

# Quality of Life of Patients with Obturator Prostheses

Ivan Gerdzhikov

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

**Abstract:** ***Background:** Prosthetic methods are in the foundation of the complex treatment and rehabilitation in patients with maxillary resection. **Objective:** The aim of this research is to follow up the main problems of patients with maxillary resection and their influence of life quality before and after prosthetic treatment. **Discussion:** The numerous problems which occurred after maxillary resection, complicate prosthetic treatment and make quality of life worse. According to different data this may vary from  $54\% \pm 22,9\%$  to  $81,48\% \pm 13,64\%$ . **Conclusion:** Study the problems of patients with obturator, allows an objective assessment of their general health and individual needs to be made, during the different stages of their prosthetic treatment. Analysis of the received data gives information about the efficiency of the treatment and achieved life quality.*

**Keywords:** life quality, maxillary resection, obturators

## 1. Introduction

Damages in maxillofacial area, occurred after maxillary resection, caused serious aesthetic, psychological problems and functional disorders, which make life quality worse [1], [2]. Solving this problems is possible only after a research of individual needs of the patients [3]. According to Agrawal et al. [4], palate-pharyngeal dysfunction is in the base of this disorders. The palate-pharyngeal valve is unable to perform its own closure, due to lack of tissue or incorrect motion. The author established that the main problems in patients with maxillary resection are fluid leakage through the nose and hypernasal speech. According to Hertrampf et al. [5] and Rogers et al. [6], the main problem in patients with maxillary resection is the pain, which is the leading factor for life quality. Depprich et al. [7] established that the pain is main problem for 25% of investigated patients, even after the treatment. This state had been confirmed by Demez et Moreau [8], who made a survey among the maxillofacial surgeons and discovered that the main problems in patients with head and neck tumors are pain and breathing disorders. Serious functional and aesthetic damages after maxillary resection lead to severe psychical problems.[5], [9]. Their overcoming needs special cares and precise diagnostic before and after treatment [9], [10]. Despite of that, even when the prosthetic treatment has success, life quality is seriously damaged [5]. Occurred problems are the main motive for restriction of social contacts [1]. In his researches Medford [11] discovered that social activity in patients with maxillary resection is extremely connected with the success of prosthetic treatment. Lethaus et al. [2] support this opinion and inset that prosthetic rehabilitation is very important for patient in advanced stage of the disease and bad prognosis.

## 2. Objective

The aim of this research is to follow up the main problems of patients with maxillary resection and their influence of life quality before and after prosthetic treatment.

## 3. Literature Survey

Prosthetic treatment methods take main place in the complete treatment and rehabilitation in patients with maxillary resection [12], [13], [14]. The treatment has its own specific, due to the fact that different maxillofacial area is involved. This correlates with the state of disability [15], [16]. Guided by this, some authors [8] claim that life quality is the leading factor in choosing a treatment method. Investigation among the maxillofacial surgeons establish that only 65% of them has access to specialist in maxillofacial prosthetic treatment, which in 19% affects their choice of treatment method [17]. It is a general opinion, that state of functional damages depends on defect's size and localization [18], [19], [20]. This confirmed the studies of Usui et al.[21], [22], who established, that there are small functional disorders, more preserved teeth and mouth opening more than 20mm in patients with small defects. Devlin et Barker [23] has similar opinion: size and localization of the defect and residual dentition status are defining for the state of functions damage and treatment prognosis. Comparatively study of patients with maxillary resection, Brown et al. [24], showed lower average values of speaking and chewing in patients with bigger defects.

Life quality examination of patients with obturators is an object in many studies, which are based on subjective evaluation for patients' physical and mental state, but on problems, occurred after the operation, as well [1], [5], [6], [25], [26], [27], [28]. The results revealed reduced in different rate life quality, which is in the diapason of  $64\% \pm 22,9\%$  [7]. This level is near to established from Hertrampf et al.[5] results of 61% life quality after prosthetic treatment with obturator. The data are similar to investigations of Riaz et Warriach [27], who report values for the diapason of  $54\% \pm 22,9\%$ .

