

Immediate Implants After Enucleation of an Odontogenic Keratocyst: An Early Return to Function

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An odontogenic keratocyst is a unique cyst because of its locally aggressive behavior, high recurrence rate, and characteristic histologic appearance. In this article we present the case of a 22-year-old male patient with a large odontogenic keratocyst and describe his treatment with immediate dental implants.

Key Words: *immediate implant, odontogenic keratocyst, enucleation*

INTRODUCTION

The odontogenic keratocyst (OKC) is a locally aggressive cystic lesion most frequently occurring in the posterior mandible in male patients in their second, third, and fourth decades. These lesions account for approximately 12%–14% of all odontogenic cysts of the jaw.¹ Histologically, an OKC is characterized by a uniform, usually corrugated parakeratinized epithelium, 8–10 cells thick, presenting a flat basal surface lining the fibrous wall.² Radiographically, these lesions are most often unilocular or multilocular radiolucencies surrounded by smooth or scalloped margins with sclerotic borders. An OKC has presumably arisen from cell rests of the dental lamina or from offshoots of the basal cell layer of the oral epithelium.¹ Implant placement after enucleation of jaw cysts is an acceptable and well-documented procedure in clinical practice.³

CASE REPORT

A 22-year-old male patient was referred to our clinic complaining of intermittent pain and swelling in

symphyseal region. According to the patient's medical history, he had been having these complaints for 1 year. He was prescribed antibiotics by a general practitioner. Extraoral examination revealed slight swelling and tenderness in the symphyseal region and buccal aspect of the right lower premolars. Orthopantomogram and computerized tomography scans of the mandible revealed a radiolucent lesion extending between the apical regions of the right lower molars and left lower canine. A thinning of the basal mandibular cortex was also present. No resorption of the roots of the involved teeth and no calcification were present in the lesion (Figure 1).



FIGURE 1. Orthopantomogram showing a radiolucent lesion extending between the apical regions of the right lower molars and left lower canine.

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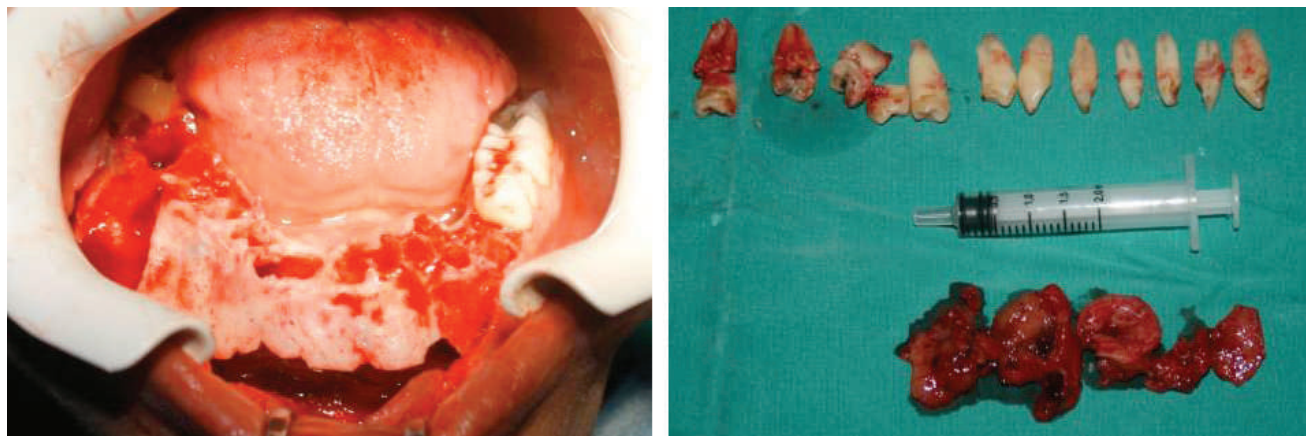


FIGURE 2. The cyst was totally enucleated, and all involved teeth were extracted.

The cyst was totally enucleated, and all involved teeth were extracted. (Figure 2) Four dental implants were placed immediately (Figure 3). According to histopathological examinations, the lesion was diagnosed as an OKC. In the eight month after the cyst enucleation and implant placement, the fixed ridge prosthesis was finished. No evidence of recurrence was observed after a follow-up period of 2 years, and periodic visits continue (Figure 4).

DISCUSSION

In 2002, Garcia et al reported immediate placement of a dental implant after curettage of a radicular cyst in a 40-year-old female patient. The cavity was filled with lyophilized demineralized bone. As of 8 months after implantation, the healing was un-

eventful. Radiologic examination showed that new bone had formed around the implant.⁴

Many studies support the use of autogenous bone grafts or alloplastic materials to reduce the risk of mandibular fracture and to shorten the healing period after cyst enucleation. Filling the defect with bone graft stabilizes the blood clot in the defect and consequently leads to advanced bone regeneration. This is believed to be superior to the self-healing process of the cystic defect, mainly because of the osteoconductive properties enhancing the migration of progenitor cells.¹⁻³

In their study, Chiapasco et al⁵ evaluated spontaneous bone healing after enucleation of large mandibular cysts with a subjective analysis and a computerized analysis of postoperative panoramic radiographs. After surgical enucleation of the cysts of 27 patients, uneventful healing and spontaneous filling of the residual cavities was

