

ELASTIC PROSTHESIS A NEW CONCEPT OF THE PARTIAL EDENTATION

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RESUME

La prothèse partielle avec la base élastique est une prothèse mobile à laquelle l'appui rigide dento-paradontal et muqueux est amorti par l'élasticité de la base élastique. L'indication principale pour ceci dactylographie de la prothèse, cela a semblé relativement nouvelle sur le marché est pour les surfaces prothétiques où il y a nécessaire une transmission de la pression amortie sur les tissus adjacents et sur les dents de tissu conjonctif -tissu osseuses –para dont.

MOTS CLES: *prothèse partielle, nouveau concept, partiel edentation*

1. Introduction

The partial prosthesis with elastic basis is a mobile prosthesis at which the dento-paradontal and mucosal rigid support is amortized by the elasticity of the elastic basis.

The major indication for this types of prosthesis, that appeared relatively new on the market is for the prosthetic surfaces where there is necessary a transmission of the pressure amortized on the tissues adjacent and on the mucosis-bone-paradont-remaining teeth [1-3].

2. Material and Method

Taking into consideration the fact that the role of these prosthesis is of substituting missing tissues for the restoration of the modified functions, protecting in the same time all the other tissues that they come in contact with, it appeared the necessity of the elastic mobile prosthesis to have the following qualities:

1. To have a high mechanical resistance, to ageing and abrasion;
2. To be biocompatible and not to traumatize remaining teeth;

3. To have good physic and chemical properties and to pass all alergogenic and toxic tests;

4. Not to produce decubit lesions and not to atrophy the alveolar bone;

5. Not to permit the presence of the dental plaque and not to form abnormal structures on the surface;

6. To create comfort to the patient and a pleasing physiognomy;

7. Not to contain cadmium and to be lined and fixed in the dental laboratory.



Figure 1. *The superior partial elastic prosthesis*

All these qualities and many others should be found in the prosthesis built on a new concept of technique, one that is completely different from the known methods (figure 1).

This new procedure, during which a basis material totally polymerized is finished by heating (without chemical reactions) and injected afterwards, a new chapter in creating teeth is opened [4,5].

Technology

The technologic equipment is compact and it merges a unity of preheating with a precision of high temperatures, with a pneumatic press, offering an independent pressure [2]. Finishing the plastic takes now place controlled, without preheating, and the

injection procedure is more rapid as long as the pressing method of the material compensated the shrinking of the material during cooling. This equipment is controlled by a simple computer, effective and easy to use. This equipment can be utilized for all thermoplastic dental materials [1].

Materials

Partial prosthesis are obtained in some laboratories from the Flexiplast, Polyan, Biodentalplast resin which are thermoplastic materials based polyamide (figures 2,3).

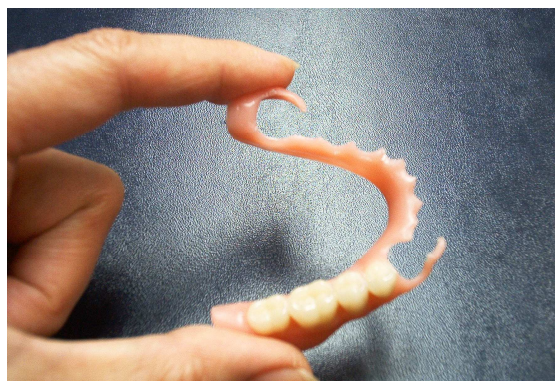


Figure 2. *Mandibular prosthesis with increased elasticity*

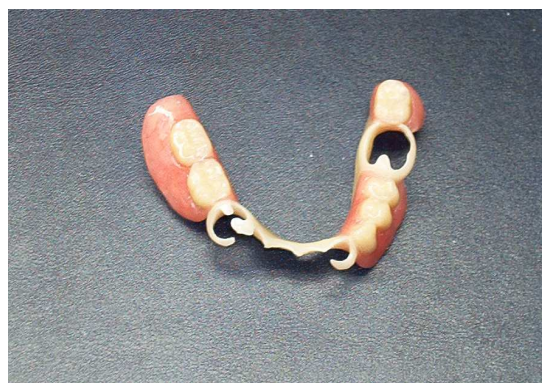


Figure 3. *Finalized elastic prosthesis*

Flexiplast is an acrylic resin made of nylon, a dipolicondensed polyamide from hexadimid and

adiopinacid. The resin is commercialized in cartridges and it appears as granules at the temperature of 200 C it liquefies. The presentation of capsulated granules, is advantaged because mistakes provoked by the dimension of the components property do no occur and the action of other substances from the outside medium which will have unfavorable effects on the structures of the prosthesis.

