

Prosthetic Treatment in Patient with Maxillary Cancer Disease

Ivan Gerdzhikov

Department of Prosthetic Dentistry, Faculty of Dental Medicine, Medical University of Sofia

Abstract: Introduction: Surgical treatment of tumors in oral cavity causes defects with different size and localization, which leads to problems in chewing, swallowing, speaking and breathing. Very common the only way of restoring these functions is by using prosthetic treatment methods. Objective: The aim of the described clinical case is to follow the main stages of prosthetic treatment in patient with maxillary cancer disease. Material and methods: A prosthetic rehabilitation of 61-years-old patient after operation from squamous cell carcinoma was conducted. As a result, a defect in the right side of the maxilla occurred. The treatment plan included the fabrication of obturator in upper jaw and partial denture in lower jaw. The impressions of both jaws were taken with standard metal trays and irresistible hydrocolloid impression material. The dentures were made by heat-cured acrylic resin. Due to the relatively small defect volume the substitute part of the postresectioned denture was fabricated with thick obturation part. Results: The applied treatment method allowed successful restoration of patient's feeding and breathing. Conclusion: The prosthetic treatment methods are main methods and very often they are the only way for restoration of the speaking and feeding in patients with maxillary resection.

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

1. Introduction

The damages in maxillofacial area after maxillary resection cause serious problems in patients' chewing, swallowing, speaking and breathing [1,2,3]. The state of functional disorder is involved with the defect size and localization [4,5]. The researches revealed, that patients with small defects and preserved teeth have less functional disorders [6,7]. According to Devlin et Barker [8] the defect localization, size and the state of preserved dentition are determinative for the state of functional disorders and prognosis. In a comparative research Brown et al. [9] confirmed this statement. They registered lower average values for the speaking and chewing in patients with bigger defects.

Functional and aesthetic disorders after maxillary resection lead to severe psychological traumas, which need specialized treatment immediately after the diagnosis [10,11,12]. The appeared changes cause serious influence of patients' life quality and their social contacts. Medford's studies [13] show that social activity, in patients after maxillary resection, is in close correlation with the efficiency of the prosthetic treatment. Main role take the stage of the disease and the prognosis, as well [3]. Considering numerous difficulties and problems in the treatment of those patients, Lin et Wang [14] reckon that solving these problems needs deeply understanding of patients' individual needs.

2. Objective

The aim of the clinical case, described below, is to follow the main stages of prosthetic treatment in patient with maxillary cancer disease.

3. Materials and Methods

A prosthetic rehabilitation, of 61-years-old patient, after operation from squamous cell carcinoma was conducted. As a result, a defect in the right side of the maxilla occurred.

The intraoral examination discovered maxillary defect near the border with the soft palate with alveolar bone resection (Figure 1). Teeth 23, 24, 25 of the upper jaw and the teeth from 35 to 45 of the lower jaw were preserved.



Figure 1: Intraoral patient's view

The treatment plan included the fabrication of obturator, postresection denture in upper jaw, and partial denture in lower jaw. The preliminary impressions of both jaws were taken with standard metal trays and irresistible hydrocolloid impression material Phase plus. A gauze tamponade was made in advance, for preventing the defect of free penetration of impression material. The occlusal height and centric relation were fixed in the next clinical stage. Trial denture appointment showed successfully occlusal restoration. The obturator was made by heat-cured acrylic resin Meliodent HC, with low quantity of residual monomer. Due to the relatively small defect volume, the substitute part of the postresectioned denture was fabricated with thick obturation part. The dentures were adjusted without any problems in the final clinical stage (Figure 2).



(a)



(b)

Figure 2: Adjusted dentures (a) and restored occlusal closure (b)

4. Results

The results of the conducted prosthetic treatment revealed successful defect hermetization of the maxilla, which contributed for speech restoration. The normal occluso-articulation relations were restored, which improved patient's chewing and feeding. The successful functional restoration improved patient's self-esteem and life quality significantly.

5. Discussion

Prosthetic treatment in patients with maxillary resection is connected with many difficulties and problems. Most of them are result from violation of the septum between the nasal and oral cavity, which makes the normal feeding and speaking very tough. This imposes fabrication of a special denture, which provides optimum defect hermetization for restoration of the lost functions. The clinical case described, confirmed the state, that the success of the treatment depends mainly from the defect size and localization [6, 7, 8]. The prosthetic treatment improved patient's self-esteem and confirmed the state of Medford [13], that the social activity in patients with maxillary resection correlates with the efficiency of the treatment.

