



## Failure of the Total Removable Prosthesis: What Therapeutics?

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### Abstract

The realization of a removable total prosthesis obeys a number of criteria in order to improve the quality of life of our patients, who are generally elderly.

These patients usually suffer from general illnesses such as diabetes and the insertion of a removable total prosthesis that is poorly designed can lead to oral manifestations, thus damaging the physical and moral health of our patients.

The aim of this article is to take stock of these manifestations and the means to remedy them.

**Keywords:** *Removable Prosthesis; Mucosa; Salivary Flow*

### Introduction

The total removable prosthesis, by resting extensively on the mucosa, modifies the salivary flow quantitatively and qualitatively.

The salivary pH then becomes acidic, thus causing prosthetic acidosis.

In addition, the presence of a prosthesis in the mouth disrupts the mechanical role of self-cleaning by the tongue, cheeks and lips and the free circulation of saliva and its antimicrobial elements [4].

All of these changes will be complicated in the presence of prosthetic design flaws.

### Definition

The term "failure of a removable prosthesis" encompasses any mechanical, aesthetic or functional problem with the dental prosthesis [1].

These failures will give manifestations at the level of the oral mucosa which can manifest themselves in the form of gene, pain or bleeding.

### Oral manifestations in connection with a failure of a removable prosthesis

In the event that the removable prosthesis, in particular total, is involved, a distinction is made according to the etiology [3]:

1. Traumatic injuries: related to occlusion problems and/or inadequate retention of the prosthesis;
2. Inflammation related to an accumulation of plaque in the prosthetic underside;

- Lesions related to an intolerance to the constituent materials of the prosthesis and leading to an allergic reaction followed by an immunological reaction. Acrylic resin is the most widely used material for making removable prostheses; it is an important vector of traumatic inflammatory and, to a lesser degree, allergic manifestations of prosthetic reconstructions. In fact, these materials contain a liquid monomer which, on contact with the skin during handling, can cause eczema.

### What to do with oral manifestations of prosthetic origin

**Traumatic injuries:** When the occlusion is not respected or in the presence of premature contact, instability of the prosthesis can arise, thus injuring the oral mucosa.

Also the lack of retention whatever its origin can cause irritation of the oral mucosa.

These traumatic injuries can manifest as:

- Ulcers
- Fibrous hyperplasias
- Floating ridges.

**Prosthetic ulcerations:** These ulcerations are the consequence of the presence of either a removable prosthesis with a sharp edge or an unstable removable prosthesis.

This is the case in image “1a” where we can clearly see that the mucosa is incised.

“At the level of the arrow” which is a sign of the presence of a sharp or overextended edge.

### To behave:

The fact of removing the prosthesis is sufficient for the disappearance of the lesion (Figure 1b).

The etiology of this type of lesion may be due to either:

- The presence of a sharp or overextended edge
- The instability of the prosthesis.



Figure 1a: Ulceration related to an overextended border [3].



Figure 1b: Complete disappearance 8 days after placing the prosthesis [3].

The therapeutic solution will consist of:

- The reduction of the edge which is at the origin of this irritation by taking care to round it well and especially to polish it. At the same time, the patient is asked to remove his prosthesis and to do bicarbonate water mouthwashes until healing is achieved.
- The first step in identifying the etiology of the instability of the prosthesis, which is of two types [5].

In occlusion instability which is due to a lack of retention or to over-extended edges or the presence of a poorly released brake. The interference of these edges with the peripheral musculature causes mucosal injury or prosthetic instability [1]. In this case, intervention must be done at this level by reducing the edge or releasing the brake.

Instability in occlusion, a consequence of insufficient equilibration which leads to bone resorption on the side of the occlusal overload. In this case, the practitioner must carry out an equilibration and reline if the prosthesis is correct from an aesthetic and occlusal point of view (vertical dimension and centered relation must be correct).

In the maxilla, the instability of the prosthesis may also be related to the presence of a poorly located palatal-palatal joint. If the joint is located too anteriorly, it promotes prosthetic instability due to lack of airtightness. A too posterior joint is also the cause of prosthetic instability and injuries [1]. The modeling of the prosthetic extrados is important.



