

## THE INTERIM DENTURE – A CASE REPORT

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### Dedicated to the memory of Victor Săvulescu

**Abstract:** There are a lot of clinical situations when a denture made entirely in acrylic resin is the most appropriate answer due to the low cost and the easy way to modify it. Using an interim denture the dentist can appreciate if a higher VDO will be supported by the edentulous patient, can decide what teeth are useful for the final RPD and can have a clearer idea about retention, support and esthetic solutions.

**Key words:** interim denture, vertical dimension of occlusion, esthetics

### INTRODUCTION

The need and demand for removable partial denture (RPD) is a common problem in the dental offices<sup>1</sup>. The replacement of missing teeth is often very complex or/and costly. Sometimes the difficulty of the case supposes a complicated decision and postpones a definitive treatment plan.

In this situation the solution can be an interim (diagnostic) denture<sup>2, 3</sup>. This provisional, temporary denture used for a short interval of time will provide esthetics, mastication, occlusal support and convenience<sup>3</sup>. Sometimes this denture can be helpful in conditioning the patient to accept the final prosthesis. The patient may wear the interim RPD for a very short

period or for a more extended period of years, depending on the situation.

### MATERIAL AND METHOD

In our case the patient was a 32 years old woman, with a modest social position, whose dental care was neglected in her childhood and young age, due to the material possibilities of her mother. The only dental treatments provided were as emergency solutions, so a lot of extractions were done over the years. The long-term absence of antagonists has resulted in an over-eruption of remaining maxillary and mandibular teeth. The situation at the first visit of our patient is illustrated on the documentary casts (Fig. 1a, b, c).



Fig. 1. Documentary casts at the first visit of the patient – some of the remaining teeth are contacting the opposing edentulous ridges. Note the 23/33 reverse contact.

The reason that determined the patient to begin a treatment was the imminent loss of the right upper incisor, with subsequent esthetic consequences. The radiologic examination confirmed the fact that the extraction of the tooth was inevitable (Fig. 2).



Fig. 2. Radiological examination for the right upper central incisor - an accentuated recession complicated with an apical lesion.

## RESULTS AND DISCUSSIONS

After the removal of the upper central right incisor emerged a need for immediate replacement of the extracted tooth. Due to the labially drifting of the anterior teeth and the 90° rotation of the right upper lateral incisor (1. 2) the remaining edentulous span was very large and with a major bone defect. At the VDO the prosthetic space was very limited in the anterior area and

practically inexistent in the lateral area both in the dentate area as in the right distal area where the maxillary tuberosity was oversized in the vertical direction (Fig 3a, b, c; Fig 1a). Our intention was to preserve as much as it was possible the remaining teeth and supporting structures, to restore esthetics and phonetics and to improve mastication. We explained all our options to the patient and we had his informed consent. We expected a good prognosis due to the fact that our patient was young, co-operant and motivated.

We decided for the moment to keep all the remaining teeth so endodontic treatment was provided to all teeth excepting the four mandibular incisors (Fig. 4).

The main problem was to obtain a minimal vertical prosthetic space, so we reshaped the occlusal surfaces of the involved teeth. Shortening the crown we also provided a better crown/root ratio considering that all these teeth had also a reduced periodontal support. Minimal preparation also provided an economic advantage for the patient (crowns were not required). The difference of needed vertical prosthetic space was obtained by the alteration (increasing) of vertical dimension of occlusion.



Fig. 3. Clinical aspect after the removal of the tooth 1.1



*Fig. 4. Radiological examination after the endodontic treatment of the over-erupted teeth.*

We selected a design that fitted the present situation of teeth and soft tissues, but having in mind the subsequent required tissue alterations. Because teeth of questionable prognosis were present, the design was chosen so that it would enable the partial denture to be adapted if such a tooth was lost.

In the design of denture base we used broad tissue base support. Maximizing the denture base coverage provided better stress distribution and resistance to displacement by lateral forces. Distally the denture base was extended over the maxillary right tuberosity and bilaterally included the hamular notches.

We decided that the teeth 1. 5. and 2. 3. to be used as abutments and that option provided sufficient retention for the partial denture. We placed retentive arms as upper as possible for esthetics.

Denture acrylic teeth were selected to harmonize with the shade, shape, length and width of the remaining dentition. Acrylic teeth are easier to arrange, modify and adjust.

Because appearance was compromised and we were confronted with an unusual long edentulous span and excessive alveolar bone loss complicated with the 1. 2. teeth rotation, in order to improve esthetics, we made an unusual teeth arrangement using two artificial teeth (a central and a lateral incisor) that fitted perfectly in the available

space (Fig. 5.). So we obtained not only an improvement of esthetics but also better conditions for bone healing after the central incisor extraction due to better protection provided by the largest saddle.



*Fig. 5. Note the improved appearance of the dental arch due to the atypical teeth arrangement*

After the denture delivery we obtained teeth contacts simultaneously and bilaterally, having contact on both natural and partial replacement teeth in centric position.

Very important was to determine how the patient reacted to the changes of the VDO. As expected, we have not acceptable phonetics due to the disappearance of the closest speaking distance. So we decided to adjust as soon as possible the VDO. If it was easy to modify the remaining teeth and the denture teeth, the main problem was to obtain posterior space. So we needed to modify the right tuberosity by surgical reduction. In our case it was relatively simple because the big volume of the tuberosity was provided by an excessive

amount of fibrous tissues, as is obvious on the Orthopantomography (Fig. 4) and the bony tuberosity was not involved.

After surgery, the base of the acrylic denture was modified (Fig. 6a, b), one of the

important advantages of acrylic resin bases being the fact that they allow relining to follow the supporting tissues changes and to maintain a close mucosal support.



a



b

Fig. 6. The interim denture after relining the right tuberosity area a. general view; b. detail

## CONCLUSIONS

After minor adjustments, the patient felt comfortable and had no evidence of tissue irritation. During the post insertion period we also reshaped the two left canines in reverse contact in order to allow an unrestricted closing movement (Fig. 7).

The final denture, an acrylic denture too, was made two years later on a stabilized situation. No tooth was lost during this period and no TMJ disturbance was observed.

The final denture restored our patient health and comfort and subsequently improved her quality of life.



Fig. 7. The reshaped reverse contact of the two left canines

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