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TREATMENT OF A HUGE ODONTOGENIC FIBROMA WITH ANTERIOR ILIAC CREST AND IMPLANT SUPPORTED FIXED PROSTHESIS: A CASE REPORT

Büyük Boyutlu Odontojenik Fibromanin Anterior İliak Kret ve İmplant Destekli Sabit Protez ile Tedavisi: Olgu Sunumu

Emrah SOYLU [1], Erdem KILIÇ [2], Mustafa ZORTUK [3], Alper ALKAN [2]

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ABSTRACT

Purpose: Odontogenic fibroma (OF) is a rare benign odontogenic neoplasm and classified as central (COF) and peripheral (POF) type and COF has two sub groups; epithelium-poor (simple) type and epithelium-rich (WHO or complex) type. Treatment modality of OF is surgical excision. However, after large-scaled excision, reconstruction of the defect may be required.

Case Report: 39 years old male patient referred with complain of a painless swelling in anterior maxilla. Incisional biopsy showed that the lesion is simple type OF. Under general anesthesia, lesion enucleated and defect reconstructed with anterior iliac graft. After 8 months, 3 dental implants were placed and final reconstruction was done with implant supported fixed prosthesis.

Discussion: OF is a benign and very rare odontogenic neoplasm accounting for 0.5 - 5% of odontogenic tumors. Treatment modality of OF is enucleation and curettage, but after enucleation of huge OF, reconstruction may be challenging by the size of the defect. Anterior iliac graft is a gold standard among all autologous bone graft sources and it also provides adequate bone for the reconstruction of the maxillofacial defects, otherwise it is possible to place implants with acceptable resorption rates.

Conclusion: Reconstruction of the jaw defects with anterior iliac graft and implant supported fixed prosthesis after enucleation of huge size tumors such as COF, is a feasible method.

Key Words: Odontogenic Fibroma, Reconstruction, Dental Implant, Anterior Iliac Graft, Fixed Prosthesis

ÖZ

Giriş: Odontojenik fibroma (OF) çenelerin benign odontojenik tümörleri içerisinde yer almaktadır. Periferal (POF) ve santral (SOF) olmak üzere iki tipi bulunmaktadır. SOF tipi ise epitelden zengin (Kompleks) ve epitelden fakir (Basit) olmak üzere iki alt tipe ayrılmaktadır. OF nin tedavisi cerrahi eksizyondur, ancak büyük ölçekli bir eksizyon sonrasında defekt onarımı gerekebilmektedir. Bu vaka raporunun amacı, basit tip SOF eksizyonu sonrasında oluşan geniş defektin anterior iliak greft ve dental implantlarla yapılan tedavisini sunmaktır.

Vaka Raporu: 39 yaşındaki erkek hasta anterior maksilladaki ağrısız şişlik şikâyeti ile kliniğimize başvurdu. Yapılan insizyonel biopsi sonucunda lezyonun basit tip SOF olduğu anlaşıldı. Genel anestezi altında lezyon eksize edildi ve oluşan defekt anterior iliak kemikten alınan otojen greft ile greftlendi. Anterior maksillaya 8 ay sonra 3 adet dental implant yerleştirildi. 3 ay sonra implant destekli sabit protez ile hastanın tedavisi tamamlandı.

Tartışma: OF nadir görülen iyi huylu odontojenik bir tümördür ve tüm odontojenik tümörler içinde %0,5 - %5'lik görülme oranına sahiptir. OF nin tedavisi cerrahi eksizyon ve takiben kavitenin küretajını içermektedir fakat büyük ölçekli eksizyonlarda oluşan defektin tamiri zor olabilmektedir. Anterior iliak greft, yeterli miktarda kemik sağlayabilmesi ve implant yerleştirilmesine imkân sağlaması nedeniyle maksillofasiyal defektlerin tamirinde altın standart olarak kabul edilmektedir.

Sonuç: SOF gibi geniş boyutlara ulaşabilen lezyonların eksizyonu sonucunda oluşan çene defektlerin tamirinde anterior iliak greftle beraber dental implant uygulanması başarılı bir tedavi yöntemidir.

