

Atrophy of the Alveolar Process of the Lower Jaw with Complete Prosthetics

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Abstract: The paper outlines the outcomes of a clinical trial that analyzed 942 subjects aged between 45 and 89 years. The study aimed to investigate the occurrence of total tooth loss and the necessity to treat it among different age groups of adults. It has been shown that the number of patients suffering from complete loss of teeth in one or both jaws increases with age. It has been established that in the elderly and senile age, prosthetic stomatitis is more common, as well as jaws of 3-5 types of atrophy, which, due to their anatomical features, serve as a poor support for fixing and stabilizing removable dentures.

Keywords: complete loss of teeth, elderly people, prosthetic stomatitis, jaw atrophy, toothless jaw.

According to the World Health Organization, functional changes, which are caused by tooth loss due to untreated periodontal diseases, are as frequent as five times more compared to caries and its complications. [1,4,6,9,11,13.]

Prosthetic rehabilitation of edentulous patients is viewed as one of the challenging matters in prosthodontics. The matter pertains to anatomical, physical, and psychological alterations in patients, which, coupled with further complications, renders the treatment a challenge [2,5,8]. The authors provided evidence about the increase of patients suffering from complete tooth loss due to higher life expectancy in developed countries. A rise in the number of elderly individuals who have experienced complete tooth loss has been documented. The number of edentulous patients, as per the World Health Organization, demonstrate 50% in the USA, 60% in Sweden, and over 70-75% in Denmark and the UK. [3,6,7,10,12].

Aim. The assessment of patients to determine the necessity of complete dentures.

Material and methods. In 2020-2022, 843 patients were treated in the Stomatology clinic and the research center of Bukhara State Medical Institute. The study enrolled 162 subjects (19,2%) who met the criteria of requiring prosthetic treatment.

We also identified the types of complications arising from the use complete dentures based on a retrospective analysis of outpatient cards of 1,620 patients who were observed full adentia from the archive materials of the Orthopedic Department of the educational and scientific center of Dentistry at the Bukhara State Medical Institute in 2015-2019.

To compare several groups, multifactor disperse analysis has been applied. Selection indicators given in the table below are made as follows: M – median, m – average deviation, n – number of subjects, p – statistical significance. The p-value has been computed to be 5%.

Results and discussion. In 2015-2019, 312 (33.1%) of the 942 patients whose retrospective data were analyzed had different visual complications. Chronic inflammations in the denture tissue (8.1%), unsatisfactory fixation and stability of the dentures (12.2%), fracture of the denture base (3.6%), and inability to adapt to fully removable plate dentures (5.2%) were identified as the main complications. That being said, of the 38 (8.1%) cases of complication in the form of chronic inflammation of the denture tissue, 30 (78.9%) corresponded to the toothless lower jaw.

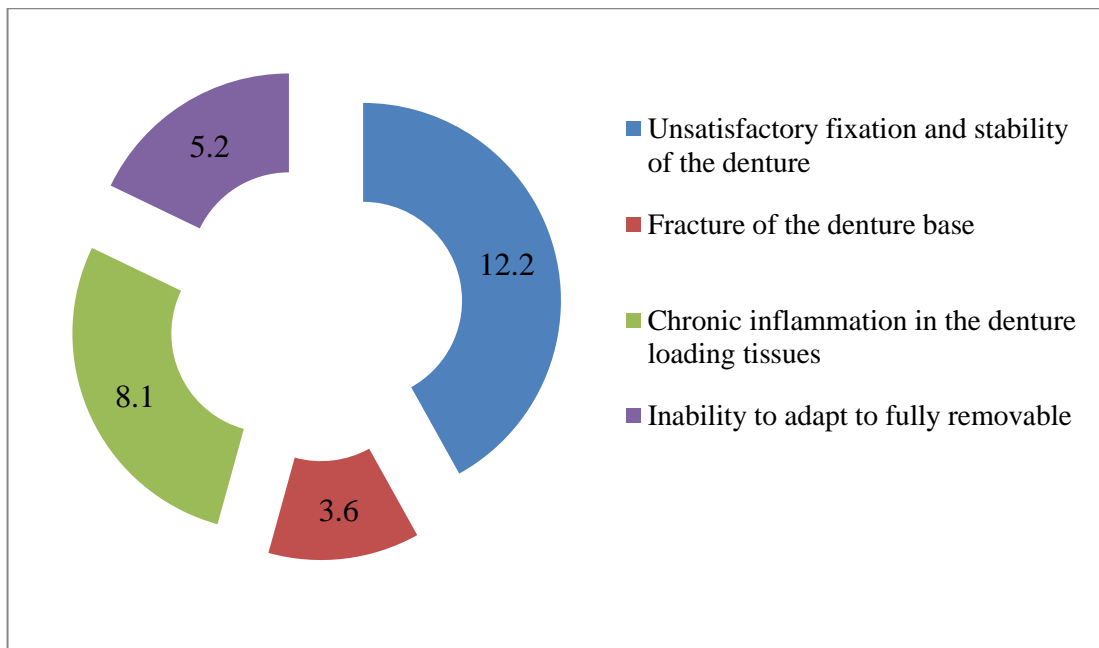


Figure 1. Types of main complications following complete removable complete dentures.

