

Radiologic Findings of a Heterotopic Maxillary Third Molar

Heterotopik Bir Maksiller Üçüncü Molar Dişin Radyolojik Bulguları

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ABSTRACT Impaction of a wisdom tooth is a common condition. Heterotopic teeth are identified as teeth placed at distance from the dental arch, in a different organ. In this case report, it is aimed to present radiological findings of a heterotopic wisdom tooth. A 39 years old female patient was referred to our clinic for a further examination of the radiopaque tooth like mass on the right side of the maxillary region. The medical, social and family history were unremarkable. On the physical examination, there were no symptoms like pain, swelling, asymmetry or limitation of mouth opening. Panoramic radiograph showed tooth like radiopaque mass which could be tooth or odontoma on the right side of the maxilla. Cone beam computed tomography (CBCT) was chosen as a further imaging method to examine. CBCT images showed that there was a maxillary third molar tooth in the infratemporal fossa in inverted position. A heterotopic tooth in the infratemporal region is a rare case.

Keywords: Heterotopic tooth; wisdom tooth; cone beam computed tomography; impacted tooth; infratemporal fossa

ÖZET 20 yaş dişlerinin gömük olarak kalması yaygın bir durumdur. Heterotopik dişler, diş arkından uzak bir yerde, farklı bir organda yerleştirilmiş dişler olarak tanımlanır. Bu olgu sunumunda heterotopik bir 20 yaş dişinin radyolojik bulgularının sunulması amaçlanmıştır. 39 yaşında kadın hasta kliniğimize sağ maksiller bölgede radyopak diş benzeri kitlenin incelenmesi için başvurmuştur. Hastadan alınan anamnezde ve yapılan fiziksel muayenede dikkat çekici herhangi bir bilgi bulunmamaktadır. Panoramik radyografide sağ maksillada diş veya odontoma olabileceği düşünülen diş benzeri radyopak materyal tespit edildi. Konik ışınli bilgisayarlı tomografi (KIBT) ileri görüntüleme yöntemi olarak seçilmiştir. KIBT görüntüleri ile, invertte pozisyonda infratemporal fossada maksiller üçüncü molar diş bulunduğu tespit edilmiştir. Infratemporal bölgede heterotopik diş nadir bir durumdur.

Anahtar Kelimeler: Heterotopik diş; 20 yaş diş; konik ışın bilgisayarlı tomografi; gömük diş; infratemporal fossa

Heterotopic teeth are identified as teeth placed at distance from the dental arch, in a different organ. Even though impaction of a wisdom tooth in dental arches is a common condition, heterotopic tooth placement is rare. Etiology of the heterotopic tooth growth is not well known but it is usually caused of wrongly positioned tooth germ, lack of space, trauma, migration, genetic predisposition, cleft palate or odontogenic infections.¹⁻⁴ Heterotopic teeth might be located in many different spaces; such as meatus acusticus externus, nasal septum or nasal fossa.⁵⁻⁹ Also, there are a few cases in the literature that reported a heterotopic tooth in the infratemporal fossa.^{10,11}

In this case report, it is aimed to present radiological findings of a rare case of asymptomatic heterotopic wisdom tooth.

CASE REPORT

A 39 years old female patient was referred to Department of Dentomaxillofacial Radiology, Ataturk University Dentistry Faculty for a further examination of the radiopaque tooth like mass on the right side of the maxillary region. The medical, social and family history were unremarkable. On the physical examination, there were no symptoms like pain, swelling, asymmetry or limitation of mouth opening. The panoramic radiograph was taken for radiological examination on Planmeca ProMax (66 kVp, 7 mA, 16 s scan time, Helsinki, Finland). On the panoramic radiograph, a radiopaque mass on the right side maxillary sinus and tuber region was seen (Figure 1). The radiopaque mass was not looking like the exact shape of a tooth and the placement of the mass was not clearly determined because of the superpositions on the panoramic radiography.