Anahtar Kelimeler: Odontojenik Fibroma, Rekonstrüksiyon, Dental İmplant, Anterior İliak Greft, Sabit Protez

[1] Gazi Osman Pasa University Faculty Of Dentistry Department Of Oral And Maxillofacial Surgery, Tokat, Turkey
[2] Erciyes University Faculty Of Dentistry Department Of Oral And Maxillofacial Surgery, Kayseri, Turkey
[3] Erciyes University Faculty Of Dentistry Department Of Prosthetic Dentistry, Kayseri, Turkey

INTRODUCTION

Odontogenic fibroma (OF) is a rare benign odontogenic neoplasm[1] and originated from the dental mesenchymal tissues.[2] World Health Organization (WHO) classified the odontogenic fibroma as central and peripheral type and central odontogenic fibroma (COF) has two sub groups; epithelium-poor (simple) type and epithelium-rich (WHO or complex) type.[1-3] Clinically OF usually grows slowly and shows a persistent growing behavior and is more frequently found in women.[2] It can be related with the crown of a impacted tooth, therefore OF can be seen in most frequently in maxilla anterior and mandibula posterior. Clinically, it appears with different size of painless swelling and radiological appearance of OF can be as a uni or multilocular shape with well-defined borders. Treatment modality of the OF is conservative surgical excision and curettage of the remaining bone walls. However, after large-scaled excision, reconstruction of the defect may be required.

Reconstruction of the jaws especially after tumor resection, trauma or enucleation of the large cyst or tumor is a challenging procedure, due to amorf type of the remnant tissue. Main purpose of the reconstruction procedure is to obtain the continuity of the jaws and similar contour of the anatomical shape of the jaws and dental rehabilitation of the reconstructed and also edentulous jaws. Nowadays dental implants are the most popular treatment alternative for the rehabilitation of the partial or total edentulous patients. During the period from the first application of the dental implant to present, many articles have been published on the success of the dental implant in edentulous jaws or even in atrophic jaws. In addition, Chipasco *et al.*[4] and Bowen *et al.*[5] showed that the dental implants are as successful as in jaws that reconstructed with iliac graft, symphysis graft or with fibula flaps compared with the healthy jaws.

The aim of this report is to present the enucleation of a huge OF and reconstruction of the alveol defect with anterior iliac crest graft and implant supported fixed prosthesis.

CASE REPORT

A 39 years old male patient referred to Erciyes University Department of Oral and Maxillofacial Surgery clinic with complain of a painless and large swelling in anterior maxilla. Intra-oral examination showed a large and expansive swelling which lies from right retro-molar region to left premolar region. (Figure 1)

Figure 1. Intra-oral views of the lesion.

Intra-oral examination showed that upper anterior teeth were mobile and lesion was ruptured the mucosa between central insicors. Extra-oral examination showed a facial asymmetry cause of the swelling in the right face and also we noticed that lesion elevated the right nasal mucosa and right nostril and also nasal mucosa can be seen through extra orally (Figure 2). Panoramic radiograph and cone beam dental tomographic (CBCT) examination showed a huge unilocular lesion from inferior border of the right orbit cavity and right second molar to left second premolar region (Figure 3). An incisional biopsy was performed through the extracted part of the lesion between upper central insicors under local anesthesia with 2cc articane HCl

(Ultracaine DS Forte, Sanovi Aventis, İstanbul, Turkey) and lesion was diagnosed as simple type OF. Patient was informed about the treatment protocol and informed consent form was obtained.

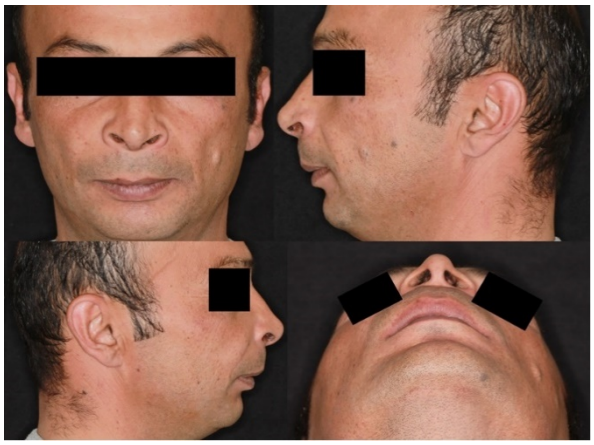

Figure 2. Extra-oral views of the patient.