The intention for full and wide research of the different aspects of life quality in patients with obturators, is the reason for constantly seeking and development of new methods for investigation [29], [30]. Kumar et al. [31] applied the module approach of European Organization for Research and Treatment of Cancer (EORTC) and established

81,48% ± 13,64% life quality values after obturator treatment. Chigurupati et al. [32] examined the quality of life through the questionnaires of University of Washington (UWQOL), the scale for obturator functioning scale (OFS) and mental health (MHI). The received data revealed 77,3% of life quality, according to UWQOL, 72,0% when OFS is used and 4,5% with MHI (scale from 0 to 6). According to authors [32], the main reason for this results is the period of patients examination, which vary from 0,3 to 6,6 years (2,7 years average) after the prosthetic treatment with definitive obturator. This conclusion confirms the state of Irish et al. [1], that patients with obturator have successful adaptation to their functional disorder and their life quality I better than other chronic disease.

Despite the variable results in the different researches, most authors [7], [27], [31], [32] define the treatment with obturator as an universal method for optimizing patients' life quality after maxillary resection. It is a general state, that achievement of optimum treatment results is possible only after investigation of all factors, which have influence of life quality [2], [6], [26], [27], [33].

Restriction of social contacts is serious problem, which has a negative influence of life quality [1], [7]. This is a reason for 28% - 39% rejection in participation of studies [1], [7], [26]. Immersion in this problems causes serious mental damage and leads to reduced quality of life [1], [26]. Overcoming them is possible only with the help of team of specialists, who arranges the mental and psychological adaptation of patients [10]. It is a general statement, that the specialist in maxillofacial prosthetic treatment is a main factor in this process [34], [35], [36]. His role has very big significance in the adaptation period when the prosthetic treatment is used [13].

The age of patients with obturators has a big influence in life quality [37]. The studies reveal better clinical results in patients below 60 years, which corresponds with the expectations of disease appearance with age [26], [38]. Other factors, that have influence of life quality, are chemo and radiotherapy [25], [32], [38], [39], [40]. In this case problems increased with appearance of xerostomia, difficulties in swallowing and speech [20], [25], [38], [39], [40]. The data is complete by Lethaus et al. [2], who claim that upper lip tingles very often. Barrett et al. [39] define trismus as a most serious complication after radiotherapy and accent that mouth opening less than 10mm does not allow prosthetic treatment. They suggest a complex of exercises and physiotherapeutic procedures to start in the first days after resection.

After analysis of problems in patients with maxillary resection, Rogers et al. [6] found out, that despite the severe illness, patients create their own strategy for overwhelming the situation in the oral cavity, which leads to better life quality. Terrell et al. [41], have a controversial statement, which claims that bad life quality after surgical treatment is the reason for 34,1% of patients to define themselves as a handicaps.

## 4. Discussion

Maxillofacial defects after maxillary resection, cause serious damages in patients chewing, feeding, speaking, breathing and aesthetic. Damaged or lost function causes problems, which have influence on life quality. Different methods for evaluation via surveys and functional studies are applied for assessment and analysis of occurred changes. Numerous methods for research, described above, are the reason for receiving different data, which shows that life quality after treatment with obturator may vary from 54% ± 22,9% to 81,48% ± 13,64%.

Literature review [13], [35] reveals understanding and unification around the statement that prosthetic treatment after maxillary resection is complicate multistage process, connected with solving many problems. In the base of most of them are difficulties with restoration of normal breathing, speaking and feeding [1], [2], [7]. Everyone agreed [18], [19], [20], [23], that the rate of occurred functional disorders is in correlation with defect's size and localization, such as changes in the soft tissues after postoperative period, as well. In most cases, damages are in correlation with changes in appearance, which causes serious psychological problems [1], [7], [26]. Main purpose of the prosthetic treatment with obturator is recovering of damaged functions, aesthetic and social activity [7], [27], [31], [32].

## 5. Conclusions

Numerous problems, occurred after maxillary resection, complicate prosthetic treatment, which has negative effect of patients' life quality. Caused problems are specific for every patient and do not allow unified approach, due to the different size and localization of the defect. Prosthetic treatment is complicates even more, due to the fact, that every treatment stages is characterized by circumstances with different influence of life quality. Investigation of these problems allows an objective assessment of patient's general state and specific needs in every stage of prosthetic treatment. The analysis of received data may give a clear view of the effect of treatment and to make the optimum prosthetic treatment plan easy to discover.

## References

- [1] 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.
- [2] 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.
- [3] 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.
- [4] Agrawal, K. K., B. Singh, P. Chand, C. Patel. Impact of delayed prosthetic treatment of velopharyngeal insufficiency on quality of life. *Indian J. Dent. Res.*, 2011, Mar-Apr, 22 (2), 356-358.

