FINAL IMPRESSION METHODS IN TOTAL EDENTULOUS PATIENTS (CLINICAL AND STATISTICAL STUDY)

METODE KONAČNOG OTISKA BEZUBIH PACIJENATA (KLINIČKO I STATISTIČKO ISTRAŽIVANJA)

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Abstract: *Impression represents a negative copy of the totally edentulous field. In total edentulous there are two types of impressions: preliminary and final, each of them with clearly defined objectives. Objectives of preliminary impression are to cover up with maximum accuracy the area of support, a more accurate reproduction of the functional position of mobile formations on the periphery of prosthetic field, achievement of individual tray, which will require few adjusting manoeuvres. Objectives of final impression are to achieve accurate edge height and a maximum extension of the prosthesis, equal distribution of pressure on the soft and hard tissues, the freedom of muscle movements and achievement of marginal closure of the prosthesis.*

Key words *impression methods, statictical study, totally edentulous prosthetic field, impression material*

Sažetak: *Osnova uspješnog liječenja potpunim protezama je primjereni otisni postupak. Otisak je negativni prikaz tvrdih i mekih tkiva te pomične i nepomične sluznice bezube čeljusti. Postoje dvije vrste otisnog postupka: prvi, koji je situacijskog karaktera i drugi, konačni. Svaki od njih ima svoju svrhu.*

Ključne riječi*: metode otiska, statističko istraživanje, otisni materijal*

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1. Introduction

The name of final impression joins the results obtained through preliminary impression with the marginal adaptation and closure in key areas in order to achieve a copy of totally edentulous prosthetic field as clearly as possible. Regarding the targets of final impression, they concern: getting a fair height of the edges and a maximum extension of the dentures, equal distribution of pressure on soft and hard tissues, respecting freedom of muscle movements and achieving marginal sealing of the dentures. All these objectives are attained if: individual trays are well made and adapted, there are certain pressures exerted on the prosthetic field and some marginal functional modeling during impression taking, there are employed one or more impression materials. Final impression methods are various and they are classified as follows: by the type of marginal modeling: mucostatic and muco-displacive; by the action on mucous layes: manoeuvers of discharging the prosthetic field and the manoeuvers of compression; with closed and open mouth. Each final impression technique is unique in itsown way, using different impression materials bearing the name of their authors.

2. Material and method

The study was performed in the Department of Partial Removable Prostheses within the Dentistry and Medicine Faculty of Titu Maiorescu University Bucharest on a number of 294 of totally edentulous patients over a period of four years. These patients were made full dentures and the impression technique as well as the material used were chosen according to both the morphofunctional characteristics of the totally edentulous prosthetic field and the characteristics of impression material.
In terms of morphofunctional characteristics of totally edentulous prosthetic field were pursued: the functional limitations of the prosthetic field, examination of the osseous underlying structure emphasizing the degree of atrophy of the prosthetic field, osseous limits, assessment of the areas that can be used to maintain the full prosthesis and examination of mucous layer quality. [4] Type of edentation there were examined 189 cases with bimaxillary edentation and only 105 cases with unimaxillary (78 patients with unimaxillary edentation and 27 patients with mandibulary total edentation).[2][3] Etiological factor which led to total edentation was in 69 cases- decay and its complications, in 57 cases- chronic marginal periodontitis and in 168 cases-related reasons (caries and periodontitis, trauma, iatrogenesis of fixed and removable prostheses, oclussal and articular disbalance). Depending on the edentation features we divided patients into two groups. Group 1 consisting of 163 patients who have low or medium bone atrophy of bony support structure, fixed mucous membrane is adherent to the bony structure and transition between fixed and mobile mucous membrane (mobile passive mucous membrane) is easily distinguishable (fig.1). Group 2- consisting of 131 patients presenting high bone atrophy associated with resilient mucous membrane and also line of passive mobile mucous membrane hardly distinguishable (fig.2). [2][3]

