

PROSTHETIC REHABILITATION IN PARTIALLY EDENTULOUS ELDERS – A CASE REPORT

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Abstract

Complex treatment involving removable articulated to fixed prostheses is indicated in extended edentulous areas, which represent clinical conditions more frequently encountered in elderly patients. A number of aspects must be considered in elderly patients before starting the therapy: physical and mental condition, self-care capacity, time and cost of treatment, predictability. In institutionalized elders, suffering of systemic diseases, the therapy of choice should be the least invasive and able to restore function at an acceptable level. Active healthy elders can be beneficiaries of complex prosthetic treatments involving many long sessions and difficult treatments.

We present a case of a 74 year-old male with extended maxillary edentulous areas, in whom a complex prosthetic treatment was performed.

Keywords: removable partial denture, prosthodontics, elderly, fixed partial denture.

Introduction

Teeth loss is accelerated in the elderly population engendering large edentulous areas and functional disabilities. Masticatory function is dramatically compromised in these cases, affecting the nutritional status by inappropriate food selection [1]. Inadequate food bolus also causes digestion troubles. Associated esthetic and phonetic dysfunctions can lead to depression and social isolation of the elderly [2].

On average, every patient over 65 years has about five pathological conditions and interdisciplinary collaboration is often necessary to control the clinical evolution [3]. It means that dental therapy in the elderly requires consideration of these co-morbidities. In a clinical evaluation of oral prostheses made by the 6th year students of the Faculty of Dental Medicine, Iuliu-Hatieganu Univ. of Medicine and Pharmacy, on 49 elderly patients hospitalized in the Geriatric Department of Medical Clinic V, Iuliu-Hatieganu U.M.Ph., we found poor masticatory efficiency of all removable complete and partial dentures due to advance tooth wear and instability in chewing movements.

Maintenance check-up appointments were kept by 16% of all 49 patients.

Specific considerations in the prosthetic treatment plan decision for elderly patients

Important objectives in the prosthetic treatment are to improve oral function, self-confidence and quality of life. Treatment plan decisions in the elderly have to consider, beside oral pathology and general health, other individual aspects regarding: self-care capacity and oral hygiene, psychological factors, communication in the dentist-patient relation, social and financial situation, previous denture experience, patient's special demands [4]. Adapting abilities are reduced in elders and a hostile attitude regarding new prosthesis is frequently observed. Recent studies have shown women to have lower acceptance of their new removable partial prostheses [5].

The adequate treatment options have to take into consideration the individual psychological and physical conditions in relation to distinctive categories of elderly patients:

1. healthy, dynamic and independent elderly; motivated patients with good communication abilities who understand and follow the dentist's recommendations,

interested in receiving dental treatments

2. independent persons depressed after retirement, with poor social activity and poor communication abilities, indifferent to their dental problems, untrusting the dentist's recommendations

3. Institutionalized elderly with severe systemic pathology, hostile to dental treatments and communication.

In institutionalized edentulous elderly suffering from severe systemic pathologies, the simplest therapeutic solutions have to be selected for acceptable functional restorations. A reserved attitude is recommended in choosing a long and difficult prosthetic treatment when patients are indifferent or hostile.

Complex prosthetic reconstructions involving many appointments and difficult treatments are indicated in motivated healthy elders, with good communication abilities and realistic expectations [6].

Implant supported treatments have to be considered when favorable, general and local, conditions exist, to improve function, better bone maintenance and patient satisfaction.

Case presentation

A partially edentulous 74-year-old man came to the dental office because of masticatory and esthetic discomfort due to the existing prosthesis. He was a healthy independent person, demanding a new prosthesis with improved masticatory stability and better esthetics.

Oral examination evidenced maxillary and mandibular extended edentulous areas and inappropriate prosthesis. A fixed partial metal-acrylic prosthesis from 13 to 25 with an intermediary for the missing 24 had esthetic defects due to repeated cementation of the acrylic veneers and incorrect peripheral fitting. The removable maxillary acrylic partial denture restoring posterior edentulous areas had functional instability and extensive wear of the acrylic teeth.

Two metal-acrylic bridges with incorrect peripheral fitting and esthetic defects were present on the mandibular arch: a cantilever bridge from 33 to 35 with intermediary



Figure 1. Initial clinical aspect on OPT

extension for 36 and another bridge from 43 to 46 (fig. 1). The patient had good oral hygiene.

Case analysis and treatment plan decision

Favorable mandibular bone condition was found on radiographs and clinical examination and implant supported fixed partial prostheses were recommended for mandibular arch rehabilitation. Advanced maxillary crests atrophy was unfavorable to implants insertion in this patient unless complementary surgery of sinus lifting was performed. Implant supported prosthesis was rejected by the patient. He demanded dental supported mandibular fixed partial prosthesis. A hybrid treatment was then proposed for the maxillary arch involving a removable partial denture (RPD) and a metal-ceramic fixed partial denture (FPD) splinting all present teeth 11, 12, 13, 21, 22, 23, 25. The palatal configuration without tori was favorable to locate the palatal strap of the removable partial denture. Two metal-ceramic bridges were proposed for the lateral edentulous mandibular areas, warning the patient on the reduced chewing surfaces because of missing molars. Modified saddle crest rapport of the intermediaries and rigid connectors were decided for fixed prosthesis.

Good compliance regarding oral hygiene and routine maintenance was observed in this patient.



Figures 2, 3. Frameworks for fixed and removable maxillary prostheses

Clinical procedures

After removing the existing fixed prosthesis, abutment teeth preparation was performed and silicon impressions were made in individual trays. Centric relation recording was sent to the laboratory. Resin abutments were realized on the model in order to assess perfect fitting of the framework. Metal infrastructure for fixed and articulated removable components were made in the laboratory and then, intraoral fitting was checked (Fig. 2, 3).