- [5] 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.
- [6] Rogers, S. N., D. Lowe, D. McNally, J. Brown, E. Vaughan. Health-related quality of life after maxillectomy: a comparison between prosthetic obturation and free flap. *J. Oral Maxillofac. Surg.*, 2003, Feb, 61 (2), 174-181.
- [7] 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.
- [8] Demez, P. H., P. R. Moreau. Perception of head and neck cancer quality of life within the medical world: a multicultural study. *Head Neck*, 2009, Aug, 31 (8), 1056-1067.
- [9] Gillis, R. E. Jr., W. Swenson, W. Laney. Psychological factors involved in maxillofacial prosthetics. *J. Prosthet. Dent.*, 1979, Feb, 41 (2), 183-188.
- [10] Abadiq, B. J., J. Johnson. The prosthodontic management of cleft palate patients. *J. Prosthet. Dent.*, 1982, Sep, 48 (3), 297-302.
- [11] Medford, H. M. Repair of hollow-bulb maxillary obturator. *J. Prosthet. Dent.*, 1981, Jan, 45 (1), 111-112.
- [12] Gay, W. D., G. E. King. Applying basic prosthodontic principles in the dentulous maxillectomy patient. *J. Prosthet. Dent.*, 1980, Apr, 43 (4), 433-435.
- [13] King, G. E., J. Martin. Complete dentures for the obturator patient. *Dent. Clin. North Am.*, 1996, Jan, 40 (1), 217-237.
- [14] Maire, F., P. Kreher, B. Toussaint, G. Dolivet, L. Coffinet. Prosthesis fitting after maxillectomy: an indispensable factor in acceptance and rehabilitation. *Rev. Stomatol. Chir. Maxillofac.*, 2000, Jan, 101 (1), 36-38.
- [15] Borlase, G. Use of obturators in rehabilitation of maxillectomy defects. *Ann. R. Australas Coll. Dent. Surg.*, 2000, Oct, 15, 75-79.
- [16] Desjardins, R. P. Obturator prosthesis design for acquired maxillary defects. *J. Prosthet. Dent.*, 1978, Apr, 39 (4), 424-435.
- [17] Ali, A., M. Fardy, D. Patton. Maxillectomy-to reconstruct or obturate? Results of a UK survey of oral and maxillofacial surgeons. *Br. J. Oral Maxillofac. Surg.*, 1995, Aug, 33 (4), 207-210.
- [18] Keyf, F. Obturator prostheses for hemimaxillectomy patients. *J. Oral Rehabil.*, 2001, Sep, 28 (9), 821-829.
- [19] Vergo, T. J., R. Chapman. Maximizing support for maxillary defects. *J. Prosthet. Dent.*, 1981, Feb, 45 (2), 179-182.
- [20] Yontchev, E., S. Karlsson, A. Lith, S. Almqvist, P. Lindblad, B. Engström. Orofacial functions in patients with congenital and acquired maxillary defects: a fluoroscopic study. *J. Oral Rehabil.*, 1991, Nov, 18 (6), 483-489.
- [21] Usui, H. Evaluation of maxillary prosthesis for better QOL. *Nihon Jibiinkoka Gakkai Kaiho*, 1994, Sep, 97 (9), 1643-1656.
- [22] Usui, H., Y. Sakakura, K. Shimozato. Maxillary prosthesis for better QOL--analysis of maxillary prosthesis stability. *Am. J. Otolaryngol.*, 2009, May-Jun, 30 (3), 176-180.
- [23] Devlin, H., G. R. Barker. Prosthetic rehabilitation of the edentulous patient requiring a partial maxillectomy. *J. Prosthet. Dent.*, 1992, Feb, 67 (2), 223-227.
- [24] Brown, J. S., S. Rogers, D. McNally, M. Boyle. A modified classification for the maxillectomy defect. *Head Neck*, 2000, Jan, 22 (1), 17-26.
- [25] Hahn, T. R., G. Krüskemper. The impact of radiotherapy on quality of life - a survey of 1411 patients with oral cancer. *Mund Kiefer Gesichtschir.*, 2007, Apr, 11 (2), 99-106.
- [26] Kornblith, A. B., I. Zlotolow, J. Goonen, J. Huryn, T. Lerner, E. Strong, J. Shah, R. Spiro, J. Holland. Quality of life of maxillectomy patients using an obturator prosthesis. *Head Neck*, 1996, Jul-Aug, 18 (4), 323-334.
