

PROSTHETIC RESTORATION OF A PATIENT WITH ACROMEGALY- A CASE REPORT

AKROMEGALİLİ BİR HASTANIN PROTETİK RESTORASYONU- VAKA TAKDİMİ

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ABSTRACT

This case report describes the prosthetic treatment of a male patient with acromegaly. One of the more expectations of the patients is a functional and esthetic denture. In this article, denture application process to a patient with acromegaly, the respects which must have been taken into consideration and the related literature were examined and presented.

Key Words: Acromegaly, prosthetic restorations.

ÖZET

Bu vaka takdiminde akromegaliye sahip erkek hastanın protetik tedavisi anlatılmaktadır. Hastaların beklentilerinden biri de fonksiyonel ve estetik bir proteze sahip olmaktır. Makalede akromegalili bir hastaya protez uygulama işlemleri, dikkat edilmesi gerekli noktalar ve literatürler gözden geçirilerek sunulmuştur.

Anahtar Kelimeler: Akromegali, protetik restorasyon.

INTRODUCTION

Growth hormone (GH) secretion is regulated by the hypothalamus and the mediators of GH actions. Regulatory factors include GH releasing hormone (GHRH), somatostatin, GH releasing peptide (ghrelin) and (insulin like growth factor) IGF1. Disorders of the GH/IGF1 system result either from GH hypersecretion (gigantism, acromegaly) or GH deficiency.¹ The term acromegaly is derived from the Greek words akron, meaning extremity, and megas meaning great. Acromegaly is a chronic endocrine disease first described by the French neurologist Pierre Marie in 1886. It is caused almost invariably by a GH secreting pituitary adenoma, although rarely it may be attributable to a hypothalamic tumour secreting GHRH or ectopic GHRH (GH releasing hormone) secretion from a carcinoid tumour (predominantly of the pancreas or bronchus).⁵ It is a rare condition, with

an estimated prevalence of around 60 per million and an annual incidence of 3-4 per million² but active acromegaly is associated with significant morbidity and an increase in mortality compared with the general population.³⁻⁷

The clinical features of acromegaly are attributable to the somatic and metabolic effects of prolonged excess GH exposure or to the local effects of an expanding pituitary mass.⁸ They often develop insidiously over many years, resulting in delayed diagnosis.⁹ Most patients experience headaches and sweating. The most typical clinical signs are the coarse facial features, large, spade shaped hands and enlarged feet resulting from soft tissue swelling and bony enlargement. The facial features include deep naso labial furrows, prominent supraorbital ridges, and enlargement of the lips and nose. Growth of the mandible results in prognathism, malocclusion, and widened inter-dental spaces. Other common features

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include enlargement of the tongue (macroglossia), swelling of the nasopharyngeal tissue, sleep apnea, lethargy, skin tags, goiter, and colonic polyps. The expanding pituitary mass may cause hyperpituitarism reproductive disorders, and visual symptoms. GH hypersecretion occurring before the epiphyses have **fused results** in excess linear bone growth and gigantism.¹⁰

As a result of growth of membranous bones in the head and face, anterior open bite prognathism, malocclusion and diastema are seen in the teeth. If the patient lacks teeth or use denture, the dentures do not fit the jaw.¹¹⁻¹⁵

In radiographic examination, it is observed that there has been enlargement in sella turcica, enlargement in mandible, extension in ramus, becoming more oblique in the angulus mandible and enlargement in paranasal sinuses and prognathism.^{14,16}

The crowns of the teeth are usually normal in size, although the roots of posterior teeth often enlarge as a result of hypercementosis. This hypercementosis may result in increased functional and structural demands on teeth instead of a secondary hormonal effect. Supereruption of the posterior teeth may occur in an attempt to compensate for the growth of the mandible.¹⁷

It is usually observed in adults between 30-60 years. The rate is the same for both male and female.¹³ Diagnosis is usually made at the ages of 40-50 and as the illness develops slowly, approximately 9 years pass from the beginning of illness until its diagnosis^{13,18} as hypertension, diabetes, coronary arterial diseases, congestive heart inefficiency, respiratory diseases and colon cancers are seen in increasing frequency in patients with acromegaly, and as these increase the mortality rate, early diagnosis gains importance.¹²

The treatment is surgical removal of the tumor, drug administration and radiotherapy.^{12,19} The symptoms and complications of acromegaly, treated successfully today, if diagnosed at early stage.¹²

Patients with findings both in the mouth and out of the mouth are accepted to be the unique ones for the dentists to diagnose early.¹²

CASE REPORT

Mandibular prognathism and macroglossia were observed in the clinical examination of at the age of 44 male patient who applied to the Department of Prosthodontics, Faculty of Dentistry at Ataturk University for prosthodontic reasons.

