

# Reactive Bone Development Accompanying to an Unextracted Root

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## ÖZET

Çekilmemiş bir diş köküne eşlik eden reaktif kemik gelişimi

Çene kemiklerinde en sık görülen kistler odontojenik kistlerdir. Radiküler kist periodontal aralıktaki Malassez epitel artıklarının devital bir dişe ait enflamasyon uyarlarıyla kistik değişikliğe uğramasıyla oluşan bir kisttir. Radyolojik olarak çevresi belirgin sınırlı ve ortası radyolüsenttir. Tanı konulması zor olmamakla birlikte bazen kesin radyolojik tanı için birden fazla görüntüleme yöntemi gerekebilir. Burada amaçlanan diş çekimi sonrası bırakılmış molar diş köküyle birlikte farklı bir lokasyonda görülen reaktif kemik gelişiminin eşlik ettiği radiküler kist vakasını sunmaktır.

**Anahtar sözcükler:** Odontojenik kist, reaktif kemik gelişimi

## ABSTRACT

Reactive bone development accompanying to an unextracted root

Odontogenic cysts are by far the most common cysts of the jaws. A radicular cyst is a cyst that most likely results when rests of Malassez epithelial cells in the periodontal ligament are stimulated to proliferate and undergo cystic degeneration by inflammatory products from a nonvital tooth. Radiographically, their periphery usually have a well-defined border and their internal structures are radiolucent. In order to make definite radiological diagnosis, more than one projection methods may be needed. The aim of this report is to present a case with an unusual location of radicular cyst caused by a molar root which was left after a tooth extraction procedure and accompanied by reactive bone development.

**Key words:** Odontogenic cyst, reactive bone development

## INTRODUCTION

A cyst is a pathologic fluid-filled cavity, lined by epithelium, and surrounded by a definite connective tissue wall. Cysts frequently occur in the jaw and appear radiographically as either unilocular and multilocular lucent areas of varying size and definition (1,2).

Cystic lesions have been classified as odontogenic cysts, non-odontogenic cysts and cyst-like lesions. In recent WHO classification published in 2005, some cystic lesions such as odontogenic keratocyst and calcifying odontogenic cyst or Gorlin's cyst have been reclassified as tumors (3). The term odontogenic cyst applies to cysts arising from any tooth derivative. Frequently, odontogenic cysts are divided into inflammatory and developmental types, with the developmental cyst not being directly associated with

inflammation (3).

Cysts arise from remnants of dental lamina, enamel epithelium and rests of odontogenic epithelium remnants. The radicular or periapical cyst arises from epithelial remnants called the rests of Malassez that are located in the periodontal ligament. The cyst forms in the presence of inflammation and is almost always associated with the death of dental pulp. Radicular cyst is by far the most common odontogenic cyst (3). Most radicular cysts are discovered incidentally on radiography, but expansion of the cyst may cause a clinically noticeable displacement of teeth, and swelling and pain may occur when the cyst enlarges or becomes secondarily infected (3).

Radiographically, a radicular cyst is a well-circumscribed radiolucency arising from the apex of the tooth and bounded by a thin rim of a cortical bone (3). A radicular cyst

can displace tooth structures and may cause slight root resorption in long-standing lesions. On palpation, the swelling may feel bony and hard if the cortex is intact, crepitant as the bone thins, and rubbery and fluctuant if the outer cortex is lost (3,5,6).

The aim of this report is to present a case with an unusual location of radicular cyst caused by a molar root which was left after a tooth extraction procedure and to point out the necessity of taking alternative images using other projection methods.

## CASE REPORT

A 56-year-old female patient was referred to the Outpatient Clinic of the Department of Dentomaxillofacial



**Figure 1:** On the right side, there was an extraoral swelling which was immobile, bony, painless on palpation and had well-defined border



**Figure 2:** Intraoral view of the lesion

Radiology. During clinical examination, a large asymmetric swelling on the right mandibular molar region was seen (Figure 1). The patient had full-mouth restoration. When palpated, the swelling was hard, immobile and slightly bony (Figure 1,2). No change of color, pain or lymphadenopathy were recorded. The patient indicated that she had had an unusual swelling for almost 5 years and it had become noticeable during the last 3-4 months. An OPTG revealed that there was a mass showing radiopacity under the extracted tooth numbered 46 (Figure 3). In the center of this mass, a significant radiolucency was noted. In order to aid the radiological examination, an occlusal radiography was also taken for the location and the definition of the shape of the mass precisely. As a result, it gave clear information about the nature of the mass which was diagnosed as an unextracted root with a broken lentulo spiral (Figure 4). The root was surrounded with a radicular



**Figure 3:** OPTG revealed a mass showing radiopacity under the extracted teeth. A radiolucency was located at the center of this mass.



**Figure 4:** Occlusal radiography showing juxtacortical expansion of the cyst accompanying an unextracted root with a broken lentulo spiral.

cyst located between the cortical bone and the periosteum. The cyst and the root were eliminated surgically in the Department of Oral and Maxillofacial Surgery. It was seen that the cyst had developed intrabony and had been expanded peripherally. Eventually, it had been located under the periosteum. The cyst was excised under local anesthesia by curettage and the thin bony lamella which was stated under the periosteum was removed. Under the periosteum, reactive bony lamellae were seen and that was the evidence of nature of the lesion. It resembled to a long-standing juxtacortical cyst development. The wound was closed primarily and postoperative prophylactic antibiotic (amoxicilin+clavulanic acid, 1 g) and mouthrinse (chlorhexidine digluconate 0.144 g/120 ml+benzydamine hydrochloride 0.18 g/120 ml) were prescribed, and the wound healed uneventfully.

## DISCUSSION

Radicular cysts are one of the most common type of odontogenic cysts in the jaws. They arise from nonvital teeth which have lost their vitality because of extensive caries, large restorations, or previous trauma (4). Most periapical cysts are discovered incidentally on radiography, but expansion of the cyst may cause a clinically noticeable displacement of the teeth, and swelling and pain may occur when the cyst enlarges or becomes secondarily infected (3).

The case described illustrates an unusual form of an odontogenic cyst. At first sight, it was seen as an extramandibular swelling that was hard on palpation. The patient had been complaining about a slowly enlarging swelling since the extraction of tooth numbered 46. Over years, this swelling had led to asymmetry and the patient decided to seek treatment eventually.

Following the medical/dental history and clinical examination, an OPTG was taken. However, it did not show the nature and the extension of the mass adequately. Because of the location of the swelling, it was decided to take an occlusal radiography as well. Occlusal radiography is a supplementary radiographic examination designed to provide a more extensive view of the maxilla and mandible. Moreover, it is very useful in determining the buccolingual extension of pathologic conditions. As a result, it provided detailed information about this rare case and helped to make an adequate interpretation before surgery. When it was further investigated, the characteristic radiographic features of a radicular cyst were clearly evident.

Evaluating the lesion with simple and conventional standard methods such as occlusal radiographies which help us to examine the lesion from another angle should be first considered prior to making definite diagnosis rather than performing advanced radiologic methods which require higher exposure dose, higher cost and extra schedule.

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