**Figure 3:** Injury caused by an overextending edge and dislodgement caused by displacement of the prosthesis [4].

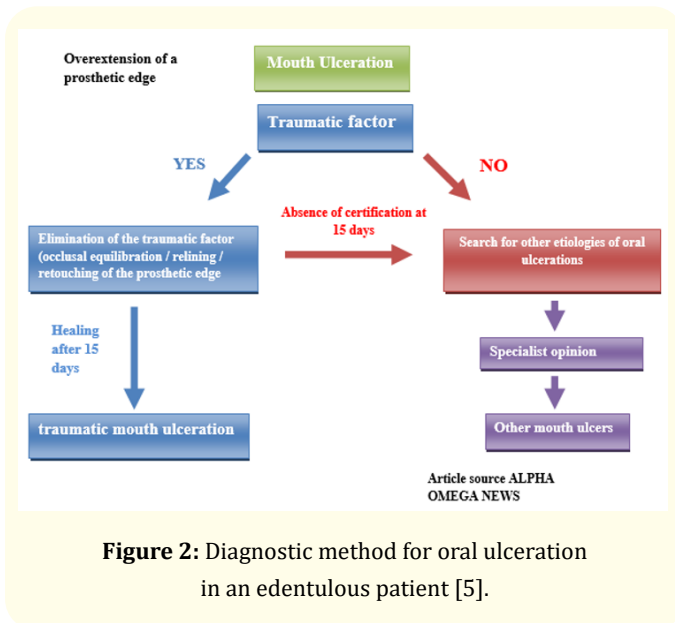
Initially, the prosthetic edge causes a small ulceration which progresses to reactive inflammatory hyperplasia as the irritation persists.

These hyperplasia's can also originate from:

- Mechanical irritation by poorly adapted prostheses leading to occlusal overloads and an anarchic stress on fibromucosal membranes;
- The prosthetic instability; or even immediate prostheses that have never been touched up, with significant overextensions.

**What to do:** What to do will depend on the extent of the hyperplasia, the patient's age and his general condition:

- If this lesion cannot be integrated into the occlusal morphology and it opposes the insertion of the prosthesis, or compromises its stability, the treatment is generally based on surgical excision of the lesion [4].
- If the hyperplasia is minimal and does not interfere with the development of the prosthesis, it is considered by including the hyperplasia without prior surgical excision [4,6,7].



**Figure 2:** Diagnostic method for oral ulceration in an edentulous patient [5].

### Fibrous hyperplasia due to prosthetic irritation [4,6]

Hyperplasia is the second type of mucosal manifestation due to wearing a poorly designed total prosthesis: by definition, inflammatory fibrous hyperplasia is a reactive mucosal proliferation in floating folds (or leaflets) that can be single or multiple. Its appearance is related to an edge of an unsuitable total prosthesis (thin, sharp or overextended edge) (Figure 3).

### Floating ridges

They are characterized by very strong bone resorption leading to loss of adhesion of the fibro-mucosa to the underlying bone [6,7] (Figure 4a and 4b).



**Figure 4a:** Palpation put highlight the aspect spongy of the ridge [4].



**Figure 4b:** Mandibular floating ridge [7].

### To behave

Surgical removal of floating ridges is often recommended, as they can cause prosthetic instability due to the absence of bone support by severely limiting the transcription of occlusal forces to the underlying bone substrate.

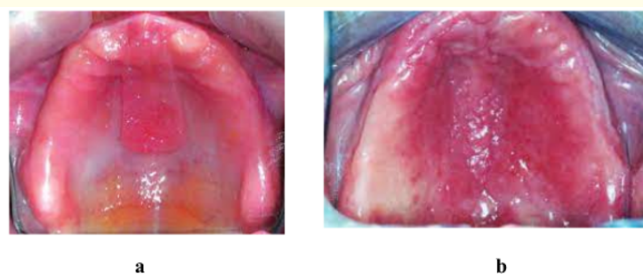
However, some authors advise to abstain when the basilar bone is particularly reduced. In this case, the low retention provided by a floating ridge is undoubtedly more satisfactory than the complete absence of relief from a very resorbed jaw bone.