162 patients were divided by sex, 61 men (38.8%) and 101 people (62.2%) women, which is given in fig.2.

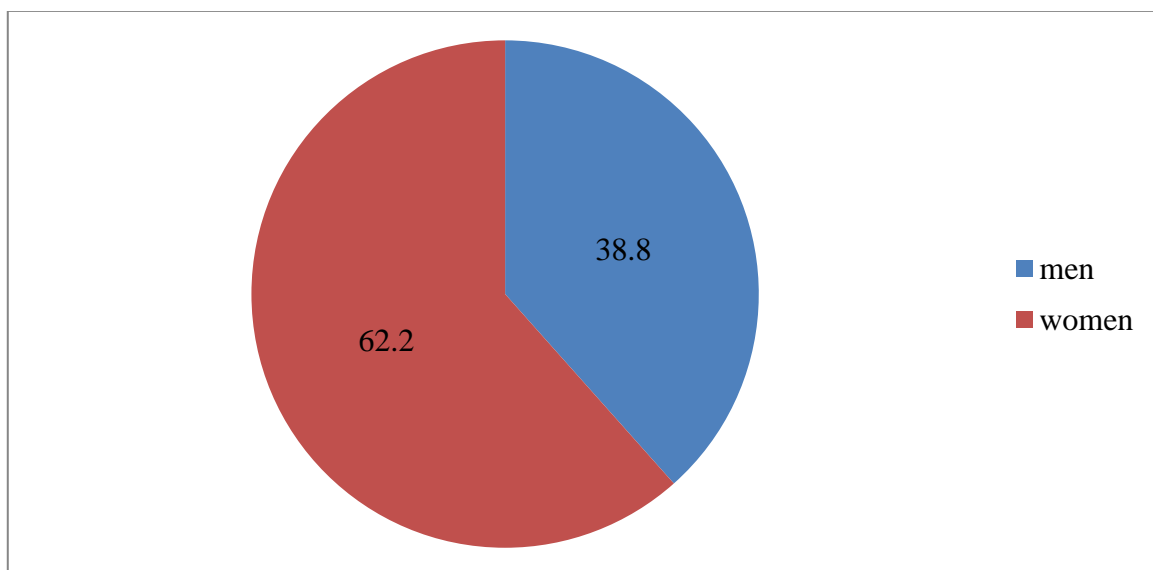


Figure 2. The percentage of patients involved in the study categorized by their sex ratio.

When the types of adentia were studied in patients involved in the study, complete secondary adentia was observed in 40 patients in the upper and lower jaw, while complete secondary adentia was observed in 34 patients in the upper jaw and 16 patients in the lower jaw. Partial secondary adentia of the upper and lower jaw was observed in 46 patients.

In 56 patients with complete secondary adentia observed in the lower jaw involved in the study, the level of atrophy of the mandibular ridge atrophy was studied (Table 1).

Table 1. Mandibular alveolar ridge atrophy rate indicators according to Keller of patients involved in the study

	Mandibular alveolar ridge atrophy rate indicators according to Keller of							
	I		II		III		IV	
	MYT.	%	MYT.	%	MYT.	%	MYT.	%
	15	26,8	20	35,7	14	25	7	12,5
Total	56 (100%)							

The distribution of patients by Keller according to the type of atrophy of the mandibular alveolar ridge has the following appearance: Type I-26.8%, type II – 35.7%, Type III-25%, type IV – 12.5%.

