

IMPROVEMENT OF METHODS FOR ISOLATING BONY PROTRUSIONS ON THE UPPER JAW**Safaraliyev F.,***Doctor of Philosophy in Medicine Associate Professor***Arkhmammadova G.,***Department of Orthopedic Dentistry. Assistant***Alizada A.***Department of Therapeutic Dentistry Assistant**Azerbaijan Medical University,**Baku, Azerbaijan*<https://doi.org/10.5281/zenodo.11199274>**Abstract**

People lose teeth for various reasons. In modern dentistry, complete prosthetics are performed in two ways: implantation followed by prosthetics and restoration of the dentition using removable dentures. Implantation is an expensive procedure. But sometimes it is impossible to carry out due to the clinical picture. An alternative remains a removable prosthesis, affordable, but requiring a certain period of adaptation [1,4]. Sometimes, due to the anatomical and age-related characteristics of the tissues of the oral cavity, complete dentures require functional improvements.

Keywords: removable dentures, bone protrusions, treatment method.

In the practical work of a doctor, there is no methodological approach that takes into account the clinical condition of the torus and its sensitivity, and subsequently high-quality isolation in the prosthesis. It is known that it is necessary to isolate the torus on a removable denture [2]. In addition, due to the physical and mechanical properties of plastic, denture bases cause a lot of trouble for dentists. Solving these problems improves the quality of removable dentures.

The purpose of the study is to study and systematize the clinical manifestations of the torus and evaluate the effectiveness of using two-layer bases in removable prosthetics.

Material and methods

In the orthopedic dentistry clinic, 104 patients were examined and undergo orthopedic dental treatment, 37 of whom made up the comparison group. The majority of those examined were persons aged 60 years (27.9%), 70 years (37.5%) and over 70 years (34.6%). The majority of patients are women (61.5%). In total, we manufactured 191 dentures, including 72 dental units in the comparison group and 119 dental units in the main group. In the main group, 74 (62.2%) dentures were made for patients with complete absence of teeth, and 45 (37.8%) for patients with partial absence of teeth. In the comparison group, there were 43 (59.7%) dentures with complete absence of teeth, and 29 (40.3%) with partial absence of teeth. For patients of the main group with complete absence of teeth, 38 dentures with a soft lining were made from Gossil (Russia), Fuji (Japan) - 19, Mucoprene (Germany) - 17 dentures. With partial absence of teeth, 22 units were made from Gossil, 14 from Fuji, and 9 from Mucoprene. Clinical, morphological and physical-mechanical studies were carried out on patients. Along with generally accepted methods, special studies were carried out (determination of pain sensitivity, gnathodynamometry, physical and mechanical studies of soft pads). Results of the study: 47.9% of those examined in the comparison

group and 55.3% in the main group complained of impaired chewing and poor fixation of dentures on upper and lower jaws, depending on the degree of atrophy of the alveolar processes. 39.3% of patients in the control group and 46.8% of the main group noted disturbances in aesthetics, speech, and pain under dentures. Accordingly, 13.8 and 31.9% of patients complained of lack of stabilization, poor-quality prosthesis and the need to replace the old prosthesis with a new one. Thus, almost all patients came with a certain complaint about the removable denture. The nature and frequency of complaints correspond to the degree of atrophy of the alveolar processes, the quality of the manufactured dentures and the hygiene of the oral cavity and dentures. An analysis of complaints from patients with partial absence of teeth showed that the largest number of complaints were made about violation of clasp fixation and chewing disorders: in the comparison group 31.5%, in the main group - 42.1%. Speech and aesthetic disorders occurred in 27.6 and 31.5% of those examined, respectively; pain under the prosthesis and poor quality prostheses – in 6.6 and 13.1%, which depended on the degree of atrophy of the alveolar processes. The main reason for tooth extraction in patients with complete and partial absence of teeth was periodontal disease. There were 81.0% of such patients in the comparison group and 87.0% in the main group. Complications of caries were the cause of tooth loss in 13.0% of patients with partial absence of teeth and in 19% of patients with complete absence of teeth. In patients of the main group (50.0%) with complete absence of teeth, type III atrophy of the alveolar process was often encountered. There were slightly fewer patients (25.0%) with type IV atrophy. In patients with partial absence of teeth, in the presence of removable dentures, gnathodynamometry indicators were significantly higher (40 kg/cm² or more). In the presence of complete removable dentures, the lowest indicators were recorded with class III atrophy of the alveolar processes according to Oxman (20