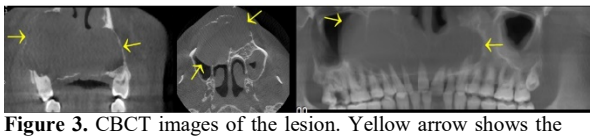

Figure 3. CBCT images of the lesion. Yellow arrow shows the borders of the lesion.

Under general anesthesia, affected teeth (11,12,13,14,21,22 and 23) were extracted. A full-thickness mucoperiosteal flap elevation was done with a horizontal incision through the extraction sockets and 2 vertical releasing incisions in left and right molar region. Lesion and the borders became visible after flap elevation. Lesion enucleation was done with the maximum attention to the neighbor anatomical structures. (Figure 4 a, b, c) Simultaneously with lesion enucleation, another surgical team harvested corticocancellous iliac graft via anterior approach (Figure 4d). Grafts were placed as the cortical sides of the grafts faced to outside and cancellous sides faced to inside and grafts were fixed with each other and also to the maxilla with mini fixation plates and fixation screw (Figure 4 e, f). Reconstructed area washed with rifampicin (RIF, Koçak Farma Drugs, Tekirdağ, Turkey) and the mucosa closed with 3/0 vicryl suture. Ampicilin+sulbactam 2x1000 mg, paracetamol and methylprednisolone (1mg/kg) were administered intravenously for the prevention of infection and edema. Mouth wash with chlorhexidine was done immediately after oral feedings. After two days of hospitalization patient was free of infection and pain and he can walk properly without any numbness.

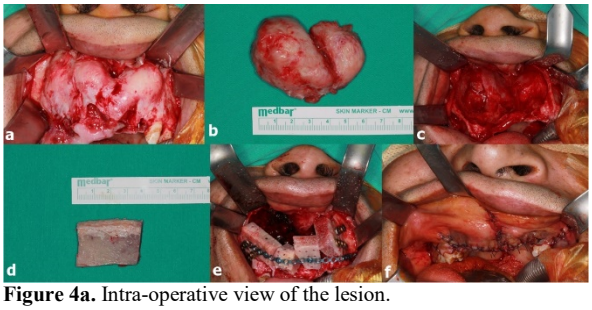

Figure 4a. Intra-operative view of the lesion.
Figure 4b. Enucleated lesion.
Figure 4c. Defect of the anterior maxillar after tumor enucleation.
Figure 4d. Anterior iliac graft (one of the pieces).
Figure 4e. Fixation of the grafts to the maxillar with mini fixation plates. Intra-operative view.
Figure 4f. Wound closure with 3/0 vicryl suture.

He was discharged from the hospital and Ampicilin+sulbactam 2x375mg, dexketoprofen trometamol 2x25mg and mouth was with chlorhexidine were prescripted. 7 days after surgery, sutures were removed and clinically mucosa and donor side was completely healthy. 8 months after reconstructive surgery mini fixation plates were removed (fixation screw couldn't removed and left inside) and 3 dental implants (4.2x11.5mm, 4.2x11.5mm, 4.2x10mm, Dyna Implants, Holland) were placed simultaneously with two-staged protocol (Figure 5). 3 months later of the implant surgery, healing caps of the implants were inserted and final reconstruction was done with fixed prosthesis. A panoramic radiograph was taken 32 months after first surgery (21 months after prosthetic load), and radiographic examination showed that the patient was free of recurrence and peri-implant bone resorption was in acceptable limits, relatively (Figure 6).

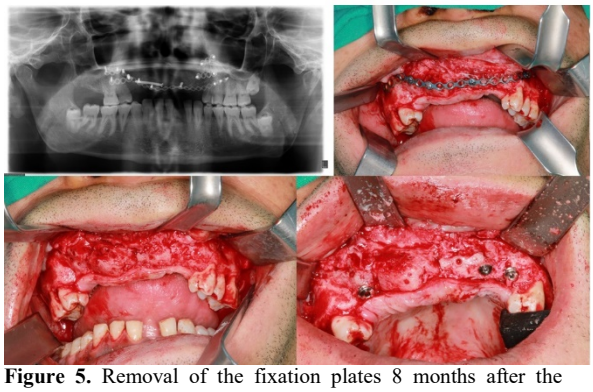

Figure 5. Removal of the fixation plates 8 months after the surgery and simultaneously placement of the dental implants.

