

## ORAL REHABILITATION USING OVERDENTURE ON DENTAL IMPLANTS

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**Abstract:** This paper presents the oral rehabilitation of a female patient using dental implants. Overdenture was performed on two mandible dental implants, which were applied immediately after extraction and were then embedded in the prosthesis by two ball-type special systems.

**Cuvinte**

supraprotezare, implant dentar, proteză dentară

**cheie:**

**Rezumat:** Lucrarea prezintă reabilitarea orală a unei paciente prin intermediul implantului dentar. Supraprotezarea s-a efectuat pe două implantate dentare mandibulare, care au fost aplicate imediat postextracțional și care au fost ulterior ancorate în baza protezei prin două sisteme speciale de tip bilă.

### INTRODUCTION

The concept of keeping the last dental units on the arch in order to be used as carriers of combined dental periodontal support or mucosal-bone of a movable prosthetic parts, has generated new horizons in contemporary prosthesis orientation.(1,2)

Varied possibilities of therapy (the telescopic systems combined with other means of anchorage, supported by endosseous implants etc.) of certain clinical forms of partial or total edentulous provides increased comfort to patients, helping to restore the functions of the dental apparatus and increase their quality of life.(1,3,4)

### CASE PRESENTATION

Female patient, aged 65 years old has presented in specialized outpatient dental and oro-maxillo-facial surgery clinic for oral rehabilitation and change of existing dentures.

On oral examination, the patient is observed that has partial acrylic dentures both on maxilla and mandible. The maxillary arch has an acrylic partial denture old (made 7 years ago) prosthesis anchored by a wire crochet to the tooth 1.7., which is restored by a single denture coronary metal. This is still well suited single denture marginal and no tooth mobility is detected. Maxillary prosthetic jaw field is of an average retentiveness, the palate is deep and the edentulous ridges and bottoms of the gum are favourable for a new prosthesis.(2,4)

Prosthesis is wide, inadequate to the prosthetic field, showing the tilting motion and clogging under the pressure of masticatory forces. On the mandibular arch, following the clinical examination, we can observe four remaining teeth: canines and lower lateral incisors. These dental units show a mobility of grade III, respectively a mobility in the vestibulo-orally sense, medially-distally and axially, there were large deposits of tartar and mucous-bacterial plaque.(5) The prosthetic mandible field has high retraction of the bone in the lateral structures, the butts of gum are removed, salivary glands herniate on the prosthetic field if it is unrestrained, the mandibular ridges in the lateral area are thin and extremely narrow (less than 3 mm) with adherent mucosa, so this field is

unfavourable to the classic prosthesis without applying the additional means to maintain support and stability.

The mandibular arch was restored at the same time with the jaw, by a mandibular partial acrylic denture, anchored with wire hooks to the canines package. Denture has tartar deposits, the occlusion was unbalanced, the inferior frontal group reports having reverse occlusion with maxillary dentures. The patient is not satisfied with this situation and these prosthetic elements no longer met the functions of the dental apparatus: phonation, chewing, swallowing and physiognomy.(1,2)

In order to be able to suggest the patient a correct, complete and lasting prosthetic treatment plan, we asked for further examination of the oro-maxillo-facial anatomical structures by performing panoramic radiography. Classic film radiography is performed on 1:3 ratio and is shown in figure no. 1. When examining the panoramic radiography, we found poor implantation remaining teeth on mandibular arch rate of less than 1/3, which compromises implantation in terms of periodontal stability.(1,5,6)

**Figure no. 1. Initial radiographic image before performing extractions and dental implants application**



After the complex clinical examination and the radiographs performed, we decided as a treatment plan, tooth extraction at the front jaw, teeth that could not be kept a long time on arch and that would have prevented the effective oral rehabilitation of the patient. After the assessment of clinical

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## CLINICAL ASPECTS

examination, radiological examination and the patient's wishes and the financial possibilities, we decided to split the oral rehabilitation treatment in two stages: surgical application of two dental implants in the front jaw and the prosthetic stage of making the overdenture on a type ball system. Maxillary arch will be again rehabilitated by a new partial acrylic denture that will be achieved during the prosthetic phase of treatment.

In order to achieve the desiderata of this case report, we started the therapy treatment and the rehabilitation of oral infectious outbreaks. The surgical stage of treatment begins by taking measurements on the radiograph with special templates that determine the size of the future implants. Following this analysis, we decided to conduct a tooth extraction on arch mandibular dental units, remove all periradicular inflammatory granulomatous tissue and inserting during the same visit, of two dental implants immediately after extraction. The inserted dental implants had 3.6 mm in diameter and 10 mm in length and were positioned on the postextraction alveola of canines, on both sides of the median line.

Dental implants are manufactured by the Implantium Superline company, and have good integrability and tissue reactivity, being well tolerated and integrated into the patient's body without causing any adverse side effects. Sutures were removed 10 days post-implantation. After this surgical stage, mandibular partial old denture was turned into a total one, and was lined so that the patient could wear the old version until the accomplishment of the new one.

After six months, we radiologically checked the osseointegration of the implants, as it can be seen in figure no. 2. The surgical treatment stage is completed with the application of two healing caps on the implant that were maintained in the oral cavity for a period of 10 days. After this surgical stage and after the gingival healing, the prosthetic restorative stage followed with the preliminary printing the prosthetic maxillary and mandibular fields, then the spoon printing and the transfer of the implants' position to the dental laboratory, the determination of the vertical dimension of occlusion, oral cavity wax sample templates.

The treatment was afterwards completed by screwing the prosthetic abutments with special type ball systems, as it can be seen in figure no. 3 and the application of dentures on the prosthetic field. The acrylic prosthetic pieces performed were: a partial maxillary denture and a mandibular complete denture in whose basis, as it can be seen in figure no. 4, the matrices of the special systems were applied.

**Figure no. 2. Radiological image, six months after the implants, before overdenture**



**Figure no. 3. Intraoral clinical picture of ball overdenture components**



**Figure no. 4. The mucosal parts of acrylic maxillary and mandibular dentures**



At the end of treatment, the patient is highly satisfied with this type of prosthetic restoration and notes the exceptional stability of the mandibular denture that is superior to the classical variant she had worn before. This type of dental implant restoration and overdenture meets the wishes of the patient's oral-dental restoration and successfully restores the functions of the dental apparatus, very well integrating in the entire oral system.

### Conclusions:

- Dental implants provide a viable alternative by using overdentures compared to the conventional mobile restorations without intraosseous support;
- Dentures anchored by ball systems on intraosseous dental implants have been shown to provide additional maintenance of this type of prosthetic restoration, involving mastication comfort to the patient;
- Overdenture successfully helps restoring the functions of the dental apparatus and increases the patients' quality of life.

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