kg/cm²) in the area of the chewing teeth. When studying the conditional strength during elongation, the GosSil material had the maximum value - 5.2 ± 0.17 MPa. Silicone materials - Fuji, Mucoprene - are somewhat inferior to it in this indicator. The Mucoprene material has the highest relative elongation coefficient (650%), which indicates very high strength. When studying residual elongation, the GosSil material had a higher value - 3%, the minimum value of this indicator was for Fuji and Mucoprene - 1%. Approximately the same values for the material Mucoprene and GosSil were obtained when measuring stress during elongation, while Fuji had a slightly higher elasticity - 1.2 MPa. Thus, all materials used, based on physical and mechanical research, comply with international standards and can be used in orthopedic dentistry. Determination of the pain sensitivity of the mucous membrane of the prosthetic bed showed that the most sensitive areas are sharp bony protrusions, exostoses and the torus area on the upper jaw. In some cases, only touching caused pain in patients, which is an easy basis for classifying the torus according to sensitivity. In the clinic of orthopedic dentistry, we have identified three types of sensitivity of the oral mucosa covering the torus of the upper jaw: Type I – mild sensitivity, existing bone formations without clear boundaries, the mucosa is of sufficient thickness, pain appears with strong pressure; esthesiometry indicators – 10 g/cm² or more; Type II – bone formation with clearer boundaries, the mucosa is thin, painful on palpation is determined; esthesiometry indicators – up to 10 g/cm²; Type III – the palatine torus has a clear or pronounced border, can occupy a large area of the palatal suture, the mucosa is thin, atrophic, painful when touched, the relief of bone formation is noticeable upon examination, esthesiometry indicators are 0 g/cm². This classification helped us in the manufacture of the following types of two-layer dentures: with type I of the palatine torus, we consider it possible to manufacture removable dentures from acrylic plastics; only if the patient desired, two-layer bases were made. In the presence of types II-III of the torus severity, we recommended only removable laminar dentures with a soft lining [3]. We have developed the technological features of manufacturing soft linings. Thus, in the presence of a type II palatal torus on the model, the palatal torus was isolated over the entire area of the bone formation using one layer of clasp wax. When type II torus is pronounced, we isolated it with two layers of clasp wax, followed by the production of a two-layer base. After checking the design of the prosthesis in the patient's oral cavity, the dental technician removes the wax base with artificial teeth from the model. On this model, a silicone plate with the thickness of clasp wax is placed in the torus area along the outlined border. A layer of clasp wax (0.4-0.5 mm) is applied to the entire surface of the model along the border of the future prosthesis, taking into account the outlined boundaries. This wax base is then removed from the model and left aside. The base with artificial teeth, which were placed in the patient's oral cavity, is formed, plastered in a cuvette and the wax is boiled. After cooling, a wax substrate made of two-layer clasp wax with a thickening in the torus area made of silicone

is installed on the cuvette with a model without artificial teeth. Using a warm hairdryer, press it tightly onto the surface of the model. Acrylic plastic is molded, both parts of the cuvette are connected and placed under a press. Remove from the press, open the cuvette and boil the wax base. The surface of acrylic plastic is treated with adhesive and molded from soft plastic, followed by welding in the usual way. With this type of work, the total thickness of the prosthesis base will correspond to the wax plate. This achieves sufficient isolation of the torus, which ensures painlessness when using removable dentures. This approach is successful for clinicians. This technique was used for sharp bony protrusions, exostoses, pronounced torus and other bone formations that do not allow for the usual traditional orthopedic treatment with removable plate prostheses. In the orthopedic dentistry clinic, we manufactured 38 dentures with a two-layer base from GosSil, 19 from Fuji and 17 from Mucoprene for patients in the main group with complete absence of teeth. In case of partial absence of teeth, 22 dentures were made from GosSil, 14 from Fuji, 9 from Mucopren. A total of 119 dentures were made. Observation was carried out over a period of 1 to 6 months. In the first days of using removable plate dentures with a soft lining, patients anxiously anticipated the sensation of pain. Improved functional qualities allowed patients to fully use prostheses right from the first days. There were complaints of pain in individual points under the prosthesis, which were easily eliminated. The patients fully performed the act of chewing and felt comfortable. After 3-10 days, the patients fully adapted, successfully used the prostheses and had no complaints, noted better fixation of the prostheses, no pain under the prosthesis, but some remained wary of pain or possible breakage of the prostheses. Clinical studies over time (1, 6, 90 and 180 days) showed that the use of soft linings in removable prosthetics led to good fixation of complete removable dentures in 72.7% of cases, satisfactory fixation in 46.9%. In our practice there were 2 negative cases. In the first case, the patient began to smell the smell of laundry soap when using a two-layer base made of Fuji material. The prosthetics are made from GosSil material. In the second case, the soft lining from GosSil along the edges of the prosthesis became frayed, i.e. part of the outer surface of the lining from GosSil moved away from the main mass in the form of wide threads. We cut off the threads and re-polished the prosthesis. The patient successfully uses dentures. Conclusion Analysis of complaints among people using complete removable dentures in the complete absence of teeth about a violation of the act of chewing and poor fixation of dentures are found in 55.3%, and among people with removable dentures with partial absence of teeth, the largest number of complaints about violation of clasp fixation are made by 42.1%. Analysis of gnathodynamometry and physical-mechanical studies of soft pads from different countries, such as GosSil (Russia), Fuji (Japan), Mucoprene (Germany), showed their effectiveness and the possibility of using two-layer bases in an orthopedic dentistry clinic.

Conclusion.

A clinical classification of the torus has been developed, which allows clinicians to successfully isolate bone formations while maintaining the quality of manufacturing prostheses using developed and recommended technologies for manufacturing two-layer bases in removable dentures.

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