Cone beam computed tomography (CBCT) was chosen as a further imaging method to examine the morphology and the placement of the tooth. NewTom 3G (110 kVp, 15mA, 36s scan time, 5.4 s typical X-ray emission time, 17 cm diameter–13 cm height scan volume, Quantitative Radiology, Verona, Italy) flat panel based CBCT machine was used for the further imaging method. CBCT images showed a maxillary molar tooth between the right maxillary sinus lateral wall and posterior of the right zygomatic arch (Figure 2). Coronal and sagittal images showed that the tooth was in inverted position and placed parallel to the lateral wall of



FIGURE 1: Panoramic radiograph shows the presence of radiopaque tooth like mass on the right maxillary region (arrow).

the maxillary sinus (Figure 3, Figure 4). The tooth was related to the lateral wall of the right maxillary sinus in some parts and was totally localized in infratemporal fossa (Figure 5). The tooth had a normal crown and root development with standard tooth dimensions but the tooth showed intracoronary resorption areas on enamel and dentine. There was no impacted tooth surgery history about right maxillary wisdom tooth, which helps us to eliminate complication of impacted maxillary molar surgery.

The patient had not any symptoms, therefore, was informed about the placement of the tooth and follow up was suggested. We remarked that she should be consulted to the dental clinic in any pain or trauma situation in the area.

DISCUSSION

The existing of a heterotopic tooth is a rare condition and the etiology is usually not determined.^{1,3,12,13} With the panoramic radiographs becoming a common radiological method, there has been a rise in the incidence of ectopic or heterotopic teeth in the literature because of the wide field of view.¹⁴ There are many different anatomical places that ectopic

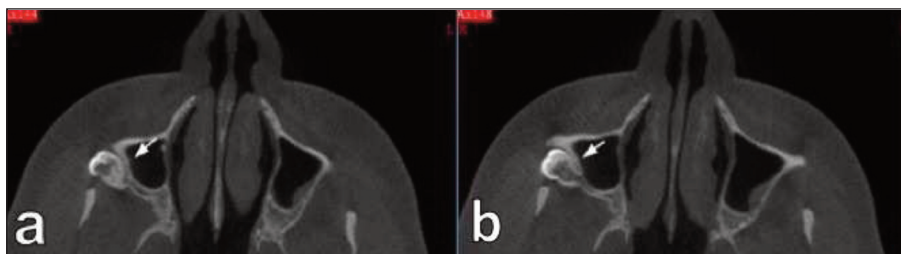


FIGURE 2: Axial CBCT images of the patient. **a.** The axial image shows that the tooth has coronal resorption in some dentine and enamel. **b.** The axial image shows that the wisdom tooth was related to the lateral wall of the right maxillary sinus.

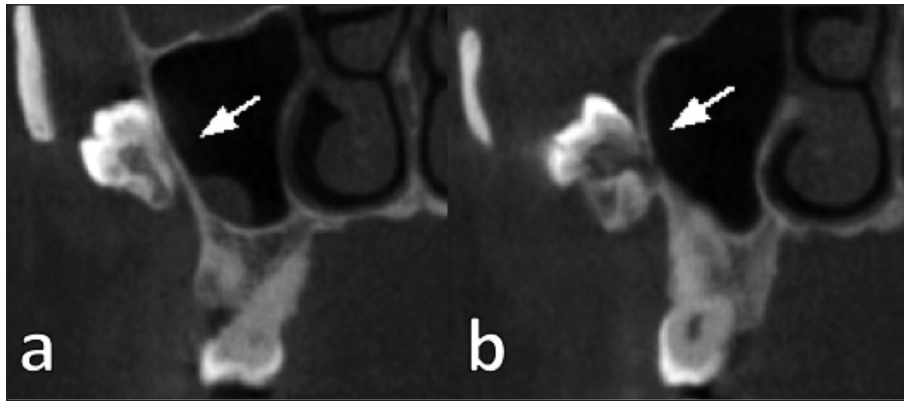


FIGURE 3: Coronal CBCT images of the patient. **a, b.** The coronal images show that some parts of the wisdom tooth is related to the lateral wall of the right maxillary sinus and the tooth is located in the soft tissue. The arrow shows coronal resorption.

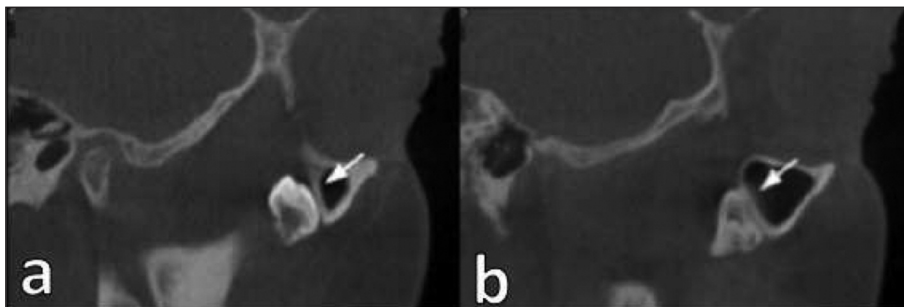


FIGURE 4: Sagittal CBCT images of the patient. **(a, b).** The tooth is totally located in infratemporal fossa (arrow).