In the extra oral examination, the size of nose, ears, lips (Fig. 1) and tongue were observed to be enlarged (Fig. 2) and growth in hands were seen (Fig. 3). There were a few teeth in the mouth, no diastema was seen.



Fig. 1. It is showed largeness in the size of nose, ears, and lips.

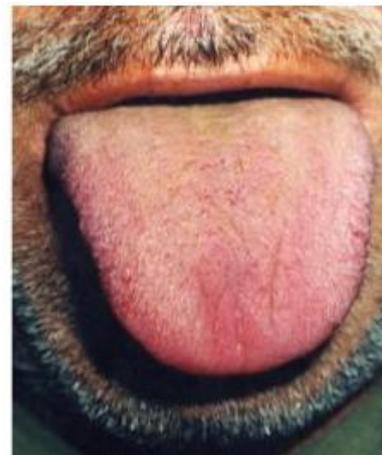


Fig. 2. It is showed largeness in the size of tongue.



Fig. 3. It is showed growth in hands.

In the investigation of panoramic and cephalometric radiograms, an enlargement in the sella tursica and prognathism and obliquity in angulus mandible were observed (Fig. 4 and 5).

Medical history of the patients was deepened with the suspicion of acromegaly. As a result, medical history revealed that the patient applied to the Department of Internal medicine, Atatürk University Research Hospital of Faculty of Medicine with the complaints of growth in tongue, chin and feet, took a medical treatment for one week, and then appointed to Neurosurgery Department for further investigation and was diagnosed as "pituitary adenoma" and after his treatment in Atatürk University Research Hospital of Faculty of Medicine he called for controls in three-month intervals four years ago.

Upper right central incisor, upper left lateral incisor and canine, lower right canine and 1.premolar teeth were extracted (Fig. 6). Than for the maxillary complete denture, for the mandibular acrylic removable partial denture was planned.

For the prosthodontic treatment primary impressions are made in stock trays and then taken an alginate impression (Alginoplast; Heraeus Kulzer GmbH, Hanau Germany). From these primary impressions, a cast was poured on which customized (special) trays are made. Customized trays made of individual impression trays, light curing (Individuo Lux, Voco, Cuxhaven, Germany- Spectramant, Germany).

For the upper jaw secondary impression is first made a record of the width and depth of the functional sulcus, using greenstick compound traced on the tray periphery. An overall impression is then

made in the modified tray with zinc oxide-eugenol paste (Impression Paste, SS White, Madleaze Estate, Bristol Road, Gloucester, England). Lower jaw secondary impression is recorded with polyether (Impregum Soft, 3M ESPE AG, D-82229 Seefeld-Germany).

The maxillomandibular relationship was recorded at the desired occlusal vertical dimension, with the jaw on the retruded condylar axis. The baseplates were made from autopolymerizing acrylic resin (Imicryl, Konya/Türkiye) and the occlusion rims were made of modeling wax. At the end of this stage the record rims, prescription for the trial dentures are sent to the technician. In the prescription it was explained that upper and lower waxed-up trial dentures must prepared cross-bite occlusion because of the masticator forces come to appropriate angle to the jaws. In the centric occlusion posterior teeth make 80 degree angle with frontal and horizontal plane. If the angle is smaller than 70 degree cross-bite is inevitable. Then trial dentures were examined intraorally and dentures were checked the occlusion, centric relation, vertical dimension, esthetics.

Initial denture is polymerized with heat-cure acrylics (QC-20 Denture Base Material, Dentsply, Addlestone, United Kingdom). Initial placement, adjustment servicing of the denture is made. Then denture evaluated intraorally and adjusted (Fig.7 and 8).



Fig. 4. Panoramic Radiography



Fig. 5. In the cephalometric radiograms, an enlargement in the sella tursica and prognathism and obliquity in angulus mandibula were observed.



Fig. 6.



Fig. 7.



Fig. 8.

DISCUSSION

The present emphasis on the correction of acromegaly is rooted not only in the concept of restoring function but also in the need to promote the emotional well-being of the patient. Every effort must be made to enhance the social acceptance and habilitation of the patient²⁰.

The prosthetic rehabilitation of acromegaly patients has presented in case reports rarely. The different materials and methods for preparing denture procedures currently available have made it both exciting and confusing for dental practitioners. It should be pointed out that limitations exist and the applications of techniques are not universal. It has been reported that conventional dentures are used for the prosthodontic treatment of acromegaly patients²¹. But prosthetic treatment of the patient with acromegaly often requires close cooperation between the various medical and dental specialties. Unusual problems can be expected because of the large mandible, relatively small maxilla, hypertrophic tongue and the vertical dimension. Post-insertion care of such a patient required additional time and effort to enhance his acceptance of the new dentures²². Recall evaluations both control of the acromegaly and growth of jaws so adjustment of the dentures, are necessary to overcome the problems.

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