

INDIVIDUAL TRANSFERRING OF CLINICAL AND PARACLINICAL DATA BY TOTAL REHABILITATION OF PATIENTS WITH COMPROMISED STABILITY OF THE FULL DENTURES. A pilot study

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SUMMARY:

Denture stability is of primary importance for the successful result of the prosthetic treatment of totally edentulous patients. The authors aim was to present their methods for selecting posterior artificial teeth form by patients with compromised stability of the full dentures. After a profile teleroentgenography and measuring the condylar pathways and its angle to the Camper's line, different sets of posterior tooth form of artificial teeth were chosen- Orthocal, Artic (20°) or Basic (30°), Heraeus Kulzer, GmbH&Co.KG. The new prosthetic treatment showed very good stability of the full dentures at function assessed by the patients themselves and checked by the clinical tests.

Key words: total dentures, compromised stability, teeth selection

INTRODUCTION:

From the time of the first Fauchard's dentures /4/ till our days, the retention and stability of the total dentures remains crucial for the success of the total denture treatment despite the innumerable technical and scientific achievements. /2, 3, 5, 6, 7/ According to Boyanov /1/ if a full denture lacks retention and stability, no other of its good qualities could compensate that shortcoming. Boyanov proceeded that the factors of full denture retention and stability are complex and individual at the same time and are changing too. The form of the posterior teeth, the height of the tubercles and the incline of the cusps to the horizontal plane affect the denture stability and the chewing efficiency of the total dentures. According to Hanau and Rösch /by Boyanov/ the condyle angle, the inclination of the incisors and height of the tubercles of the posterior teeth also play a great role for the stability of the full dentures. Fish /cited by Boyanov/ considered that the most important factor in denture stability are the contacts and inclination of the posterior artificial teeth and their interrelation to the occlusal plane. It is known also that the anatomically shaped tubercles get worse the denture's stability and make difficult the movements of the lower jaw./1/

The **aim** of the authors was to represent their clinical observation and findings for the optimum decision and suggestion by treatment of patients with strong complaints of full dentures' instability.

MATERIALS AND METHODS:

Ten patients-six women and four men, aged from 64 to 74 years were treated with new full dentures. All of them had already total dentures, old no more than a year. All patients had strong complaints of poor dentures' stability during eating, six of them complaint of lower denture instability while speaking and four of them complaints of falling of the upper denture during eating and speaking. The clinical observation showed that the prostheses were easily dislocated by speaking and opening the mouth up to 1,5cm and by clinical tests for dentures' stability made by the authors. The observation of the prostheses showed that only four of them had poor peripheral seal and by the rest the mobility of the dentures was observed by occlusion, laterotrusion and protrusion.

The new treatment included functional impressions of the border seal tissues with Xantopren-function (Heraeus Kulzer, GmbH&Co.KG) followed by wash impression with Xantopren M-mucosa (Heraeus Kulzer, GmbH&Co. KG) to avoid the faults of the impression technique of the previous dentures. After that two upper recording bases with occlusion rims and one lower were made. After measuring and establishing the vertical dimension, the centric relation of the lower jaw was recorded, using reflex and functional methods. The second upper recording base with a wax rim was used to determine the individual hinge-axis of every patient with the help of face bow KaVo./Fig.1/. The upper cast was then mounted to the upper member of an individually adjustable articulator "Protar VI" of KaVo. The lower cast was mounted using the fixed upper and lower recording base plates with wax occlusion rims.



Fig. 1. Recording of the individual hinge-axis by a face bow KaVo.

To establish the inclination of the condyle pathways to the Camper's line all the patients were subjected to profile teleroentgenography. According to the measurements of that angle, two different kinds of artificial posterior teeth were used-with 20° degree cusp teeth Orthocal, Artic and 30 degree cusp teeth, Orthocal- Basic of Heraeus Kulzer, GmbH&Co.KG.

