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Case Report

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FIVE YEAR EXPERIENCE OF DENTAL PROSTHETIC REHABILITATION OF A PATIENT WITH SKELETAL CLASS III BY ANGLE - A CASE STUDY

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ABSTRACT

Introduction: Every patient must be meticulously treated especially when they are at a specific age, have certain Skeletal Classes by Angle and have prosthetic indication for their treatment. **Case report:** The aim of this study is to represent a dental prosthetic rehabilitation of a patient with Skeletal Class III by Angle and partial edentulism and the five year experience from that treatment. For the purpose of this study, a young adult patient with Skeletal Class III by Angle was analyzed, rehabilitated and treated for the preparation of his teeth and manufacturing of a prosthetic dental bridge. After detailed analysis with paraclinical examinations, clinical examinations, photographs, studio models and individual articulators, a detailed prosthetic plan was conducted. After the preprosthetic rehabilitation the patient was treated with circular dental bridge with restauration of the anterioposterior position of his bite. The patient was followed in a period of time of five years. The method for rehabilitation (sometimes multidisplinatory-orthodontic, maxillofacial surgery, prosthetic) of a certain Skeletal Class by Angle is well known by therapists worldwide. **Conclusion:** Besides different treatment modalities, the present individual situation of the patient with Skeletal Class III by Angle and partial edentulism also the patients age and expectations, gave us a five year experience of his dental prosthetic rehabilitation. The overall prosthetic treatment plan has shown satisfactory in the five year follow upo, on the mutual satisfaction on both the patient and the dental prosthetic team.

KEYWORDS: five years experience, yound adult patient, Skeletal Class III, dental prosthetics.

INTRODUCTION

Young adult patients with Skeletal Class III by Angle, who have not had the chance to wear orthodontic appliances in their early ages, and have partial edentulism are in need for further prosthetic rehabilitation in the future, or a multidisciplinary approach if necessary. Skeletal Class III by Angle is characterized by an anteroposterior dental discrepancy with or without anteroposterior and vertical skeletal changes.[1] Patients notice their appearance and hence do not feel comfortable with themselves and then they seek for dental therapy. These patient are self conscious about the way they look, feel and the way the environment sees them, because of their appearance, masticatory problems, functional problems etc. They have occlusal discrepancies, visual aesthetic and functional problems. This skeletal and dental anomaly is considered to be one of the hardest to treat. Also regarding the degree of the anomaly there exist many different treatment modalities individually designed for every patient, beginning from orthodontic treatment, maxillofacial surgery, dental prosthetics or even a combination of some of the methods.[2]

It is optimal if the skeletal class III by Angle is discovered at the youngest of age, since therapy can begin very early and have a more preventive futuristic perspective. These patients have many treatment options such as facial masks, removable orthodontic appliances or fixed orthodontic appliances. Sometimes a combination with orthognatic surgery is necessary for achieving both functional and aesthetic rehabilitation.[3.4]

However once the facial and overall growth is finished, these patients meet many consequences that derive from the anomaly also known as progenia or progenia vera, depending on its stage. If orthodontics can be taken in consideration[5] these patients will have an opportunity for treatment, that even sometimes with removable orthodontic appliance resolves their situation.

However sometimes at a certain age when patients with Skeletal Class III by Angle face partial edendulism, parodontal problems, orthodontics can not be considered a primary solution. Especially if the patient does not want to wait for the orthodontic treatment and wants an optimal solution that will last him longer and help him with the negative aspects of this anomaly. Then dental

prosthetics must provide the optimal possible treatment suitable individually for every patient, taking in consideration the age of the patient, the healt of the stomatognathic system and the patients' overall health.

Sometimes dental prosthetic rehabilitation is the only possible solution, especially in patients that have partial edentulism and Skeletal Class III abnormalities.

The aim of this study is to represent a dental prosthetic rehabilitation of a patient with Skeletal Class III by Angle and partial edentulism and the five year experience from that treatment.

CASE REPORT

In this study a representation of a five year experience is described of a meticulous complex dental prosthetic rehabilitation of a patient with Skeletal Class III by Angle with partial edentulism, by providing the optimal treatment plan.

For the purpose of this study, a 36 year old patient was admitted at the PHI University Dental Clinical Centre "St. Panteleimon" in Skopje, North Macedonia. When the patient first came to the dental office, he was in a desperate situation. He had done previous prosthetic constructions with posts and cores, and an anterior bridge, but his overbite in the front and his health problems were not corrected. Besides that, he had an impacted canine. His anterior bridge began to influence his frontal teeth in a negative connotation and this has led him to lose his anterior teeth due to poor previous treatment.

He also has complains about his facial look, because he experiences problems with speaking, chewing the food, and that has lead him to have gastrointestinal problems. He was in expectation of a faster solution, different from the previous on that will help him eliminate all of his subjective problems.

Paraclinical observations were obtained by using the ortopantomographic imaging after which a deduction was made for further therapeutically designed plan (figure 1).

The situation on the panoramix image and in the mouth had shown that the patient was in a terrible situation, and was in need for extractions of his central incisors and his impacted left canine. An endodontic treatment on his right lateral incisor was performed. After the properly conducted endodontic treatment on the patients' right lateral incisor a post and core were designed. A period of time was given for the healing of the soft tissues and for further resorption and remodelation of the bone. The patient wore miniature removable partial denture (immediate denture), which allowed him to perform the obligations that every young person has at that age. When orthodontics is not an option the continuation of the process is in the direction of functional-aesthetic dental prosthetic rehabilitation, for enabling the patient satisfactory level of functioning and enabling him a better quality of life. In this case study the patient refused considering orthodontic treatment which is the reason why dental cephalogram was not performed.