In group 1, consisting of patients with prosthetic field favorable to applying removable prosthetic appliances we achieved preliminary impression by using standard tray and alginate (fig.3). For marginal modeling of the maxillary impression, we used facial massage for vestibular area, rotations of the commissure node and the patient also slightly opened the mouth, bloating cheeks with jaw balancing and Valsalva manoeuvre. For marginal mandibular modeling we realized vestibular massages, rotations of the commissure node, the patient slightly opened the mouth and moved the tongue. We made individual trays from self-curing acrylate, we adjusted them to the prosthetic field, we achieved closure in key areas with green Kerr, and then we realized total marginal modeling using a condensation silicone and as movements we used Herbst tests (fig. 4). Advantages of this method are obvious: reduced clinical time, reduced patient's discomfort, less effort of the doctor. This impression method is relatively simple but can be used for favorable prosthetic fields. Finally we found that prostheses (dentures) made by using this method have very good retention and stability.[1][5] In group 2, consisting of patients who had less favorable prosthetic fields for dentures, we chose in the first phase of impression taking to use silicone impression material because they reflect almost exactly the surface of the prosthetic field and allows for an individual tray that requires very few adapting manoeuvres. On maxillary arch we used a standard non-perforated impression tray and a putty silicone. After the impression material hardened we removed it from the prosthetic field and then out of then spoon. We reduced the thickness of the edges and relieved the frenula. We applied on the edge of silicone impressions a roll of medium consistency, we realized marginal modeling with the following movements: clown's grin (rictus), bloating cheeks and jaw balancing. After average silicon hardened we achieved a slight indentation on the mucosal surface and then we applied a fluid silicone. Impression was copied on the prosthetic field. We used the same materials on the mandible, but for marginal modeling the patient made the clown's rictus, bloating cheeks, the tongue reached the lower lip, the tongue will be placed on one cheek then on the other, the tongue will be placed in the lingual portion of the impression. [1][5] We made the individual self curing silicon trays in intimate in contact with the mucous membrane and adapted them to the prosthetic field. Marginal closing in key areas was made with a thermoplastic material and the final maxillary impression was made with zinc oxide eugenol paste -ZOE (fig.5), and the lower jaw impression was taken with oral plastic wax (fig.6). Given the resilience of the mucosal prosthetic field, we considered that these two materials will not compress it. Also, by using oral plastic wax on the lower jaw, we realized recording of the maximum length of the support structure that allows the length and shape of the prosthesis margins, especially in paralingual areas, to be determined by the functionality of mobile peripheral configurations. Dentures made by this method, in spite of poor prosthetic fields, have good retention and stability.

5. Pictures

Figure 1 .Totally edentulous maxillary prosthetic field

Figure 2. Totally edentulous mandibular prosthetic field

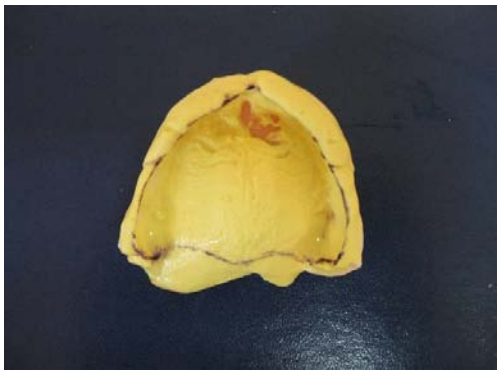

Figure.3.Preliminary alginate impression

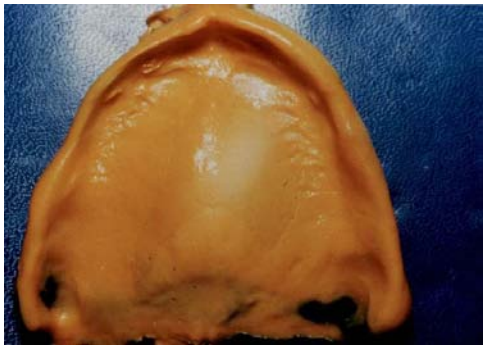

Fig.5.Functional impression using condensation silicone

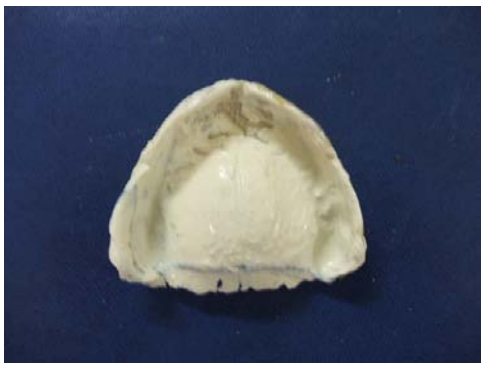

Figure 6.Final impression with ZOE paste

Figure.7.Final impression with buccal plastic materials

7. Conclusions

Final impression is the most important phase in the treatment of totally edentulous patients with full removable prosthesis (denture). Preliminary impression was performed in all cases with alginate, objectives of impression are achieved. Regarding the final impression two materials were used: ZOE paste and synthesis elastomers-condensation silicone compound. Goals of total edentulous impression are multiple, but we can add to these goals the maximum accuracy in the reproduction of details of the prosthetic field.

8. References

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Photo 038. Wild hog / Divlja svinja