Teeth color and mold was decided considering antagonist natural teeth and the patient's demands.

Wax set-up of the RPD was made and checked in the oral cavity for occlusion, aesthetics and phonetic rehabilitation. Proper extension of the denture bearing area was evaluated (fig. 4).

Support for the RPD was evaluated in the oral cavity. RPD was stable and the occlusion was convenient with a free gliding movement (3 mm) without cuspal interference during masticatory movements. Approximate symmetrical design of the prosthetic complex is favorable

for good acceptance (fig. 5).

Tooth wear in mandibular FPD was according to present natural teeth.(fig. 6)



Figure 6. Mandibular metal-ceramic FPD design

Cementation of the FPDs was made with dual resin cement. A proper lip support was observed as well as convenient teeth visibility after prosthetic treatment finalization (fig. 7). The patient was trained to manipulate his removable prosthesis before dismissal. Patient was also informed about the maintenance schedule. Relining will be performed when necessary according to the ridge evolution.

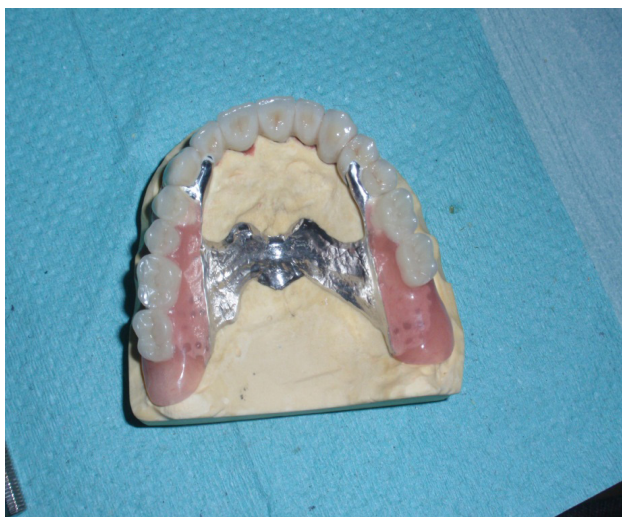


Figure 4. Finalized prostheses on maxillary model



Figure 5. Components of maxillary prosthetic reconstruction and connection system

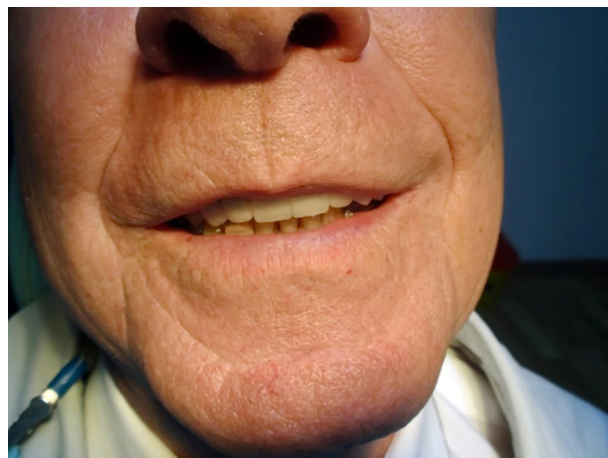


Figure 7. Agreeable smile after finalized prosthodontics

Discussion

The patient's satisfaction after full arch restoration was sustained by improved retention, good stability, agreeable esthetic and convenient phonetic pattern. Regular controls of articulating system efficiency and prosthesis stability are necessary.

Proper treatment planning and patient realistic information about all the therapeutic steps is emphasized as an essential role of the dentist [6]. Educating the patients for a positive attitude toward treatment and realistic expectations avoids mismatched perceptions.

Oral hygiene is extremely important in post-therapeutic evolution, especially in the elderly (with decreased visual acuity and neurologic disease). Maintenance program is adapted to the individual condition. The importance of periodic follow-up has to be explained to the elderly and appointments have to be respected. Recommended recall time is 6 months; periodical check-ups for professional cleaning in patients with serious difficulties in oral hygiene maintenance may be more frequent.

A complex prosthetic treatment with many long appointments is hardly supported by the elderly patient, therefore an optimistic attitude of the dentist is beneficial for the patient's psychological wellbeing during the treatments.

Conclusion

Maxillary posterior extended edentulous areas can be successfully restored by removable dentures articulated to fixed prostheses for improved function, aesthetics, self-

confidence and life quality.

References

1. Wakabayashi N, Yatabe M, Ai M, Sato M, Nakamura K. The influence of some demographic and clinical variables on psychosomatic traits of patients requesting replacement removable partial dentures. *J Oral Rehabil.* 1998;25:507-512.
2. Knezović Zlatarić D, Čelebić A, Valentić-Peruzović M, Jerolimov V, Pandurić J. A survey of treatment outcomes with removable partial dentures. *J Oral Rehabil.* 2003;30:847-854.
3. Wostmann B, Budtz-Jørgensen E, Jepson N, Mushimoto E, Palmqvist S, Sofou A, et al. Indications for removable partial dentures: A literature review. *Int J Prosthodont.* 2005;18:139-145.
4. Vanzeveren C, D'Hoore W, Bercy P, Leloup G. Treatment with removable partial dentures: A longitudinal study. Part I. *J Oral Rehabil.* 2003;30:447-458.
5. Etman MK, Bikey D. Clinical performance of removable partial dentures: A retrospective clinical study. *Open Journal of Stomatology.* 2012;2:173-181.
6. Lascu LM. *Proteza partiala mobilizabila scheletata*. Cluj Napoca: Ed Medicală Universitară Iuliu Hațieganu; 2006.