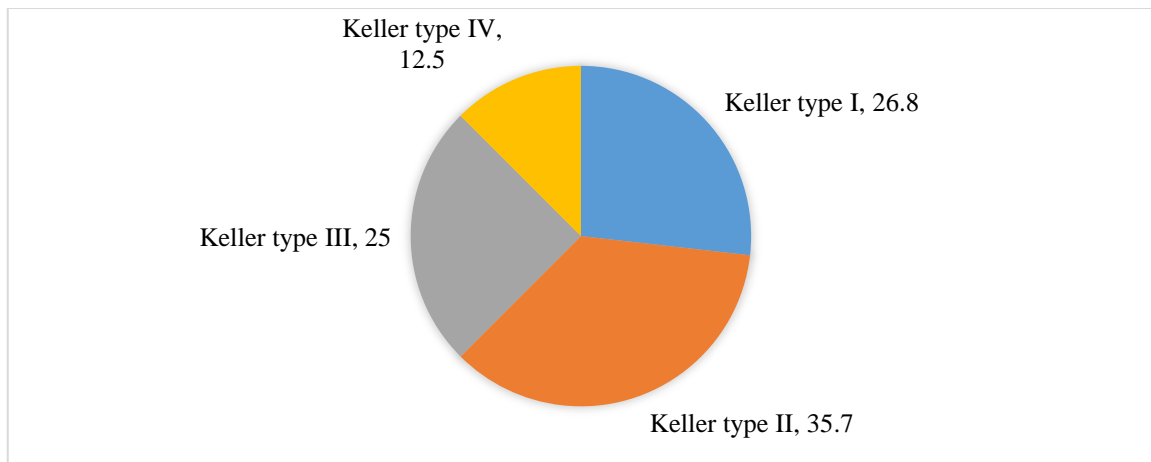


Figure 4. Distribution of patients by type of atrophy of the lower alveolar process.

In 56 patients (34.6%) with lower jaw secondary adentia, 33 (58.9%) were observed in Supple with Class I, Class II and III with 11 (19.6%) and 9 (16.1%) patients respectively, and Class IV with 3 (5.3%) patients. The information obtained is clearly illustrated in graphic view in Figure 4.

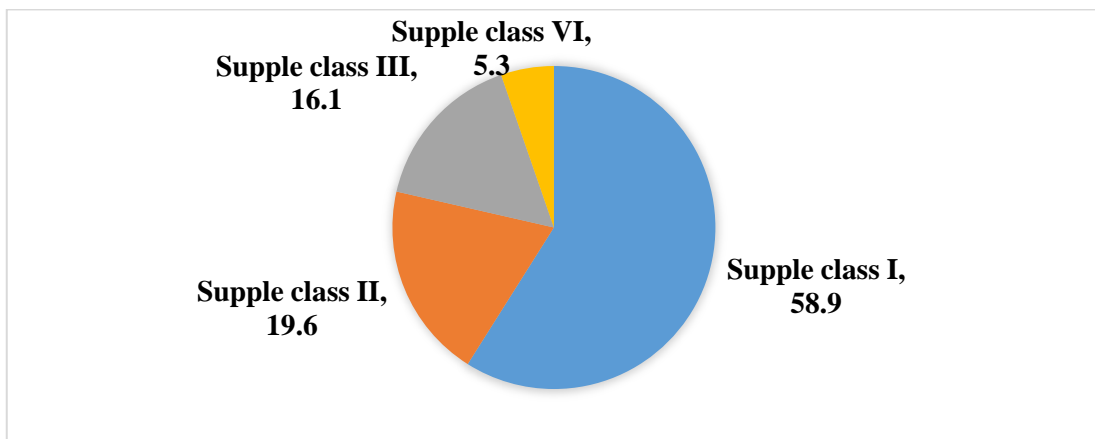


Figure 5. Distribution of patients in the lower jaw by the condition of the mucous membrane of the toothless prosthetic seat

On the surface of 3.1 and 11.2% of the total area of the prosthetic seat without the lower jaw in grades I and III according to Supple, we identified a small number of absorbent areas of the mucosa of the jawprosthesis without teeth (less than 0.2 mm), in Grade II, these areas were determined from the total surface of the prosthetic In the toothless lower jaws, the surface of the prosthetic area was 986 mm² to 2412 mm². In the lower jaw plaster model, the average surface area of the toothless prosthetic area was 1686.66±369.03 mm. The surface area of one low-yield sphere averaged between 55.76 mm and 149.62 mm, or the lower jaw-type model of toothless jaw with an average area of 3.1% to 8.6%. In patients called for examination, under the base of a fully removable plate prosthesis, the size of the

permeability of the mucosa of the prosthetic position without the lower jaw was on average 0.51 ± 0.12 mm.

Conclusion. The results of the analysis showed that in 2020-2022, the need for a fully removable plate prosthesis in patients was 17.2% of the total number of orthopedic patients. The total amount of complications from fully removable dentures is 33.1%. A survey of patients involved in the study made it possible to identify a small number of soft areas in the mucous membrane of the denture prosthesis in classes I and III under Supple, as well as soft areas in Class II under Supple.

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