
PROSTHETIC TREATMENT WITH PLATE IN PATIENT WITH MAXILLARY RESECTION

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Abstract: Surgical treatment of oral cavity cancers provides defects, different by size and localization, which makes patient's feeding, speaking and breathing difficult. The degree of damage depends on the location of the defect, its range, the combination with defects in teeth rows, the communication between the oral and nasal cavity. The restoration of functions is usually by prosthetic constructions, which are mostly fabricated by specific methods. There are very rare cases, when the treatment is conducted by the standard methodology for dentures' fabrication.

Aim: The aim of described clinical case is to evaluate the possibilities of application of classical palatal plate in treatment of patients with maxillary resection and its efficiency of defect hermetization.

Materials and methods: Prosthetic treatment of 24-years-old patient, with hard palate defect after surgical operation of oncological disease, is presented. Defect size, localization and the fact, that all teeth were preserved, allowed treatment with classic palate plate. The impressions were taken with standard metal trays and silicone impression materials after preliminary defect tamping with gauze. Standard plate was fabricate without obturator part and metal clasps, fixed in the first molars, were used as a retentive device. After the adjustment, the level of defect hermetization was evaluated, using the Mihailov's method with electro-pneumatic device "Oronasopneumotest".

Results: The treatment results showed good defect hermetization. The small size of the defect, its favorable localization and the presence of all teeth, provided seamless denture's retention and stability. This provides easy restoration of feeding, speech, and drinking. The prosthetic treatment improved significantly patient's life quality and returned his self-esteem and social contacts.

Conclusion: Prosthetic treatment methods take main role in rehabilitation of patients with maxillary resection. The application of classic plate in patients with small defects of upper jaw and preserved teeth allows successful restoration of damaged functions.

Keywords: cancer in the mouth, maxillary resection, maxillary defect, obturator, post resection denture.

1. INTRODUCTION

Surgical treatment of upper jaw tumors causes various size and localization defects that impair the feeding and speech of patients (Flores-Ruiz, R. et al., 2017). The absence of a barrier between the oral and nasal cavities makes it impossible to absorb liquids, which has a negative impact on the quality of life (Chen, C. et al., 2016). Prosthetic methods and treatments are most commonly used to overcome these difficulties and problems (Mittal, M. et al., 2018).

According to some authors (Lapointe, H. J. et al., 1996), the design and construction of the prosthetic structure should begin before surgical treatment. Immediate dentures are thought to provide better and faster healing results as well as easier adaptation to the prosthesis (Huryn, J. M. et Piro, J., 1989). An important advantage is the ability to form adjacent soft tissues, which facilitates the fabrication of a temporary and definitive obturator (Usui, H. et al., 1992). Different types of prosthetic structures are used for this purpose, which ensure that the defect is sealed and the oral and nasal cavity are separated (Tasopoulos, T. et al., 2017). In some cases treatment requires the production of combined forming-obturator dentures, which are adjusted in the first days after surgery (Patil, P. G., 2011). Various materials are used for their fabrication, which ensure the stability of the dentures and the smooth transmission of chewing pressure (Mawani, D. P. et al., 2018).

There are different views on the indications, contraindications and effectiveness of prosthetic treatment after maxillary resection (Koyama, S. et al., 2005). According to most authors (Ali, M. M. et al., 2018; Lin, F. H. et Wang, T., 2011) their use must be tailored to the individual characteristics and needs of the patient. Their main advantage is that they allow the simultaneous sealing and formation of adjacent soft tissues, which allows for preliminary planning of the boundaries of the definitive dentures (Agrawal, K. K. et al., 2011).

The main problems with the design of prosthetic structures are related to the difficulty of taking impressions in the first days after surgery and the development of trismus (Barrett, N. V. et al., 1988). To address them, new technologies and materials are being used to facilitate the fabrication of dentures and to ensure the non-traumatic and non-toxic effects of surrounding tissues (Grossmann, Y. et Savion, I., 2005).

2. AIM

The aim of described clinical case is to evaluate the possibilities of application of classical palatal plate in treatment of patients with maxillary resection and its efficiency of defect hermetization.

3. MATERIALS AND METHODS

The clinical case presents prosthetic treatment to a 24-year-old patient with a defect in the hard palate as a result of surgical treatment of a cancer. The defect involved the right part of the hard palate (Fig. 1). Due to the relatively small size, favorable location and the presence of all teeth, a treatment plan was drawn up, which included the development of a classic palate plate. The impressions were taken with standard metal trays and silicone impression material after gauze defect was pre-tamped (Fig. 2). Gypsum models were cast in the laboratory and the defect area was further filled with gypsum material until the anatomical form of the palate was restored. On the model so prepared, a palate plate with wire clasps was made in the area of the first molars. After cleaning and polishing, the plate was adjusted at the next clinical visit. The method of Mihailov with the electronic-pneumatic device "Oronazopnevmostest" was used to assess the degree of hermetization.



Fig. 1. Intraoral patient's view



Fig. 2. Impressions from upper and lower jaws

4. RESULTS

The results of the treatment showed good hermetization of the defect with a stable barrier between the oral and nasal cavities (Fig. 3a). The relatively small size, favorable localization and the presence of teeth, ensured retention and stability of the dentures (Fig. 3b). This allowed for easy recovery of nutrition, speech and fluid intake.

Prosthetic treatment significantly improved the quality of life of the patient and regained his sympathy and social contacts.



a



b

Fig. 3. Adjusted palate plate (a, b)

5. DISCUSSION

The prosthetic treatment of patients with upper jaw defects is connected with many difficulties. The main problems are related to the retention of the dentures and ensuring a good sealing of the defect. The treatment provided confirmed the view that prosthetic methods are a major means of restoring speech and nutrition for patients (Flores-Ruiz, R. et al., 2017; Mittal, M. et al., 2018). The treatment plan was tailored to the size and location of the defect, as the presence of all teeth improved retention and stability of the plate. This coincided with the opinion of Ali, M.

M. et al. (2018) and Lin, F. H., Wang, T. (2011) that treatment should be tailored to the individual characteristics of the patient. The use of a classic palate plate to seal the defect ensured the restoration of impaired function, which is not in line with the generally accepted view that the treatment of patients with maxillary defects is only possible with obturators (Tasopoulos, T. et al., 2017; Mawani, D. P. et al., 2018; Grossmann, Y. et Savion, I., 2005). Positive results confirmed the thesis that prosthetic structures significantly improve the quality of life of patients (Flores-Ruiz, R. et al., 2017; Chen, C. et al., 2016; Ali, M. M. et al., 2018).

6. CONCLUSION

Prosthetic treatment methods take main role in rehabilitation of patients with maxillary resection. The application of classic plate in patients with small defects of upper jaw and preserved teeth allows successful restoration of damaged functions.

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