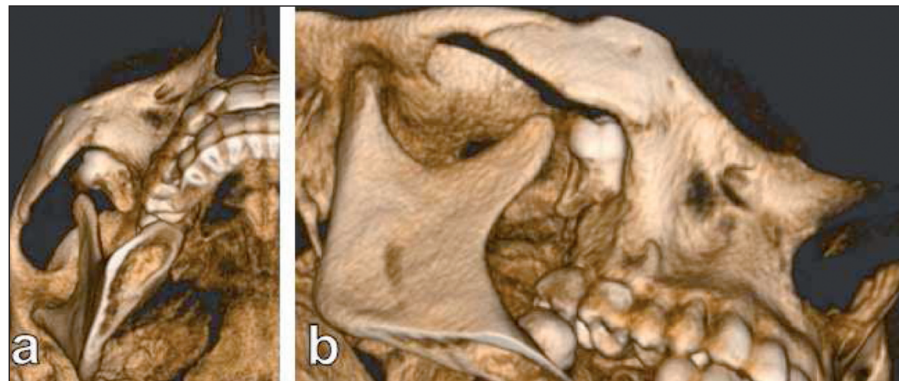


FIGURE 5: 3D reconstruction of the CBCT images **(a, b).**

or heterotopic tooth can be found. An ectopic tooth can be found in mandibular condyle, coronoid process or maxillary sinus and for heterotopic tooth, meatus acusticus externus, nasal septum, infratemporal fossa or nasal fossa are some of the places in the literature.^{5-9,11,13,15-22}

Heterotopic teeth are asymptomatic in most of the cases and are usually found in a routine clinical

and radiological examination.²³ But there are some cases in the literature that patient has complaints such; mouth opening limitations, pain during mandibular movement, headache, swelling and pain.^{10,11} Infratemporal fossa contains lateral and medial pterygoid muscles, the branches of the mandibular nerve, chorda tympani, the otic ganglion, maxillary artery and the pterygoid venous

plexus, therefore it has complex anatomy which makes the surgery challenging.²⁴ Because of the complex anatomy of infratemporal fossa, impacted tooth surgery decision should be made by considering the symptoms in these cases.

In our case, the tooth was developed with a normal sized crown and root, but there were some intracoronal resorption areas on the dentine and enamel. Intracoronal resorption is used for describing an anomaly that effects enamel and dentine with an abnormal, well-circumscribed, radiolucent areas.²⁵⁻²⁸ Intracoronal resorption etiology is unknown as like the heterotopic tooth etiology. Ectopic positions of the teeth are found significantly associated with coronal defects.²⁶⁻²⁸ In our case heterotopy and intracoronal resorption, which's exact etiological factor is unknown, was found together.

Even though, impacted tooth in the infratemporal region is a rare case, displacement of a maxillary third molar into infratemporal fossa is a potential complication of a maxillary third molar extraction.²⁹⁻³² Incorrect extraction technique, dis-tolingual angulated tooth, decreased visibility during the surgical procedure or limited bone existence are common causes of teeth displacing to the infratemporal fossa during the extraction of maxillary third molars.³⁰ On the panoramic radiograph, there are many superpositions on the infratemporal region, therefore, CBCT is more useful for determining the position and the morphology of the tooth.^{10,11} In both situation, either displacement or impaction CBCT is

a further imaging method to examine the exact placement and morphology of the tooth which is localized in the infratemporal area.^{10,31}

All the ectopic or heterotopic teeth should be evaluated individually by the placement, symptoms and also the pathologies should be considered. Ectopic or heterotopic tooth diagnosed during routine radiographic examinations with no symptoms or pathologies do not require any treatment.^{9,12,17,20,22,33} If the impacted tooth surgery decision has been made, the procedure should be chosen individually for each case according to the placement and pathology of the tooth. Follow up decision or surgery decision should be made after the potential risks factors, possible complications and benefits of the surgery evaluated mindfully.^{12,20}

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

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