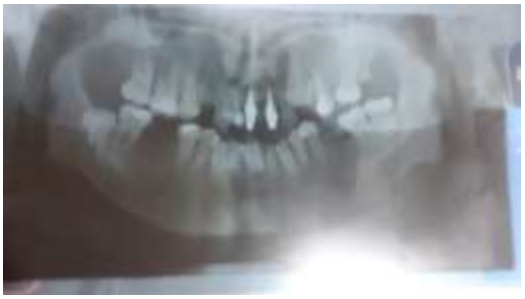

Figure 1: Ortopantomographic Image of The Patient.

The patient was analyzed, observed in every method known in the dental prosthetics so the diagnose can be obtained. After taking photos from his frontal and lateral view of his dentition initial impresions were taken for making studio models. Studio models are inevitable in tough cases so that the therapist and the dental technician can design a plan that can lead in the direction of restoration with a newly designed functional occlusion. The patient was analyzed also with the help of individual articulator where the movements of the studio models could be reproduced in a manner that imitate the nature of the patients' skeletal class. After the detailed analysis a diagnose was given that this patient has a Skeletal Class III by Angle. This has led to the conclusion that also alteration exist in terms of reduction in his vertical dimension and that is why objectively he has subjective problems that need a complex treatment.

A

B

Figure 2 a) Frontal view of the patient.
Figure 2 b) Lateral view of the patient.

After analyzing the vertical dimension with digital caliper and choosing the individual treatment plan, the teeth of the patient in the maxilla were preparated with diamond burs.

Then the aesthetic circular metal ceramic dental bridge was designed with the help of our experienced dental technicians in the dental laboratory (figure 3).

Figure 3: The aesthetic design of the circular dental bridge on the studio model.

After manufacturing of the porcelain fused to metal dental bridge, the circular dental bridge was cemented temporary in the patients mouth by the therapist. Before and after pictures were taken in the frontal view and the lateral view of the patient (figure 4 a) and b)). In these pictures the complete rehabilitation of the functional-aesthetic aspect with reconstruction of the functional occlusion can be analyzed. The vertical dimesion was altered and a complete new functional occlusion was designed. Also different movements were analyzed with the usage of articulation paper and the help of T scan. The T scan is a very helpful method that can enable us to see every contact digitally before and after the treatment and to analyze the reconstruction in a digital dimension and its functionality in the patients' mouth.

A

B

Figure 4 a) Frontal view of the patient with cemented dental bridge.
Figure 4 b) Lateral view of the patient with cemented dental bridge.

DISCUSSION

Patients that have diagnosis Skeletal Class III by Angle are a category of patients that are hard to treat out of various objective reasons.[6]

It is of high importance to suggest the early prevention of patients that have Skeletal Class III by Angle. That is why it is very important for parents to have proper education starting in the kinder garden for parents and children, so that their therapists can act in terms of prevention with removable prosthodontic appliances if they have anomalies. Because of the unpredictability of the genetics, parents of children with the condition Skeletal Class III by Angle should expect genetic transmission of their skeletal and dental abnormalities to their children. It is inevitable to suggest orthodontics as a first therapeutical method of choice and to emphasize the importance of early detection. Since it is a very obvious and anatomicaly very noticeable, awareness must be raised for the problems that arrive from Skeletal Class III by Angle. These problems related to the bone and discrepancies of the occlusion, can lead to problems with the entire stomatognathic system, its normal physiological functions and thus the overall patients' health.[7]

The degree of Skeletal Class III by Angle dictates whether orthodontics is enough as a therapuetical modality, or a combination of maxillofacial surgery and orthodontics should be considered.[8]

Some authors describe combination methods of multidisciplinary approach in patients treated with dental implants, maxillofacial surgery and orthodontics.[9]

Then with the third modality option which is also satisfactory in patients that have finished their growth and are with a specific indication for a complete functional – aesthetic rehabilitation, patients can be treated prosthetically.[10]

In this case, porcelain fused to metal was chosen as a solid solution for this indication (Skeletal Class III by Angle and partial edentulism). The patients consent for a faster prosthetic solution was taken in consideration regarding the condition of his remaining teeth, partial edentlusim, previous prosthetic work and creating a new vertical occlusal dimension for improvement of his anatomical, physiological structures and influencing his overall health. The newly designed dental circular bridge, increased the vertical dimension redesigned a new functional occlusion that has enabled the patient satisfactory level of functional and aesthetic rehabilitation. The alterations designed prosthetically enabled the patients better aesthetic appearance, better chewing of the food and has eliminated his gastrointestinal problems and his entire health. Objectively, when the patients came for regular dental controls a checkup was made of his periodontal tissue, the state of his dental bride, a following with the T scan,

so that we can obtain results how the functional – aesthetic rehabilitation is really functioning both subjectively and proven with our dental methods. The five year experience of the therapist and dental technician states that the patients' therapy represents a good dental prosthetic solution.

CONCLUSION

Every patient is an individual for themselves. Hence only solution possible for everybody is not an option. When treating young adult patients with partial edentulism and Skeletal Class III by Angle, dental prosthetics can be taken in consideration for a complete functional-aesthetic rehabilitation of the patient enabling him normalization in his everyday physiological functions and improving his aesthetic appearance. In the presented case, the aim was justified and it showed a five year experience that dental prosthetics has proven to be a superior method regarding the situation in the patients' mouth. The satisfaction was mutual, of the patient, the dental prosthetic team and also taking in consideration the time frame for which the reconstruction was followed and is still in a great condition, having completely changed the live of the patient positively.

Conflict of Interest

The authors declare no conflict or competing interests.

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