

COMPLEX ORAL REHABILITATION THROUGH FIXED IMPLANT SUPPORTED PROSTHODONTIC RESTORATION. CASE REPORT

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Abstract: Partial edentations benefit in our days of multiple variants of prosthetic restorations. In order to avoid teeth preparing and adjacent teeth devitalization, implant-supported fixed prosthesis are preferred. The present article presents a clinical case in which the patient received a complex interdisciplinary treatment, in order to restore the morphology and functionality of the dento-maxillary system very close to the ideal situation. The interdisciplinary dental treatment allows very fast social reintegration of the patient and special esthetical results.

INTRODUCTION

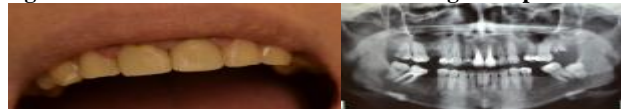
Reduced partial edentation can be restored both by classical prosthodontic restorations with teeth abutments, as well as by modern prosthodontic restorations with implant abutments. No matter the chosen variant, the patients will take into consideration the most the esthetical aspect of the restoration than the functional one. The esthetic of a dental restoration is influenced by different factors such as: smile line, the coincidence between the median line of the superior and inferior arch, the gingival line.(1,2,3) Therefore, the interdisciplinary approach (orthodontical, parodontal, restorative and prosthetic) is ideal in order to evaluate, diagnose and resolve the esthetical problems.(4,5)

CASE REPORT

The patient B.R., student, 28 years old from Râmnicu Vâlcea, presented herself into the dental office asking for dental treatment. After the initial anamnesis, clinical and radiological recommended consult (figure no. 1) the following diagnoses were determined:

- Odontal: the patient presented multiple carious lesions simple and complicated, correct and incorrect treated.
- Parodontal: the presence of localized gingivitis preponderant at the upper central incisors and which appeared as a consequence of the incorrect adaptation at the cervical level of the crowns cemented on 11 and 21.
- It was appreciated that the teeth 15 and 27 are not recoverable prosthodontical. Also, the extraction of the wisdom teeth was recommended.(18 and 48 had deep carious lesions, 38 was only partially erupted and had no favourable prognostic of being recovered)
- The upper central incisors had also an unfavourable prognostic due to the massive tooth loss caused by coronoradicular preparation.
- As for edentation, the patient presented a class III with 1 modification both at the maxillary as well as at the mandible.
- The edentulous spaces initially were not restored.
- The patient had the 11 and 21 morpho and functionally restored, with 2 fixed prosthodontic restorations, cemented on 11 and 21 teeth, restored by 2 incorrect coronoradicular devices.

Figure no. 1. The initial clinical and radiological aspect



The patient was clinically healthy and with no painful symptomatology localized in the oral cavity. The complex treatment started with a professional cleaning, followed by the ex-traction of the untreatable teeth (15,27) and of the wisdom teeth. On the 15 and 27 position the extractions were followed by consecutive bone addition BioOss and MinerOss (0, 8 gr for 15 and 0, 4 gr for 27) protected by Helitape membrane. In order to correct the occlusal relation the patient had an orthodontic treatment for 2 years.

