entry of food and liquids in the nasal cavity to be limited (Parthasarathy, N. et al., 2022). The fabrication of a stable prosthetic construction is an important condition for the successful restoration of eating and speech (Mandal, N. B. et al., 2022).

The main difficulties in the prosthetic treatment of these patients are caused by the limited opening of the mouth as a result of the emerged trismus and the accompanying radiotherapy, which makes taking a functional impression of the prosthetic field difficult (Ogami, K. et al., 2023; Ahmed, Z. U. et al., 2020). Prosthetics are also made difficult by the healing processes in the defect, which alter the prosthetic field and necessitate the gradual fabrication of different types of prosthetic constructions (Mohamed, K. et al., 2020). Although, there is no uniform treatment protocol after maxillary resection, most authors recommend three-stage methodology for prosthetic rehabilitation in which an immediate, temporary and definitive obturators are successively fabricated (King, G. E., & Martin, J., 1996; Depprich, R. et al., 2011). It is accepted that the treatment must be in accordance with both the main prosthetic principles and the specific feautures of the clinical case (Lee, S. K. et al., 2015). Particular attention is paid to the factors which can influence the retention and stability of the denture (Singh, M. et al., 2020). Most authors consider that the size and the location of the defect as well as the presence of preserved teeth, are decisive when composing a treatment plan (Corsalini, M. et al., 2021). The prevailing opinion is that solid obturators should be used in patients with small defects and open obturators in larger defects (Dholam, K. P. et al., 2015). There are also opinions that regardless of the size of the defect, both types of obturators allow successful restoration of speech and eating (Dos Santos, D. M. et al., 2018).

According to some data, the type of materials used for the fabrication of the obturators plays an

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important role in restoring the damaged functions (Kamarudin, K. H. et al., 2018). Acrylic resins are found to provide greater stability, allowing the creation of a durable barrier between the oral and nasal cavity (Ali, R. et al., 2015). Other authors recommend the addition of silicon materials to facilitate the placement of the obturator and to improve the opportunity for corrections (Mishra, N. et al., 2010).

2. PURPOSE

The purpose of the described clinical case is to track the opportunity for treatment of a patient with resection of the hard palate, with an obturator with a silicon base.

3. MATERIALS AND METHODS

The clinical case tracks the treatment of a 42-year-old patient with maxillary carcinoma. As a result of the operation, part of the hard palate was resected and a defect was created between the oral and nasal cavity. Examination showed severely damaged anatomy of the maxilla in the patient`s complete edentulous condition (Fig. 1). A treatment plan was created, including the fabrication of an obturator with a silicon base and a full lower denture. The defect was upholstered with a gauze in advance and preliminary alginate impressions were taken from both jaws. A custom tray was made for the mandible with which a functional impression was taken with a silicon material. On the next visit the height and the central position of the mandible were determined with record bases with wax rims. After a try-in with placed teeth, the dentures were finished with heat cured resin. The upper denture was used as an individual tray for taking a functional impression of the prosthetic field with silicon material with creamy consistency. In the laboratory, after packing, the impression material was replaced with heat cured permanent soft relining material Molloplast B (Detax) (Fig. 2).

Fig. 1. Intraoral view of the patient

Fig. 2. The finished obturator with a silicon base

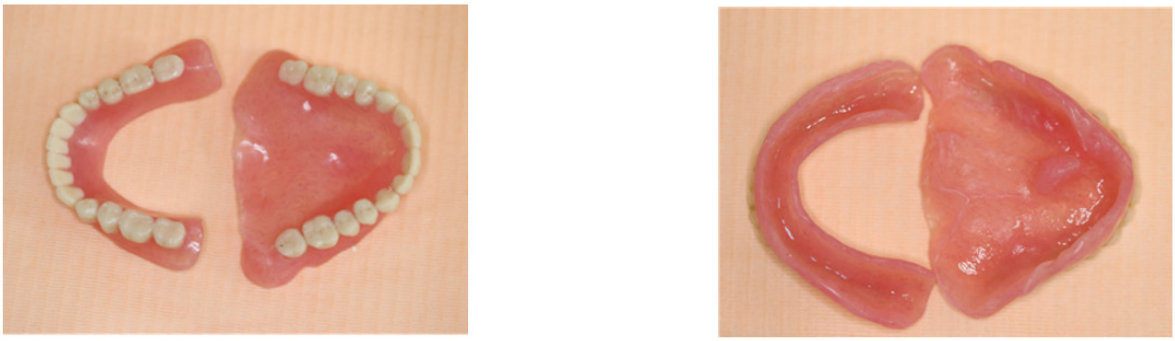

Fig. 3. The finished dentures - intraoral (a) and palatal view (b)

4. RESULTS

Treatment results showed good retention and stability of the prosthetic construction. Functional impression shaping and subsequent replacing with silicon material ensured a good and tight hermetic seal in the area of the defect. The use of permanent soft relining material allowed a trauma-free transmission of masticatory pressure and a stable connection with the plastic base of the obturator. The patient's eating and speech as well as the fluid intake were successfully restored. The achieved results improved the quality of life of the patient and his self-esteem.

Fig. 4. The adjusted obturator

Fig. 5. The articulated dentures with bilaterally balanced occlusion

5. DISCUSSIONS

The described treatment method showed that prosthetics with an obturator allows successful restoration of the impaired functions as other authors also state (Artopoulou, I. et al., 2017; Parthasarathy, N. et al., 2022). The size of the defect, its location and the shape of the prosthetic field required the fabrication of an obturator made of acrylic resin with a silicon base. The achieved stability of the prosthetic construction confirmed the opinion, that acrylic resins create a resistant barrier between the oral and nasal cavity (Ali, R. et al., 2015). The addition of silicon materials facilitated the placement in the defect and prevented the emergence of decubital injuries which is accepted to be their main advantages (Mishra, N. et al., 2010). Their use improved the hermetic seal between the oral and nasal cavity which, according to studies, is decisive for the restoration of eating and speech (Mandal, N. B. et al., 2022).

The presented treatment methodology allows application to defects of different sizes and showed that the type of the materials used, truly plays an important role in the treatment result (Kamarudin, K. H. et al., 2018).

6. CONCLUSIONS

Prosthetic treatment with an obturator with a silicon base provides good retention and stability of the prosthetic construction which allows successful restoration of the patient`s eating and speech.

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