

Unusual Anatomical Detection of a Third Molar in the Infratemporal Fossa

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Rezumat

Diagnosticul unei poziții anatomice neobișnuite a molarului trei în fosa infratemporală

Prezența molarului de minte în fosa infratemporală este extrem de rară, fiind menționată în două articole din literatura de specialitate. Excepție fac cazurile în care molarul de minte este prezent accidental în această regiune anatomică ca urmare a complicațiilor survenite în timpul extracției. Datorită prezenței unor elemente vasculo-nervoase importante, extracția molarului de minte impune o atenție crescută și un abord chirurgical precis pentru a evita posibile și multiple complicații care pot apărea. În articolul de față prezentăm cazul unui molar de minte detectat în fosa infratemporală care a fost investigat radiologic și extras printr-un procedeu adecvat pentru evitarea posibilelor riscuri intra și postoperatorii.

Cuvinte cheie: molarul trei, fosa infratemporală, complicații, intervenția chirurgicală

Abstract

Third molar presence in the infratemporal fossa is a rare event and it has been reported previously only two times in

the literature, except for the cases which arise from complications occurring during the extraction of the impacted upper third molar. Due to the presence of important vessel bundles and nerves in this area, third molar removal requires a correct surgical management in order to avoid many possible serious side effects. We report an unusual case of upper third molar detected in the infratemporal fossa, which has been thoroughly investigated radiologically and removed through a safe surgical approach.

Key words: third molar, infratemporal fossa, complications, surgical removal

Introduction

Third molar presence in the infratemporal fossa is a rare event and it has been reported previously only two times in the literature (1,2). We report an unusual case of upper third molar detected in the infratemporal fossa, which has been thoroughly investigated radiologically and removed through a safe surgical approach.

Case report

A healthy 24-year-old man was referred to the Department of Orthodontics of the University of Medicine and Pharmacy "Iuliu Hatieganu" by his dentist. His main complaint was the position of his front teeth and he was ready to undergo an orthodontic treatment to improve the situation. The clinical examination revealed a limited mouth opening and moderate

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pain during the mandibular movements. The patient had a history of limited mouth opening starting at the age of 16, together with moderate swelling and pain from time to time in the region of the left zygomatic arch. Palpation of the area revealed some abnormal anatomical conditions. The patient was referred for an ortopantomography and a CT scan for further detailed investigations (Fig.1,2,3,4) (3). The ortopantomography revealed a tooth-like structure in the region of the zygomatic arch. A 5 mm cross-sectional axial, coronal and sagittal CT scan (64-slice, 120kVp, 226mA: Philips Brilliance CT 64-channel scanner) of the patient clearly indicated the presence of a completely developed molar in the infratemporal fossa, close to the zygomatic arch. Coronal and sagittal views showed that the tooth was positioned with the occlusal surface of the crown at the same level as the upper border of the zygomatic arch, while the roots were facing downwards. All the possible complications and the surgical solutions were explained to the patient. He agreed to undergo surgery under general anesthesia, with an intraoral approach (4,5). A mucosal flap has been raised, the posterolateral maxillary wall was exposed and partially removed and a careful tunnelling of the bone was done using a piezo device (Mectron, Italy). After several inspections of the operating field with thin blunt instruments, the tooth was found and removed by means of a long forceps. The recovery was uneventful, and at 2 weeks postoperatively the patient didn't show any impairment of his mandibular function. He was very happy and ready to begin the orthodontic treatment.

