
PROSTHETIC TREATMENT IN PATIENT WITH ALVEOLAR BONE RESECTION

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Abstract: Introduction: Surgical treatment of oncological diseases in the oral cavity causes defects, different by size and localization, which could be restored through surgical or prosthetic methods.

Aim: The aim of the clinical case described is to investigate the opportunity of application of prosthetic treatment methods in patients with alveolar bone resection and their efficiency in speech and feeding recovery.

Material and methods: A prosthetic rehabilitation of 65-years-old male patient with alveolar bone resection of the maxilla, is described. The teeth of the lower jaw were preserved and 13, 14, 26 of the upper jaw were covered with single crowns. The fabrication of upper partial post resection denture has been planned. The impressions were taken with standard trays and irreversible hydrocolloid impression material. In the upper jaw was fabricated a custom tray made by light-cured acrylic resin. One-stage impression was taken with additive silicone material in base and creamy consistency. The occlusal height and centric relations were fixed with baseplates through the classical methods, used in fabrication of complete dentures. The denture was made by heat-acrylic resin with low quantity of residual monomer after the successful trial denture. The prosthesis was adjusted and articulated in the final clinical appointment.

Results: The results of the prosthetic rehabilitation showed successful chewing, feeding and speaking restoration.

Conclusion: The prosthetic treatment methods are main part of the complex therapy in patients with oral cancer.

They are an alternative for patients, who have contraindications or who reject surgical maxillofacial reconstruction.

Keywords: oral cancer, maxillary resection, obturator, post resection denture

1. INTRODUCTION

Damages in maxillofacial area after maxillary resection cause serious aesthetic problems, psychic and functional disorders, difficulties in chewing, swallowing, speaking and breathing [1, 2]. It is a general state, that the degree of functional disorders depends on defect's size and localization [3, 4]. This is proven by the researches of Usui et al.[5, 6], who establish minor functional disorders in patient with small defects, more preserved teeth and mouth opening more than 20 mm. Devlin et Barker [7] have similar opinion, that defect's size, localization and status of the preserved teeth, define the stage of functional damage and treatment prognosis. Brown et al. [8] confirmed this thesis with their comparative survey of patients with different damage of the maxillary bone.

The prosthetic treatment methods take main role in the complete treatment and rehabilitation of patients with maxillary resection [9, 10]. The treatment has its specific characteristics, due to the involving of different zones of the maxillofacial area, which conditions the stage of invalidity [11]. Demez et Moreau [12] consider the life quality as a main factor in the choice of treatment method. A survey in maxillofacial surgeons claims that only 65% have access to prosthetic specialist, which affects their choice of treatment method in 19% of the cases [13].

The major difficulties in the prosthetic treatment after maxillary resection are connected with dentures' retention and stability [14,15]. Different methods and instruments are used for the improvement of these disadvantages, but their efficiency depends on the size of the defect and the presence of preserved teeth [16]. In the cases when the anatomical features of the defect, its size and localization intercept the treatment, the implants are used as an alternative of the treatment [17]. According to many authors [18, 19] this provides optimal denture's retention and stability.

2. AIM

The aim of the described clinical case is to investigate the ability of application of prosthetic treatment methods in patients with alveolar bone resection and their efficiency in the restoration of feeding and speaking.

3. MATERIALS AND METHODS

The described clinical case follows up the prosthetic rehabilitation of 65-years-old patient with alveolar bone resection as a result of surgical operation of oncologic disease. The intraoral examination revealed a defect in the frontal area of the maxilla (fig.1). All the teeth in the lower jaw and teeth 13, 14, 26 in the upper jaw, protected by single crowns, were preserved. The extraoral examination showed hollow upper lip.



Fig.1. Intraoral point of view

A treatment plan, which involved fabrication of upper partial post resection denture, was composed. For this purpose, primary impressions from both jaws, were taken with standard trays and irreversible hydrocolloid impression material in the first clinical appointment. A custom tray in the upper jaw was made by light-acrylic resin and a functional one-stage impression was taken with additive silicone in creamy consistency. A gypsum master model was cast in the laboratory and denture's borders were marked out. A retainer in the vestibulum area of 13, 14 and a single arm clasp on tooth 26 were planned for better retention and stability. The occlusal height and centric relations were fixed in the next appointment through adapted baseplate and occlusal wax rims. After mounting in articulator dental technicians proceeded to fabrication of the denture. The resected alveolar bone was restored on the gypsum model in its previous anatomical outlines by design of the baseplate and wax modeling. The appropriate size and color of teeth were set, according to the determined occlusion height and preserved teeth. The denture was flask in cuvette and finished from heat-cured acrylic resin with low quantity of residual monomer (fig.2). After cleaning and polishing the denture was adjusted and articulated in patient's mouth in the last clinical appointment (fig.3).

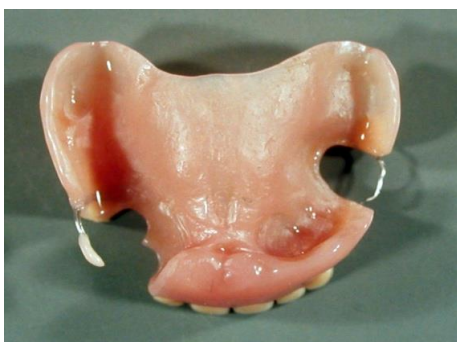


Fig. 2. Finished denture



Fig. 3. Adjusted denture in patient's mouth

4. RESULTS

The results of the prosthetic treatment showed successful restoration of the maxillary defect. Main role for the positive result paid the laboratory design of the substitution part of the denture in the area of the alveolar bone. This helped for restoration of the anatomic shape of the bone and created a base of the upper lip, which improved the aesthetic. The presence of teeth and the choice of appropriate retainers provided the retention and stability, which normalized the chewing, feeding and speaking. The normal occlusal relations were restores.

The conducted prosthetic rehabilitation has returned patient's self-esteem and social activity.

5. DISCUSSION

The prosthetic treatment of patients with oncological diseases in the oral cavity is characterized by numerous difficulties and problems, which are results from the bone defects and soft tissues damages. Additional difficulties are appeared as a result from the radiotherapy, which causes trismus and necrotic bone lesions. The described complications make chewing, feeding and speaking almost impossible. These typical violations were observed in the presented clinical case. The patient complained from serious damage of all functions in the oral cavity and severe life quality after the surgical treatment. Caused changes has been affected his self-esteem and life quality, which is very common in such a patients [1,2]. A serious functional disorders, which are typical for these diseases, were appeared, due to the large defect [3, 4]. This required the application of specific treatment methods, materials and modification of well-known techniques. It is considered as a good practice in these cases [9, 10, 11]. The main difficulties in the treatment were correlated with the retention and stability of the denture, which according to many authors [14, 15] is a major problem in the prosthodontics. The presence of preserved teeth improved treatment efficiency and confirmed the thesis, that natural teeth are main factor for denture's retention [16]. This provided successful restoration of the damaged functions and life quality, which is considered as a main aim of the rehabilitation [1, 2, 5, 12].

6. CONCLUSION

Prosthetic treatment methods take important part in the complex therapy of oncological disease in the oral cavity. They are an appropriate alternative in patients, who have contraindications or refuse surgical jaw reconstruction.

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