

## REVIEW ARTICLE

### AESTHETIC AND FUNCTIONAL REHABILITATION BY INTERIM IMMEDIATE PARTIAL PROSTHESIS: CASE OF AGGRESSIVE PERIODONTITIS

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#### ABSTRACT

Anterior teeth have a crucial role in functional, psychological and aesthetic aspects, by restoring smile and self-esteem. However, the extraction of these anterior teeth can be imposed by terminal bone lysis, caused by aggressive periodontitis. In this case, the prosthetic rehabilitation of the anterior partially edentulous patient, becomes an imperative. The temporary partial prosthesis is an interesting therapeutic option in restoring these patient's function, aesthetic and comfort. This paper, supported by a clinical case, presents the various stages of prosthetic management of a case with aggressive periodontitis using a temporary partial prosthesis.

## INTRODUCTION

Aggressive periodontitis is a periodontal disease which has an infectious origin and whose rapid progression is particularly destructive. Indeed, it attacks the supporting tissues of the tooth: alveolar bone and the alveolar ligament. Patients suffering from this disease are often confronted to partial or even complete loss of their teeth (Catunda, 2018; Teughels, 2014). Both surgical and non-surgical treatments, have been shown their effectiveness in reducing tooth loss caused by the pathology. In cases where treatment has not been initiated in time and the disease has progressed to terminal stages, multidisciplinary management becomes necessary and urgent to treat these patients (Teughels, 2014). When extraction involves anterior teeth, the temporary immediate partial prosthesis is a therapeutic choice to manage aesthetic and functional emergencies.

#### Case report

A 29-year-old woman patient, in good general health is referred by the periodontology department for a prosthetic rehabilitation. She requests an aesthetic result.

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**The exo-oral examination shows:** A slight increase in the occlusal vertical dimension (OVD) with lip incompetence and a deviation of the inter-incisal point with the absence of articular and muscular pain (Fig. 1,2).

#### The endo-oral examination revealed:

- Occlusal and dental disturbances: of the anterior plane by the down migration of the upper incisors and also the presence of supraclasia, mesio-version of the maxillary incisors, deviation of the inter-incisal point, egression of tooth 46, presence of a fixed prosthesis at the lower incisors and presence of a diastema between teeth 21 and 22.
- Periodontal pathology: gingival inflammation, periodontal recessions and multiple dental mobility of third degree in the upper anterior area and in teeth 16,17, 26, 27, 36, 37,46, 47 and of second degree in teeth 14, 15,24,25,34, 35,44,45 (Fig3).

#### Radiographic examination revealed:

A terminal bone lysis in: 11, 21, 22, 16, 17, 26, 27, 36, 37, 46 and 47 levels, confirming the diagnosis of generalized aggressive periodontitis (Fig4). The significant damage at the 16, 26, 36 and 46 levels required their extraction.

**Prosthetic confection:** It includes a number of steps

**The impression:** The appropriate choice of the commercial tray was made in order to transport the impression material to the vestibule bottom. The maxillary impression is made with alginate, after filling the interdental spaces with a high viscosity silicone to avoid material tearing and tooth extraction during removal prosthesis (Gooya, 2013; Bellemkhanate, 2019) (Fig. 5,6,7), the antagonist was also recorded with alginate to manage occlusal relationships and offset the edentulous .

**Maxillo-mandibular relationship:** After the casting of the impressions, a rigide occlusion base is performed. The maxillary base was transferred to the semi-adjustable articulator using the facial arch. The maxillo-mandibular relationship was recorded at the maximum intercuspal position (Fig8).

**Choice of teeth:** The choice of prosthetic teeth was made by taking the shape and shade of the patient's teeth as a reference. Changes have been made to the prosthetic:

- Decrease in tooth height to match the available prosthetic space.
- Rectifications on the proximal surfaces to personalize the teeth and get closer to the pre-extraction shape (Fig. 9).

**Preparation of the model:** Silicone keys were made, vestibular key and bit key. They were used as a reference to guide the correct positioning of the anterior prosthetic teeth (Gooya, 2013; Pardeep, 2018). After the silicone keys were made, the master cast was prepared. The teeth to be extracted were removed from the model by referring to the clinical observation's elements (radiographs, probing periodontal) (6,7,8). The residual ridge has been sculpted and rounded respecting the lip brake and the retroincisive papilla (Fig10).

**Teeth mounting:** On the model obtained, a wax fitting model was made. We have carried out the assembly of the posterior teeth in a conventional way. The assembly of the anterior teeth was guided by the silicone keys, adjacent teeth and antagonists (Fig11). The presence of teeth in the mouth prohibiting any aesthetic fitting . The wax models were polymerization directly

**Surgical step and prosthetic insertion:** The extraction of the maxillary teeth was carried out carefully while preserving the external bone table, the interalveolar septa were resected and the bone was regularized. Before the sutures were made, we tried the prosthesis to check its adaptation. The prosthesis was placed into the mouth immediately after the sutures and the patient clenched her teeth on cotton rollers for about ten minutes to ensure hemostasis and prevent the formation of oedema. An overall occlusal equilibration was performed to remove any premature occlusal contact and achieve a satisfactory occlusal integration (Fig12,13,14,15). The patient is requested to keep her prosthesis in her mouth for 48 hours (3.4), otherwise she may have difficulty for replacing it. A control session was scheduled 48 hours after the prosthesis was placed to check for healing and prosthetic adaptation. A follow-up is set up to check the healing and prosthetic adaptation.