After the orthodontic treatment, the odontal and endodontic one started. First, the mesial cavity on 23 was treated, than teeth 12 and 22, which presented complicated caries had endodontic treatments. The canals were prepared rotary with ProTaper® system and the fillings consisted in injection of warm gutta-percha with Ah plus (Dentsply, Meileffer) as a sealer. The root canal fillings were followed by fiber post restoration using WhitePost Dc no 2 (FGM) and Build-It A2 (Pentron Clinical). At the end of the endodontic treatments in the upper frontal area, the tooth 47 was endodontically retreated followed by fiber post restoration using as posts Anatomic 100 (Micromedica) on MB and ML canals and White Post Dc nr 2 on the Distal canal., and Build-It A2 as filling material. Tooth 37 had an occlusal-distal class II cavity and a class V also. The following materials were used: Ultrablend (Ultradent), All Bond 3 from Bisco as adhesive system, Tetric Flow A2 composite, as well as Tetric Ceram A2 (Ivoclar). In 15, 24, 36 and 46 positions Alpha-Bio implants were inserted with BioOss and MinerOss bone additions, protected with Biomed Extended membranes. For the fixed restorations on the implants full ceramic crowns were chosen on teeth 15 and 24 and metallo -ceramic on teeth 36 and 46. After the ablation of the coronoradicular devices form 11 and 21 it was appreciated that the prognostic of the 11 and 21 teeth is unfavourable because of the massive loss of hard tissue due to the anterior dental treatments practiced on these teeth (figure no. 2). The patient was advised to have an extraction on these teeth

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CLINICAL ASPECTS

followed by MinerOs and BioOss bone addition (approximately 2 gr) and Biomed Extended membrane, in order to preserve the bone crest and making the implants insertion more easy (figure no. 3). A temporary acrylic restoration having as abutments teeth 12 and 22 was made. After 6 months of healing 2 implants were inserted.(both Zimmer de 3.7 with 16 mm). These were immediately loaded with a temporary restoration, kept in infraocclusion.

Figure no. 2. The aspect of teeth 11 and 21 after the removal of the 2 corono-radicular devices (left) and the cotono-radicular devices (right)

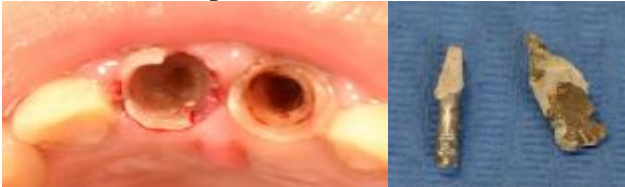


Figure no. 3. The radiological aspect after all the implants insertion



DISCUSSIONS

Anchoring a corono-radicular device in the root canal it was thought that it would strengthen the root. In reality, in vitro studies show that a corono-radicular preparation will weaken even more the tooth and will leave these tooth more exposed to a root fracture than before the preparation. Also, it was demonstrated that the anchorage of the corono-radicular disposal does not have a strengthening effect on the roots, but it will serve only as a retention for the crown's restorative material.(6) The probability of fracture of a root in which a corono-radicular device is cemented depends on the device's dimensions, on the hardness of its material and on the forces that will work on these devices. There are major differences between the forces to which the anterior teeth are exposed and the forces to which the posterior teeth are exposed, concerning the time of action, the direction of these forces, the ratio between the length and the diameter of the post, of the abutment and on the remaining hard tissue, as well as on the surface of the adhesion zone.(6) In the situations in which, in the root canals, big corono-radicular devices are present, compromising the long term resistance of the restorations, the removal of these devices is indicated as well as the removal of the teeth structures that cannot be saved, in order to prevent the radicular fracture. This kind of fracture especially if it is discovered too late, can lead to massive bone loss and it will make even more difficult the alveolar socket preservation and implants insertion. In today's protocols of implant insertion and loading, there is a tendency of reducing the time between the teeth extraction and implants insertion as well as between the implants insertion and the long term prosthodontic restoration. The existing bone and soft tissue preservation where the implant will be inserted (8-14) has become a therapeutic demand in all the clinical cases, especially when a superior esthetic result is needed.

CONCLUSIONS

The non vital teeth restorations through the corono-radicular devices, incorrectly manufactured, reduces the long term prognostic of prosthodontic restorations. In these situations, if the general health condition of the patients allows it and if there are not local contraindications, the extraction of the otherwise roots is recommended, also the socket preservation through bone graft techniques and the restoration of the edentulous spaces with fixed implant prosthodontic restorations.

The complex and interdisciplinary treatment allows rapid social reintegration, with special esthetical results.

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