Polyan and Flexiplast are two names of materials from the multitude of those commercialized (figure 4)[6-8].



Figure 4. *Final checking of elasticity*

Indication

The indications of the partial mobilized prosthesis are, firstly, subtotal edentations, then terminal molar edentations, in frontal edentations and in some mixed edentation (figures 5, 6).

Frontal edentations with the lost of alveolar substance like those solved by exaggerated atrophies or maxillary splitting can more easily be solved by a fix prosthesis, with elastic prosthesis, than with fix prosthesis. Also, the imitation of some anomalies of position of the frontal teeth can obtained much more easy and safe with the help of the mobile prosthesis than with fix prosthesis because it is now possible to individualize artificial teeth [9-11].

What is more, a major indication represents sick people with serious affections, those nervous and

those who have no time to support a patient on a long period treatment, the prosthesis with elastic basis representing the ideal of prosthesis.

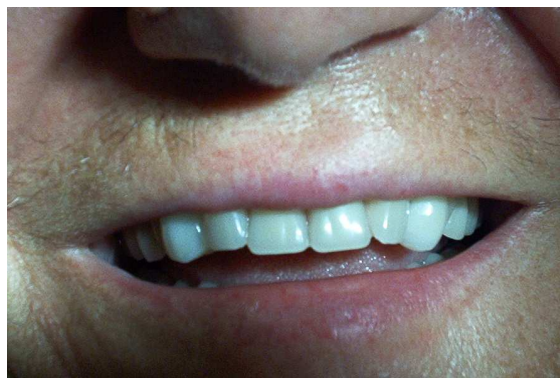


Figure 5. *Final fizionomical aspect*



Figure 6. *Final partial superior elastic prosthesis*

Disadvantages

There is a lot of proof to testify that elastic prosthesis present a lot of disadvantages regarding the prophylaxis of the subadjacent tissues as they are built and executed in current practice [2].

The biggest disadvantages are those regarding the functional, biological and comfort-related issues that can provoke:

1. Acceleration of the maxillary's bone atrophy, because the mucosal support is in fact conspicuous and it can clog as the time passes, but this disadvantage is small in comparison to that of the classic acrylic prosthesis where the rigidity was much higher.

2. Impossibility of perceiving termic excitations and those related to taste because of the full coverage of the mucosa by the base of the prosthesis

3. Frequent irritations of the mucosa protetic surface caused by its contact with a porous and unpolished surface, impregnated with microorganisms and alimentary remains. The stomatitis are described or the contaminations with fungus like *Candida* that can lead to the discomfort of the patient. On the other hand, the advantages created by the intolerance to the acrylic compounds are delimited, especially to colorants or to the incompletely polymerized monomer (figures 7, 8).

4. The retraction of the oral space because of the thickness of the basic elastic plaque of approximately 1,5-2mm which restrains the tongue movement but also those of the cheeks during mastication or phonation [12-15].



Figure 7. *Elastical prothesised Termino-terminal-front endentation*

5. The mobilization of the teeth and of the paradont if they are built and utilized incorrectly

depending on the anatomic retentively of the crowns. This mobilization is much more reduced that in the case of the classic acrylic prosthesis where the rigidity provokes big difficulties.



Figure 8. *Elastical prothesised termino-terminal mandibular edentation*

6. Maintaining the mouth odor because of the adherence of the alimentary remaining on the rugged surface of the prosthesis, of the tartar and microbial flora. Taking into account both the advantages and the disadvantages of the elastic prosthesis, it will be more than clear that the advantages would be those from the biological, biomechanical, phonetically and physical point of view. The cost of the technological process will be higher, but it will not be a problem for quality prosthesis [5].

Tissues tolerance

Because of the amortization caused by the pressures created during mastication on the prosthesis teeth and also on the adjacent tissues, the tolerance of the mucosal-bone support in comparison with the elastical prosthesis is much higher. The elastic pillow effect, of elasticity and not rigidity makes out of the elastic prosthesis, in time, an indispensable human accessory [8, 10].

The application of the elastic prosthesis in the bucal cavity

At the checking of the prosthesis, made outside of the bucal cavity, the presence of some eventual surpluses of the elastic prosthesis (which could restrain the insertion of the prosthesis) are verified and modified.



Figure 9. *Fenestrated superior elastic prosthesis*



Figure 10. *Elastic maxillary prosthesis with mucosa aspect*

It is also checked if the smoothing and the polishing of the protetic piece has been done thoroughly (figures 9,10).

