

COMBINED PROSTHETIC TREATMENT OPTIONS FOR PATIENTS WITH HARD PALATE RESECTION

Ivan Gerdzhikov

Department of Prosthetic dentistry, Faculty of Dental Medicine, Medical University of Sofia
ivan_ger1971@abv.bg

Abstract: Introduction: Prosthetic methods of treatment are the most commonly used and universal remedy for patients with maxillary resection.

Aim: The purpose of the clinical case described is to investigate the potential of combined prosthetics in patients with hard palate resection, and the effect of treatment to restore damaged oral cavity functions.

Materials and methods: A prosthetic treatment is described of a female patient having partial resection of the hard palate. The treatment plan included the making of a combined bridge denture structure involving teeth 11, 12, 13 and 21 and a plaque obturator prosthesis with mechanical joints. The impressions were taken by means of additive silicone material. The obturator was made of acrylic resin, while the replacement element was made with a buccal flange shape.

Results: The prosthetic treatment provided a successful sealing of the maxillary defect, which normalized the nutrition and speech of the patient.

Conclusion: The use of combined prosthetic structures in patients with resection of the hard palate creates a stable barrier between the oral and nasal cavities, thus helping to restore damaged oral cavity functions.

Keywords: maxillary resection, maxillary defect, obturator, post resection denture.

1. INTRODUCTION

Surgical treatment of tumours in the oral cavity causes various size and localization defects, which in most cases are restored with prosthetic structures (1). A number of treatment methods and modifications are used for this purpose, using different materials (2, 3, 4). Most commonly used are heat-cured polymethyl methacrylate resins that provide optimal obturator stability, and thus help to restore normal nutrition, speech and swallowing (5, 6). Their application is particularly suitable for the step-by-step making of the plaque and the obturator part, as well as in the case of trismus and treatment with two-part obturators (7, 8). In the cases requiring "fast" methods of treatment, self-cured acrylic resins are used to make or relocate surgical obturators (9, 10). The main disadvantages and dangers of their use are related to the toxic effect of the residual monomer (11). In the more modern alternative treatment methods, obturators are made of light-cured acrylic resins, which allows a 25% reduction in weight and improved denture retention and stability (12).

A major problem in the treatment of patients with maxillary resection, especially after radiotherapy, is the occurrence of trismus (13). This necessitates the application of specific methods of treatment with two-part obturators in which the plaque is made of heat-cured acrylic resin, and the obturator - of silicone material (14, 15). For their coupling, samarium-cobalt magnets are used, fixed in both parts of the obturator (16). As an alternative to this type of combined denture, plastic locks or "secret button" type systems may also be used (17, 18).

The main difficulties in prosthetic treatment after maxillary resection are related to the retention and stability of the obturator (19, 20). Various methods and means are used to improve them, the effectiveness of which depends on the size and location of the defect, and the presence of preserved teeth (21).

2. AIM

The purpose of the clinical case described is to investigate the potential of combined prosthetics in patients with hard palate resection, and the effect of treatment to restore damaged oral cavity functions.

3. MATERIALS AND METHODS

The complete prosthetic rehabilitation of a 65-year-old patient with a hard palate defect as a result of an oncology operation is presented. Intraoral examination revealed a right-sided defect to the midline that reached the border with the soft palate (Figure 1). The teeth 11, 12, 13 and 21 were retained on the upper jaw, which were coated with vestibularly shortened crowns. The alveolar ridge of the upper jaw was characterized with a strong atrophy, while the lower jaw was with intact dentition. As a result of radiotherapy, there was a pronounced trismus and pain in m.

masseter. A treatment plan was drawn up, which included combined bridge denture and a plaque obturator denture with mechanical joints. For this purpose the existing crowns were removed and an impression was taken by means of additive silicone. The height of the occlusion was determined by wax rims, and a bridge structure with fixed T-shaped patrices of mechanical joints was made in the laboratory (Figure 2). After adjusting into the patient's mouth, a new impression was taken by means of additive silicone, the defect being preliminary tamponed with gauze. In the laboratory, the obturator was made of heat-cured acrylic resin with a low residual monomer. To reduce its weight and volume, the replacement element was made with a buccal flange shape. In the last clinical stage, the denture was adjusted and articulated into the patient's mouth. The follow-up examinations did not reveal any decubital injuries, but some occlusal contacts had to be adjusted.

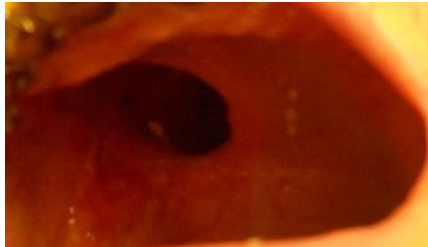


Fig. 1. Intraoral patient's view



Fig. 2. The adjusted bridge with T-shaped patrices

4. RESULTS

The results of the applied treatment showed a successful sealing of the upper jaw defect. The combined denture provided good obturator retention and stability (Figure 3). The use of T-shaped mechanical joints with unlimited sinking allowed easy and unproblematic adjusting to the prosthetic area. Normal occlusal-articulation relations were restored, which also helped to normalize chewing and nutrition. The patient's problem with liquids intake was also solved. The use of the classical buccal flange shape of the replacement element of the denture allowed the separation of the oral and nasal cavities to restore speech function.

Successful restoration of nutrition and speech brought back the patient's self-esteem and social activity. As a result of the overall prosthetic rehabilitation, the quality of life of the patient was significantly improved.



Fig. 3. Adjusted obturator

5. DISCUSSION

The main goal of the prosthetic treatment was the sealing of the maxillary defect and the creation of a stable barrier between the oral and nasal cavities. The localization and size of the defect have led to the use of various prosthetic methods of treatment. The presence of preserved natural teeth, however, allowed the construction of a combined denture, which, according to most data, provides optimal stability of the obturator (16, 17, 18). The clinical results confirmed this view, as well as Parr et Gardner (21), that the presence of preserved teeth significantly improves the effectiveness of the denture. The major difficulties with the retention and stability of the obturator have been overcome, which, according to most authors (19, 20), are a major problem in the treatment of patients with maxillary resection. The making of a combined prosthetic structure allowed for successful prosthetic treatment despite the trismus, and confirmed the view that overcoming the complications after radiotherapy is possible only when making up and implementing an appropriate treatment plan (13). Reduced weight and volume allow easy and unproblematic insertion into the defect, as reported by other authors (12, 14). The use of heat-cured

polymethylmethacrylate resin for the making of the definitive obturator confirmed the thesis that this is the optimal material for the denture of patients with maxillary resection (5, 6). This did not coincide with the opinion of some authors (14, 15) that positive results can only be obtained with the treatment of two-part obturators in which the plaque is made of heat-cured acrylic resin, while the obturator - of silicone material.

The successful recovery of impaired functions confirmed the thesis of Hertrampf et al. (1) that prosthetic rehabilitation has a beneficial effect on the social activity of patients with maxillary resection and significantly improves their quality of life.

6. CONCLUSION

Prosthetic methods of treatment are the most commonly used means of restoring nutrition and speaking of patients with maxillary resection. The variety of defects necessitates the application of various prosthetic procedures, where in some of them combined denture structures are made, which ensure optimal retention and stability of the definitive obturator.

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