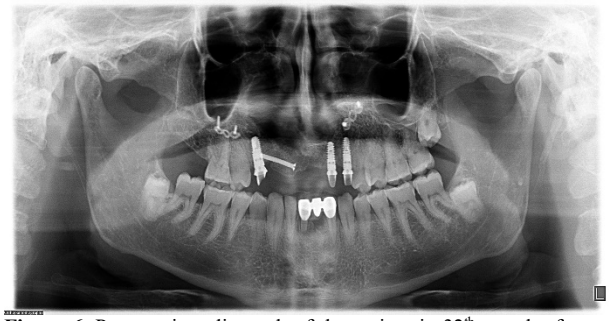

Figure 6. Panoramic radiograph of the patient in 32th month of the surgery. (21 months after prosthetic load)

DISCUSSION

OF is a benign and very rare odontogenic neoplasm accounting for 0.5-5% of odontogenic tumors.[3] ChhaBra *et al.*[6] defined the treatment modality of OF as enucleation and curettage and also reported that recurrence is uncommon. Dunlap and Barker[7] reported two cases of maxillary odontogenic fibroma treated by curettage with follow-up of 9 years and 10 years with no evidence of recurrence. However some reports showed recurrence. Heimdal *et al.*[8] reported a case that recurred 9 years after surgery. Svirsky *et al.*[9] have reported a 13% (2 out of 15 cases) rate of recurrence. Jones *et al.*[8] reported a case which recurred 16 months after surgery. In this case, during the 20 months follow up, recurrence was not observed. Surgical treatment of OF is conservative surgical excision and curettage of the remaining bone walls, but after enucleation of huge OF, reconstruction may be challenging by the size of the defect, such as in our case.

Main challenging point in the oral and maxillofacial surgery is the reconstruction of the bone defects. Different types of reconstructive procedures are required due to site, dimension, and the type of the defect.[17,18] Autologous bone substitutes are the first choice with the osteoinductive, osteoconductive and nonimmunogenic properties and also with financial advantages.[11] There are different autologous graft sources depending on the required amount of the graft including iliac crest, tibia, mandibular symphysis, calvarium and rib.[11] Anterior iliac graft is a gold standard among all autologous bone graft sources[11-14] and also has advantages; it can provide great amounts of cancellous bone, it is easy to access, and it has a high ratio of cancellous to cortical bone and a high concentration of pluripotent or osteogenic precursor cells that support osteogenesis.[13,15] The corticocancellous properties of the anterior iliac graft also allows to fixation with miniplates and has an excellent graft-host healing potential.[17] In this case, graft was divided into the pieces to obtain the contour of maxilla, and graft pieces were easily fixed with mini fixation plates and fixation screw. Graft worked very well and healed uneventfully with acceptable maxillary contour and let us to provide the proper shape of the anterior maxilla that we desired before the surgery.

Therefore anterior iliac crest is usually the first choice in most centers.[11] It also provides adequate bone for the reconstruction of the maxillofacial defects and facial contour, otherwise it is possible to place implants with acceptable resorption rates due to long term results in the literature.[4,16] Chiapasco *et al.*[4] compared behavior of the implants in bone grafts which were placed after reconstruction of the resected mandibles. They found similar peri-implant bone resorption in autogenous grafts (anterior iliac crest or fibula) and revascularized iliac or fibula flaps, 24 months after prosthetic load. Bowen *et al.*[5] retrospectively analyzed the reconstruction of the atrophic mandible with anterior iliac crest onlay graft and dental implants. They found that the 5 year implant survival is 98.7% and

peri-implant bone loss was 0.6mm. In our case, with the 21 months of follow-up period, loss of marginal bone around implant is in acceptable limits, relatively.

Defect reconstruction of the jaws that occurs after enucleation of huge size tumors, trauma or even after resection is a challenging situation. However, anterior iliac graft has advantages; such as; ease of access, a great source for corticocansellous bone graft and compatible with dental implants.[11]

As a conclusion, as this report shows, reconstruction of the maxillary defects with anterior iliac graft and implant supported fixed prosthesis after enucleation of huge size tumors such as COF, is a feasible method.

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Corresponding Author:

Assoc.Prof.Dr. Emrah SOYLU

Gazi Osman Pasa University Faculty of Dentistry Department of Oral and Maxillofacial Surgery

Tokat, Turkey

Telephone: +905053784163

Fax: +903562124225

E-mail: emrah.soylu@gop.edu.tr

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