The patients were divided into two groups according the inclination of the condylar path. In the first group were two women and four men, with incline of the condyle pathways from 20-28 degrees. Those patients we treated with posterior tooth set of 20 degrees cups incline. Those patients showed more advanced atrophy compared to the other group - from 2nd to 3rd stage by Boyanov classification. In the second group were the rest four patients /four women/ by which we measured an inclination of condylar path from 28-35 degrees. By them we selected 30 degrees cusp teeth. Those patients had atrophy of the jaw bones from first to second stage by Boyanov classification.

All dentures were arranged with maximum horizon-

tal overlap and minimal vertical overbite in the frontal part.

The dentures were delivered to the patients. Control appointments were arranged at the second, the third and the sixth day and after two weeks.

At the control appointments the patients were asked about their experience with the new dentures by speaking and eating. Clinical tests for retention were made. The occlusion was checked and if needed, corrections were made.

RESULTS AND DISCUSSION:

The clinical observation showed that in those cases the reasons for the poor retention and stability of the dentures were the lack of peripheral seal, uneven occlusion contacts and blockades in laterotrusion and protrusion, which caused denture dislodgement. The atrophy of the jaw bones had to be taken in mind too as a main anatomic condition for bad retention and stability of the prostheses.

With the functional impression technique we eliminated the improper peripheral seal of the previous dentures.

The easy dislodgement of the prostheses by laterotrusion and protrusion we minimized using 20 degrees cusp teeth by patients from the first group and 30 degrees cusp teeth by the patients from the second group. By this way we try to make adequate the tooth occlusion to the biological structures of the TMJ.

CONCLUSIONS:

When treating patients with full dentures the first concern is to preserve the supporting tissues. The nature of the supporting structures for complete dentures and the forces directed to them by the occlusion creates a special biomechanical problem.^{8,10,11/} The clinician should apply all the factors that favor the stability of the base and design the occlusion to function optimally in relation to the forces of mastication.

The harmonious occlusion in complete dentures can be defined as stable simultaneous contacts of the opposing upper and lower teeth in centric relation position and a continuous smooth bilateral gliding from this position to any eccentric position within the normal range of mandibular function. This is present when the inclination of the condylar path and the cusp angulation's are taken in mind while making the choice of posterior teeth.

The good results and findings from our work gave us the base for further investigation of the problem.

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CRITICAL OBSERVATION OF THE ANATOMIC CAST MODELS BY PATIENTS WITH FULL DENTURES

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ABSTRACT

Introduction. The maxillary and the mandibular anatomic casts of full dentures impressions should include all the anatomic surfaces of the anatomic impression as an appropriate individual tray to be performed.

The **purpose** of the authors is to present the most often mistakes by anatomic casts of full dentures' first impressions made in the Prosthodontics' exercises in the clinics of Prosthodontics, Faculty of Stomatology-Sofia by the students.

Materials and methods. On critical observation were subjected 48 anatomic casts (26 upper and 22 lower casts) of 28 patients (16 women and 12 men) with a forthcoming full dentures' prosthodontic treatment. The results show that 37, 5% of the anatomic casts didn't meet the requirements of an appropriate stone cast.

Discussion. The observed shortcomings and defects by the false casts draw our attention on the necessity of more detailed and well grounded explanation of oral anatomy in connection with the future role of the anatomic stone casts for the retention and stability and construction of the full dentures.

Key words: critical observation, stone casts, edentulous jaws

INTRODUCTION

The detailed observation of the edentulous jaws has a very important meaning for the final result of the treatment (1, 2, 4, 5). Not all the anatomic structures but are clearly seen although how carefully the observation is made. The investigation of the anatomic cast models according Boyanov (1), allows the gathering even of an additional and useful for the prosthetic treatment data.

The inaccurate duplication of the prosthesis base' anatomy in the casts could be explained by the following reasons: inadequate custom tray, deficiency of the impression material, errors in pouring the cast etc. The absence of certain elements and anatomic landmarks on the cast lead to mistakes in the individual tray. Thus further inexactness in taking the functional impression is possible.

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