6. Conclusions

The application of prosthetic treatment in patients with maxillary resection allows successfully restoration of the functional disorders. In most cases, this treatment is the main or the only one option for feeding and breathing restoration.

References

- [1] Depprich, R., C. Naujoks, D. Lind, M. Ommerborn, U. Meyer, N. Kübler, J. Handschel. Evaluation of the quality of life of patients with maxillofacial defects after prosthodontic therapy with obturator prostheses. *Int. J. Oral Maxillofac. Surg.*, 2011, Jan, 40 (1), 71-79.
- [2] Irish, J., N. Sandhu, C. Simpson, R. Wood, R. Gilbert, P. Gullane, D. Brown, D. Goldstein, G. Devins, E. Barker. Quality of life in patients with maxillectomy prostheses. *Head Neck*, 2009, Jun, 31 (6), 813-821.
- [3] Lethaus, B., N. Lie, F. de Beer, P. Kessler, C. de Baat, H. Verdonck. Surgical and prosthetic reconsiderations in patients with maxillectomy. *J. Oral Rehabil.*, 2010, Feb, 37 (2), 138-142.
- [4] Keyf, F. Obturator prostheses for hemimaxillectomy patients. *J. Oral. Rehabil.*, 2001, Sep, 28 (9), 821-829.
- [5] Vergo, T. J., R. Chapman. Maximizing support for maxillary defects. *J. Prosthet. Dent.*, 1981, Feb, 45 (2), 179-182.
- [6] Usui, H. Evaluation of maxillary prosthesis for better QOL. *Nihon Jibiinkoka Gakkai Kaiho*, 1994, Sep, 97 (9), 1643-1656.
- [7] Usui, H., Y. Sakakura, K. Shimozaoto. Maxillary prosthesis for better QOL--analysis of maxillary prosthesis stability. *Am. J. Otolaryngol.*, 2009, May-Jun, 30 (3), 176-180.
- [8] Devlin, H., G. R. Barker. Prosthetic rehabilitation of the edentulous patient requiring a partial maxillectomy. *J. Prosthet. Dent.*, 1992, Feb, 67 (2), 223-227.
- [9] Brown, J. S., S. Rogers, D. McNally, M. Boyle. A modified classification for the maxillectomy defect. *Head Neck*, 2000, Jan, 22 (1), 17-26.
- [10] Gillis, R. E. Jr., W. Swenson, W. Laney. Psychological factors involved in maxillofacial prosthetics. *J. Prosthet. Dent.*, 1979, Feb, 41 (2), 183-188.
- [11] Hertrampf, K., H. Wenz, K. Lehmann, W. Lorenz, M. Koller. Quality of life of patients with maxillofacial defects after treatment for malignancy. *Int. J. Prosthodont.*, 2004, Nov-Dec, 17 (6), 657-665.
- [12] Abadiq, B. J., J. Johnson. The prosthodontic management of cleft palate patients. *J. Prosthet. Dent.*, 1982, Sep, 48 (3), 297-302.
- [13] Medford, H. M. Repair of hollow-bulb maxillary obturator. *J. Prosthet. Dent.*, 1981, Jan, 45 (1), 111-112.
- [14] Lin, F. H., T. Wang. Prosthodontic rehabilitation for edentulous patients with palatal defect: report of two cases. *J. Formos Med. Assoc.*, 2011, Feb, 110 (2), 120-124.

Author Profile



D-r Ivan Dimitrov Gerdzhikov, PhD, Department of Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Sofia. In 1994. Graduation of higher education Master's degree, Faculty of Dental Medicine, Medical University of Sofia, Bulgaria. 1996. Full-time assistant professor at the Department of Prosthetic dental medicine, Faculty of Dental Medicine of Sofia. 1999. Specialist in Prosthetic Dentistry. 1997-2001. Lecturer on maxillofacial prosthetic treatment, Medical College "Y. Filaretova", Sofia. 2005. Specialist in General Dentistry. 2009. Appointed on the position of Chief Assistant Professor. 2015. Defended dissertation "Quality of life in patients

with maxillary postoperative defects - analysis and optimization" and acquiring Educational and qualification degree PhD. More than 40 participation in national and foreign congresses and scientific forums in the field of prosthetic dental medicine. Co-author of the monograph "MAXILLOFACIAL INJURIES AND DEFECTS- Quality of life after orthopedic rehabilitation". 2016. Publications - 31. Member of the Bulgarian Dental Association, Bulgarian Society of Dental Medicine, Bulgarian Scientific Dental Society.