The insertion of the elastic prosthesis – it is made after the cleaning of the prosthesis and of the protetic surface, the prosthesis being introduced

without effort with a medium pressure created on both sides. The margins can interfere in some mucosal-bone zones of the protetic surface, the patient expressing pain while trying to introduce the prosthesis. As a result, an adaptation of the margins is made with polishing at that level, on the maxillary tuberosities, near the zygomatic-alveolar crest or in the superior premolar zone. At the mandible it is polished from the vestibular margin, at the premolar or along the milohyodian line, these being also the places the most frequently traumatized if after the functional amputation has not been obtained a correct delimitation of the periferic protetic surface.

If the patient signalizes after the insertion of the prosthesis tensions or even pain at the level of the crests, polishing can be made.

The control and the correctation of the occlusion reports

The clinician must orient himself to find the best clinical solution to create occlusial equilibrium. At the mobile prosthesis with dento-paradontal support, the occlusial balance can be made as in the natural dentition, which in the case of the mobile prosthesis with dento-paradontal mixed support and mucus-bone – the problems are much more complex.

The realization of simultaneous stabile and multiple contacts is followed on all artificial teeth or natural in centric relation or maximum intercuspitation, because this leads to obtaining an optimal stability of the protetic figures and of the masticator crests efficiency. This is how the distribution of the pressures at all levels of the protetic surface is improved, with favorable consequences on the troficity on the supporting tissues. It is then checked if there have been realized dento-dentar relations of cuspid-fos and if at positioning of the teeth for stabilizing the prosthesis the rule of the lingualised occlusion has been applied [3].

The adaptation of the elastic mobile prosthesis

The adaptation of the elastic partial prosthesis until the stage of total integration in organism can be made from the mechanic and biological point of view.

Mechanical it is wanted that the prosthesis to have in its final stage a configuration of the morphologic ensemble of the dentomaxillar apparatus, to be precise on the protetic surface.

Biological it is wanted that the prosthesis to be tolerated by the tissues along with she comes in contact and to have the same functions as the dentomaxillar apparatus and to be physically admitted by the patient.

Talking deficiencies fade out after a few days, especially when during the realization of the prosthesis there have been measures to ensure space for the tongue. The patient has to be polished on the functionality of the prosthesis [2, 7].

The control after applying the prosthesis

The first meeting of control after applying the prosthesis

The first control is indicated to be made after 24 hours after the insertion of the prosthesis. The wounds are now visible if the prosthesis had been worn permanently during this interval. The prosthesis will be held in a water recipient and worn for at least 8 hours before coming back to control. Retouching is made by observing the zones of discomfort and ulceration before marking the surfaces with a chemic crayon. The prosthesis is applied in the bucal cavity and the mark of the crayon is transferred on the basis of the prosthesis. Retouching is made with special devices of proper sizes after which the prosthesis is polished.

3. Results and Discussions

Prothesised edentated patients will be Compulsory controls are made at 3 moths from the application of the prosthesis, then one in 6 months.

In the initial period of adaptation of the elastic mobile prosthesis the patient must be helped to follow these instructions:

- the sensation of vomiting disappears if a candy is sucked;
- the increase of salivation will pass in time as well as the sensation of having your mouth full;
- during this period, painful places can appear in the bucal cavity;
- if you encounter the sensation that the food does not have taste, please consume worm food and drinks that have a pregnant odor.

Mastication and deglutition

- if you grab food with the front teeth, the prosthesis will be moving and the gum will be affected;
- slice food in tiny pieces with the use of the knife;
- muscles must be reeducated, that finally they will hold for themselves the prosthesis;
- try to chew in both sides in the same time;
- try to avoid sticky foods;
- the tongue will find her place;
- it will take some time to learn to eat with prosthesis. IT WILL NEVER BE THE SAME AS IT WAS WHEN YOU HAD REAL TEETH! Have a lot of patience!

Phonation

- repeat words that you pronounce with difficulty;
- IT will take time to accommodate – read in a loud voice to shorten this period.

Bucal hygiene and that of the prosthesis

- washing the prosthesis with a smooth brush and a regular soap;
- cleaning and massaging the gums daily with a smooth brush – stimulating the sanguine circulation.

Recommendations

- don't wear prosthesis during the night unless the doctor recommends you to do this;
- at the doctor's advice use adhesive substances (Corega, Fixodent);
- don't try to adapt or to repair the prosthesis on you own;
- regularly visit the doctor for a routine control.

Address to you doctor if the following problems may appear:

- discomfort produced by wearing the prosthesis;
- clenching on the cheek;
- difficulties while talking;
- red and swollen gums.

4. Conclusions

Adaptation from the biomechanical, functional and esthetical point of view, is net superior in comparison to the classic acrylic prosthesis.

The cost price reflects the superior quality of the elastic prosthesis

The comfort in deglutition, mastication, phonation, in incomparable higher.

Correct, daily hygiene of the bucal cavity of the patient reduces the disadvantages of wearing a prosthesis.

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