Discussion

The presence of a completely developed upper third molar in the infratemporal fossa represents an uncommon anatomical finding. The position of the tooth may cause complications such as inflammation, pain, limitation of the mandibular movements and in the event of a displacement severe life-threatening complications as nerve injury and hemorrhage. The exact location of the displaced tooth is difficult to determine clinically (6,7). A thorough radiological examination, consisting of ortopantomograph and CT or CBCT scan is suggested. The anatomic structures in this region are superimposed on standard radiographies, therefore a CT scan enables the clinician to tridimensionally locate the tooth and to establish the relations with the surrounding anatomical structures and the surgical steps to remove it (8,9). The intraoral surgical approach is not a difficult one but it has many potential pitfalls, due to the presence of many major anatomical structures: the lateral and medial pterygoid muscles, the branches of the mandibular nerve, the otic ganglion, the chorda tympani, the maxillary artery, and the pterygoid venous plexus. Several surgical and external approaches have been described in order to remove the tooth such as the temporal approach, the Caldwell-Luc approach through the maxillary sinus after removal of the whole posterior wall and resection of the coronoid process and many others, mainly in cases of accidental displacement of an impacted third molar during extraction. The accurate



Figure 1. Panoramic X-ray suggests the presence of a tooth-like structure, superimposed with the left zygomatic arch, in the deep infratemporal fossa

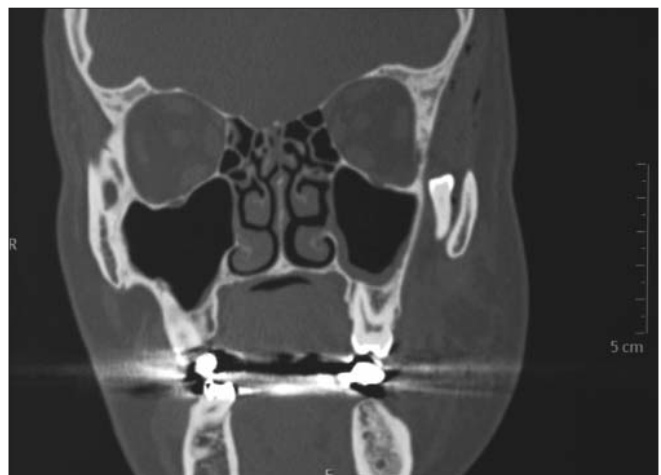


Figure 2. Coronal preoperative CT scan indicates the position of the impacted tooth, close to the zygomatic arch and fully developed

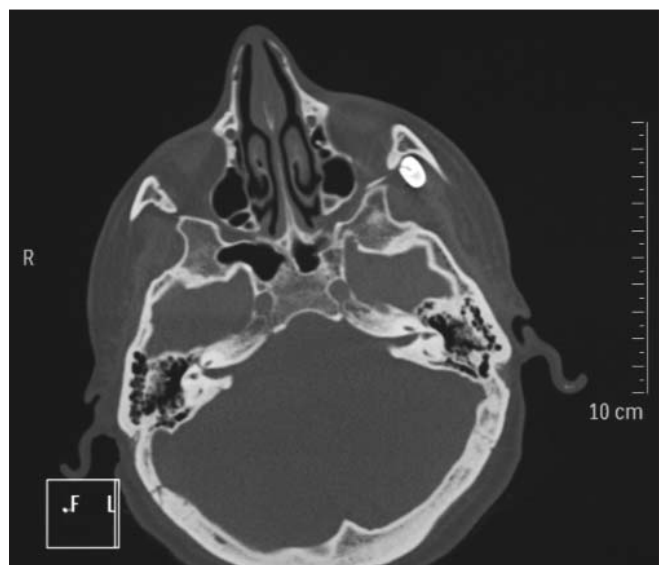


Figure 3. An axial preoperative CT scan allows to assess the precise relationships between the tooth and the anatomical structures of the infratemporal fossa



Figure 4. A sagittal preoperative CT scan allows to assess the precise relationships between the tooth and the anatomical structures of the infratemporal fossa

analysis of the tooth location leads to the best choice in terms of surgical approach and less morbidity. For this reason an intraoral approach should always represent the first option, while more invasive approaches should be performed just in case of severe contraindications. Once an impacted tooth is detected it is mandatory to remove it in order to avoid further complications (10,11). Each unique case should be individualized and analysed by the surgeon and treated adequately.

Conclusions

Patient examination should be performed carefully and every complaint should be addressed carefully. A CBCT or CT examination should be performed in every case in order to establish the etiology of the complaint and to detect possible unusual pathology in the cranio-facial medicine.

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