- [27] Riaz, N., R. Warriach. Quality of life in patients with obturator prostheses. *J. Ayub. Med. Coll. Abbottabad.*, 2010, Apr-Jun, 22 (2), 121-125.
- [28] Schwarz, R., A. Hinz. Reference data for the quality of life questionnaire EORTC QLQ-C30 in the general German population. *Eur. J. Cancer.*, 2001, Jul, 37 (11), 1345-1351.
- [29] Silveira, A., J. Gonçalves, T. Sequeira, C. Ribeiro, C. Lopes, E. Monteiro, F. Pimentel. Computer-based quality-of-life monitoring in head and neck cancer patients: a validation model using the EORTC-QLQ C30 and EORTC-H&N35 Portuguese PC-software version. *Acta Med. Port.*, 2011, Dec, 24 (2), 347-354.
- [30] Sprangers, M. A., A. Cull, M. Groenvold, K. Bjordal, J. Blazeby, N. Aaronson. The European Organization for Research and Treatment of Cancer approach to developing questionnaire modules: an update and overview. *EORTC Quality of Life Study Group. Qual. Life Res.*, 1998, May, 7 (4), 291-300.
- [31] Kumar, P., H. Alvi, J. Rao, B. Singh, S. Jurel, L. Kumar, H. Aggarwal. Assessment of the quality of life in maxillectomy patients: A longitudinal study. *J. Adv. Prosthodont.*, 2013, Feb, 5 (1), 29-35.
- [32] Chigurupati, R., N. Aloor, R. Salas, B. Schmidt. Quality of life after maxillectomy and prosthetic obturator rehabilitation. *J. Oral. Maxillofac. Surg.*, 2013, Aug, 71 (8), 1471-1478.
- [33] Groetsema, W. R. An overview of the maxillofacial prosthesis as a speech rehabilitation aid. *J. Prosthet. Dent.*, 1987, Feb, 57 (2), 204-208.
- [34] Aramany, M. A., E. Myers. Prosthetic reconstruction following resection of the hard and soft palate. *J. Prosthet. Dent.*, 1978, Aug, 40 (2), 174-178.
- [35] Desjardins, R. P. Maxillofacial prosthetics: demand and responsibility. *J. Prosthet. Dent.*, 1986, Oct, 56 (4), 473-477.
- [36] Tomer, L., A. Tomer, A. Gupta, A. Sachdeva, Y. Bakshi. Customised obturator prosthesis: A case report. *J. Indian Dent. Assoc.*, 2010, Dec, 4 (12), 570-573.
- [37] Kocacikli, M., S. Yalug, H. Yazicioglu, C. Yilmaz. Fabricating a hollow obturator with visible light-cured resin system. *J. Prosthodont.*, 2008, Oct, 17 (7), 596-598.
- [38] López-Jornet, P., F. Camacho-Alonso, J. López-Tortosa, T. Palazon Tovar, M. Rodríguez-Gonzales. Assessing quality of life in patients with head and neck cancer in Spain by means of EORTC QLQ-C30 and QLQ-

H&N35. J. Craniomaxillofac. Surg., 2012, Oct, 40 (7), 614-620.

- [39] Barrett, N. V., J. Martin, R. Jacob, G. E. King. Physical therapy techniques in the treatment of the head and neck patient. J. Prosthet. Dent., 1988, Mar, 59 (3), 343-346.
- [40] King, G. E., J. Martin. Prosthodontic care of patients receiving chemotherapy and irradiation to the head and neck. Curr. Probl. Cancer, 1983, Apr, 7 (10), 43-50.
- [41] Terrell, J. E., K. Nanavati, R. Esclamado, C. Bradford, G. Wolf. Health impact of head and neck cancer. Otolaryngol. Head Neck Surg., 1999, Jun, 120 (6), 852-859.

## Author Profile



**D-r Ivan Dimitrov Gerdzhikov, PhD** is from Department of Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Sofia.

### Autobiography

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 - 28.

Member of the Bulgarian Dental Association, Bulgarian Society of Dental Medicine, Bulgarian Scientific Dental Society.