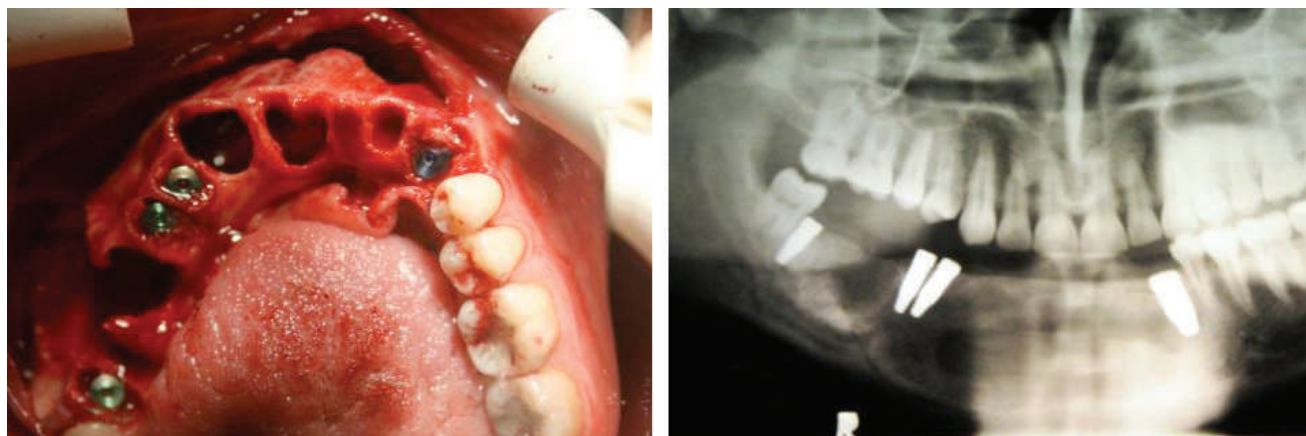


FIGURE 3. Four dental implants were placed immediately.

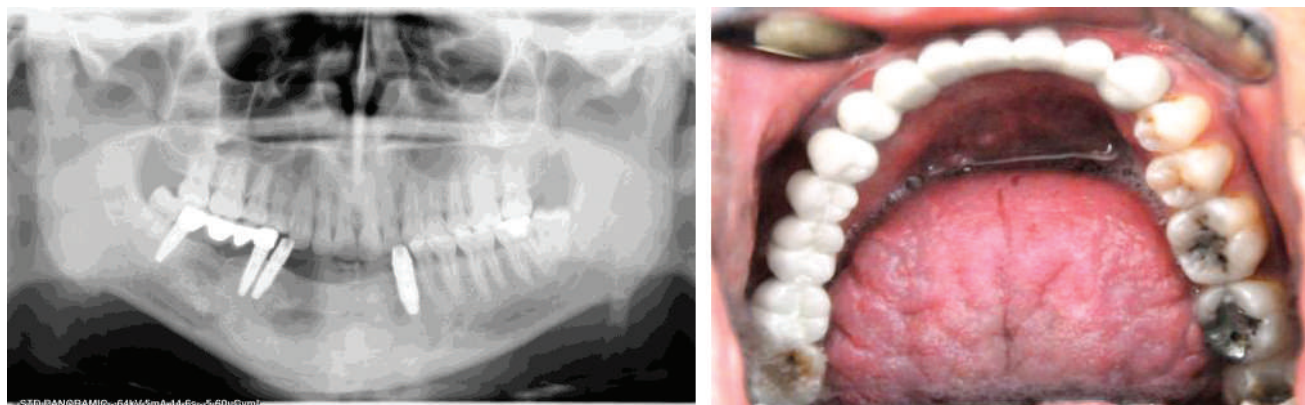


FIGURE 4. No evidence of recurrence was observed after a follow-up period of 2 years, and periodic visits continue.

obtained in all patients.⁵ The researchers concluded that spontaneous bone regeneration can occur in large mandibular cysts without the aid of any filling materials; this simplifies the surgical procedure and decreases the economic and biological costs. In our patient, we did not fill the defect to avoid possible postoperative complications from the graft materials.

Because of high recurrence rates for OKCs, it is recommended to postpone reconstructive treatments after cyst operations. In this patient, however, we aimed to protect bone height and prevent the extensive autologous bone graft augmentation operations that would be needed if the reconstructive treatments were delayed.⁶

The advantages of immediate implantation vs delayed implantation include reduced post-extraction alveolar bone resorption, shorter rehabilitation treatment time, and avoidance of a second surgical intervention.^{7,8} According to Siegenthaler et al,⁹ immediate implantation did not lead to an increase in biological complications when it was performed into extraction sockets of teeth exhibiting periapical pathology. The surgical requirements for immediate implantation include total elimination of all pathological material and achievement of good primary stability.^{7,8}

Barry and Kearns¹⁰ recommend immediate mandibular reconstruction with a corticocancellous iliac crest bone graft and implant placement after 4 months. In our patient we preferred immediate implant placement without any additional bone graft operation; we thought this was the best option for management as it would minimize the number of surgical interventions and produce satisfactory results.

CONCLUSION

In this article we present the case of a 22-year-old male patient with a large OKC and describe his treatment with immediate dental implants. No evidence of recurrence was observed after a follow-up period of 2 years, and periodic visits continue.

ABBREVIATION

OKC: odontogenic keratocyst

NOTE

The information presented here was reported at the 18th Annual Scientific Meeting of the European Association of Osseointegration, September 30 to October 3, 2009, Monaco.

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