**Fig. 1. Front view**

- Interincisal point deviation
- Lip incompetence
- Forward projection of the upper incisors.

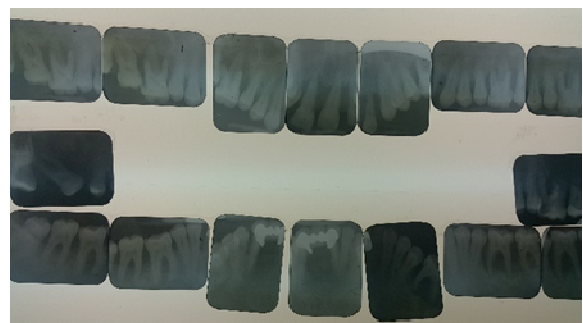


**Fig. 2. Profile view**

- Increase in the ODV
- Lip incompetence
- Excessive appearance of anterior teeth.



**Fig. 3. Endo-oral view showing the egression of the upper incisors and recessions**



**Fig 4. Periapical radiographs**



Fig 5. Interdental spaces filled with high viscosity silicone



Fig 6. Choice the tray

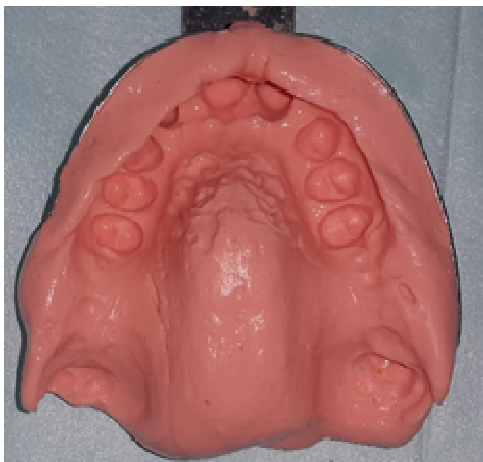


Fig. 7. Maxillary and mandibular impression with alginate



Before



After

Fig. 8. Rectification of prosthetic teeth according to prosthetic height to pre-retractable size references



Fig. 9. Transfer of models on semi-adjustable articulator.



Fig. 10. The maxillary model after correction simulating the bone level post-extractional



Fig. 11. Mounting prosthetic teeth



Fig. 12. Extraction of teeth



Fig. 13. Regularization of bone and sutures.



Fig. 14. Occlusal integration of the maxillary immediate partial prosthesis



Fig 15. Smile of the patient: before



**Fig. 16. Restoration of the aesthetic Smile of satisfaction of the patient**

Rehabilitation by upper and lower metal partial removable prosthesis was also scheduled once bone healing had been achieved.

## DISCUSSION

Aggressive periodontitis is a destructive disease characterized by a rapid progression of attachment loss and destruction of the alveolar bone. Generalized aggressive periodontitis shows the participation of at least three teeth other than the first molars and incisors. The prevalence of aggressive periodontitis varies from 1% to 15%, depending on age and race. Late management of aggressive periodontitis results in the loss of many teeth and also the loss of the ability to preserve the remaining teeth (Li, 2017). Several therapeutic options are available to replace missing teeth (implants, fixed prosthesis, metal partial removable prosthesis). But when teeth need to be replaced immediately after extraction, immediate implantation can be beneficial for both patients and practitioners, reducing treatment time and patient satisfaction. Many practitioners are reluctant to perform conventional or immediate implantation and restoration treatments for patients with aggressive periodontitis, fearing the risk of infection and continuous uncontrolled bone loss. There is a controversy as to whether implant treatment in periodontitis aggressive increased the incidence of peri-implantitis and implant loss. Histological studies and systematic reviews have shown that patients with periodontal disease are successfully treated by immediate placement of the implant in compromised periodontal extraction holes, provided that appropriate clinical procedures are performed prior to implant placement, including periodontal disease stabilization, plaque control, thorough cleaning and chlorhexidine rinsing. Nevertheless, other studies have shown that a higher rate of implant failure (peri-implantitis) has been reported in implants placed immediately compared to the delayed implantation technique. Therefore, according to these studies, periodontitis is a significant risk factor for peri-implantitis. As a general rule, implantation in this case of periodontitis should be done with caution (Li, 2017). When conditions are not restored for implants, the immediate partial removable prosthesis remains the solution of choice, especially in the case of large gaps or the fixed prosthesis cannot be considered. This a removable partial prosthesis is a temporization prosthesis when implants are planned or which is placed immediately after dental extraction. It's used to restore in emergency the aesthetic, function and

psychology of the patient before the final removable prosthesis. This prosthesis has several advantages:

- Protection of the extraction site,
- Protection of the blood clot,
- Preservation of aesthetics,
- Minimization the psychological trauma associated with edentulism,
- Preservation of function (swallowing, phonation, chewing) (9,10,14).

## Conclusion

The edentulous has many repercussions on the human being with significant physical, aesthetic, functional and psychological changes. The immediate partial removable prosthesis is a useful alternative when the edentulous concerns the anterior area. It allows an easy transition to partial edentulism, optimizing the practitioner-patient relationship and preventing all possible functional and psychological changes in the patient. The success of this prosthesis requires a careful analysis, a perfect use of pre-extractual documents and a rigorous execution and confection technique.

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