### Inflammation [6,7]

These are “stomatitis under prosthetics” which correspond to inflammatory reactions of the oral fibromucosal membranes that can be observed under or around prostheses. They result from chronic candidiasis of the palatal mucosa in contact with a removable prosthesis.

It is generally asymptomatic characterized by erythema and edema which are hardly perceived by the patient because most of the time they are painless.

In severe forms, there may be burns, rarely small localized bleeding related to an accumulation of plaque in the prosthetic lower surface.



**Figure 5:** Stomatitis due to the presence of defective prosthesis associated with poor patient hygiene.

a: The prosthesis having a means of retention at the intrados level “Suction cup”, the mucous membrane was sucked in the shape of this suction cup. This means of retention is currently abandoned.

b: Stomatitis due to the presence of a defective total prosthesis and in which the carrier patient has poor hygiene.

**What to do:** The practitioner must first of all motivate his patient for better prosthetic and oral hygiene.

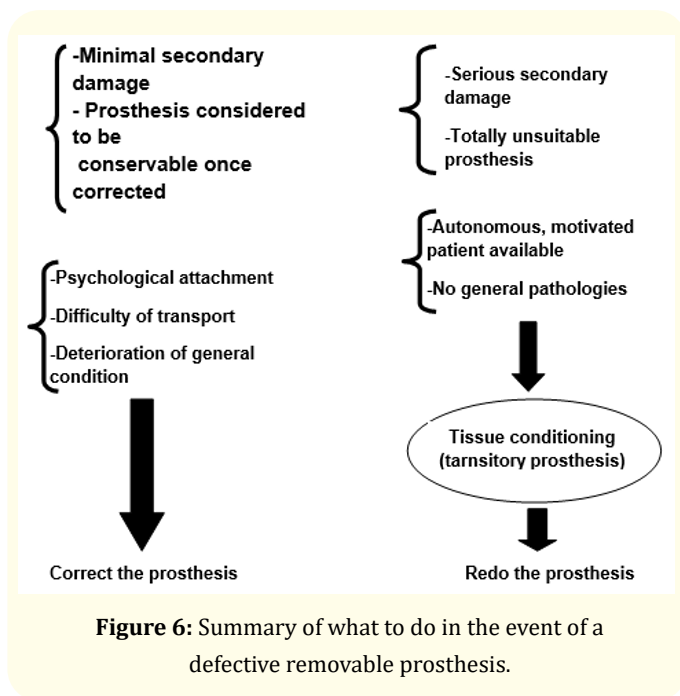
Secondly, the practitioner will proceed to rectify the defective prostheses: both from the point of view of adaptation of the intra-

dos and edges, and at the occlusal level; which makes it possible to obtain a stable prosthesis with precise limits. New prostheses are made after the lesions have healed [2,5,7].

Usually in this type of mucosal alteration (stomatitis), the out-right stopping of wearing defective prostheses leads to an improvement in the sub-prosthetic tissue condition in about 2 weeks, because the absence of prostheses promotes the cleaning action of the tongue on the oral surfaces, food mixing and a pH which becomes unfavorable to *Candida Albicans*. The active participation of the toothless person is required, with daily massages of damaged tissue. The tissues firm up faster and the superficial lesions disappear.

### Conclusion

The prosthesis is there to replace what is lacking while respecting what exists. According to Rayman Sangiolo “Prosthetic failures sometimes have more mutilating consequences than complete edentulousness itself” which is why the prosthetic construction chain must be judiciously respected so as not to lead to irreversible tissue destruction of a on the one hand and on the other hand, the practitioner must identify the different solutions to the different situations which may arise as a consequence of a defective prosthesis.



**Figure 6:** Summary of what to do in the event of a defective removable prosthesis.

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