

Total Protection in Patients With Exposed (Specific) Resorption of Alveolar Ridges - A Challenge in The Everyday Practice – Case Reports

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Abstract:Residual alveolar ridge resorption is an intraoral structural change in the alveolar bone associated with loss of natural teeth. This chronic, irreversible and cumulative process is most pronounced in the first six months after teeth extraction¹⁻². The resorption of alveolar bone has a major impact on the design and construction of prosthetic benefits and it is a challenge for the dentist in everyday practice.

The aim of this paper is to review the dilemmas around the clinical procedure by providing examples of everyday practice to ensure the maximum functionality of total dentures, in cases of increased resorption of alveolar bone.

Keywords:resorption of alveolar ridges, total prostheses

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I. Introduction

The resorption of alveolar ridge is a chronic process that begins immediately after tooth extraction, it is progressive and cumulative alteration of the alveolar bone³⁻⁷. A lot of factors affecting the level of bone resorption. These factors can be local: the conditions after extracting one or more teeth, duration of toothlessness, chewed stress that is transmitted to the residual ridge; or system factors, such as: age, sex, reduced calcium intake, various forms of pathological conditions, osteoporosis and various hormonal disorders⁸. The interaction of these factors leads to an accelerated resorption of the alveolar bone parts⁹.

Regardless of the cause for increased resorption of the alveolar ridge, it leads to a reduction in the bone mass that has a role as the basis for the total denture, resulting in reduced retention and stabilization of the total dentures.

II. Review From The References

The resorption, as a result from the extraction of the teeth leads to narrowing and shortening of the alveolar ridge, but it can also lead to its displacement in the palatal or lingual direction¹⁰. According to Iasella et al.¹¹ the size of the defects after tooth extraction is often conditioned by previous bone loss due to periodontal disease, endodontic lesion, or trauma of the teeth or bone. The greatest reduction in the size of the residual alveolar ridge was observed in the first 6 months after the extraction, but it continues throughout life with significantly reduced intensity¹².As a problem that affects the increased bone resorption in prosthesis carriers, the nonphysiological pressure is a result of the transformation of the fat forces that are transmitted through the prosthesis to the jaw¹³.Most authors, such as Atwood, emphasize the difference in the bone loss of mandibular resorption relative to the maxilla. He believes that the mandible is three to four times more absorbed due to the fact that it has a much smaller area of underlying (under denture) tissue, which means that greater pressure is applied to the unit area during mastication¹⁴. There is no significant difference in the size of RAG depending on whether the patient wears the prosthesis just daytime or wears it and during the night¹⁵.Bertee¹⁶ points to the growing problem in aesthetic solutions due to increased resorption, especially in the anterior part of the ridge. It is necessary to have a minimum bone volume of the alveolar ridge in order to develop optimal functional and aesthetic prosthetic allowances¹⁷.

III. Aim

The aim of this paper was to present the most common clinical cases with increased resorption of alveolar ridges in everyday practice followed by appropriate prosthetic solutions.

IV. Examples Of Cases

The presented services are patients from the Clinic for mobile dental prosthetics at the Faculty of Dentistry in Skopje. After the dental examination, a diagnosis was made and anodontic solution was selected with the choice of appropriate therapy.

V. Case 1

In a patient at the age of 56 with diagnosis anodontio totalis maxillae et partialis mandibulae, it was detected increased resorption of the maximal alveolar ridge in the frontal region, in the area where natural teeth are present as antagonists. The resorption of the maxillary ridge is followed by gingival hyperplasia. The construction of the maxillary ridge is the spongy in the frontal part, and the arch of the alveolar grain is reduced.



Pic. 1 extra-oral presentation before prosthetic therapy



Pic. 3 After Prosthetic Treatment

Case 2.

A patient at the age of 73 years with Dg: anodontio totalis maxillae et mandibulae has been reported to have a resorption of both residual alveolar ridges. As a consequence, the lower third of the face is reduced with the rotation of the lower jaw in the opposite direction of the arrows of the clock, which is the reason for the discrepancy between the upper and lower alveolar ridge.



Pic. 4 Intraorally absorbed ridges



Pic.5 studio models



Pic.6 RTG

Case 3

The third case is a patient at the age of 67 with anodontiototalismandibulae and a one-sided shortened maxillary dental arch, where the molars are missing. The alveolar ridge in the lower jaw is more compact, therefore the resorption of the lingual side is more pronounced, with a curvature and decrease with a tendency to expand to the outside, thus extending the arc. In the patients, prosthetic treatment was carried out, ie appropriate

mobile prosthetic devices were made, observing all the principles for the correct extension of the prostheses with special emphasis on the interalveolar ratio and balanced occlusion. This contributed to the complete aesthetic rehabilitation of patients, which restored their confidence, and the function of the stomatognathic system was restored to normal, as permitted by the given conditions.



Pic.6 resorbed mandibular ridge



Pic.7 studio models

VI. Discussion

Everyday practice recognizes the problem of increased bone resorption of the residual alveolar ridges as one of the key in the process of achieving successful rehabilitation of patients who wears total dentures. As most authors point out, the reduction in residual ridge during prolonged wear of the dentures is small compared to a rapid decrease during the first year after the denture has been made. During prolonged wearing of total dentures, the rate of reduction and the relationship between the maxillary and mandibular ridge, on average, remains fairly constant¹⁸. One of the easiest methods for early diagnosis of bone structural changes in the upper and lower jaws is microdensitometry through the use of standard intraoral or panoramic x-ray images¹⁹. These findings suggest that careful examination of the maxillary and mandibular forms that can provide valuable information on the response to the resorption of alveolar ridges in denture wearers. According to Baucic¹⁵, no difference was found in the size of the residual alveolar ridge according to whether patients wear dentures only during the day or wear them throughout the day and night. Regarding the clinical consequences of bone loss, it has been observed that the course of resorption can be prevented by regular controls and the implementation of appropriate prosthetic measures with indicated denture instability and unwanted occlusal ratios²⁰⁻²¹. Because resorption of the residual alveolar ridges are the highest in the first year when the denture has been made²². Regular controls during this year are necessary. In the further course of wearing mobile dentures, controls are necessary once a year.

VII. Conclusion

The main goal of successful treatment with total dentures is to achieve their stability in function and maximum aesthetics. The expectations of different patients are certainly different, so accordingly our approach to treatment is different. In patients with increased resorption of the alveolar ridge, the role of the dentist is primarily to spot and diagnose factors that can lead to this condition and minimize local factors to the lowest possible level. In this way, not only will it achieve successful rehabilitation of the stomatognathical system, but will greatly increase the sense of comfort and improve the quality of life of these patients.

VIII. References

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