Migration of an Unerupted Second Molar to the Condyle: Report of a Case With Sequential Radiographs

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Unerupted molars are generally found at or close to their usual site of eruption, but occasionally these teeth are encountered in more distant locations.1 Tooth dislocation may occur as a result of migration or may be induced by pathology.2 The etiology and mechanism of intraosseous tooth migration is not fully understood, but it is an uncommon natural event that primarily affects unerupted mandibular second premolars, canines, and lateral incisors.2-4 Occurrences of migrated canines, second premolars, and lateral incisors appearing generally near their original eruption location are frequently described in the literature.3-4 A few distal molar displacement cases are reported and, in rare cases ectopic molars are located in the condyle or subcondylar regions, but they are usually inverted third molars associated with lesions or tumors that are the reason for tooth dislocation.1,5-12 The majority of these reports relate to third molars in the subcondylar area,1,5,7,9,11 while rare findings reveal a tooth located in the condyle.8,12 Apparently, a second molar intraosseous migration reaching the condyle, unrelated to any kind of lesion, has not been reported in literature.

This case has particularly interesting aspects besides being a rare ectopic tooth in mandibular condyle. Three panoramic radiographs taken over an 8-year period revealed tooth migration from the mandibular ramus to its final location in the condyle. Furthermore, this second molar appeared without any associated lesion that could explain such unusual movement.

Report of a Case

A 9-year-old boy was referred to our institution (School of Dentistry, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil) in August 1993 by an orthodontist for an evaluation of unerupted third molars. An initial panoramic radiograph showed the right inferior second molar with incomplete root development impacted in the ascending mandibular ramus, associated with a radiolucent area surrounding the crown, suggestive of pericoronal follicle (Fig 1). The absence of both upper and right inferior third molars was also detected. Intra- and extraoral examination revealed no alterations; the patient had no complaints and past medical history was unremarkable. Ectopic tooth extraction was recommended at the time to avoid further complications;
however, the patient postponed surgery. In December 1997, the patient returned reporting no complaints and no further medical history. Panoramic radiograph revealed the inferior right second molar with almost completed root formation in the subcondylar area and in a superior position compared with the first radiograph (Fig 1). Once more, surgical removal was recommended and again the patient postponed surgery. In May 2001, the patient presented for surgery. Panoramic radiograph and computed tomography exhibited the tooth was confined into the condyle, with very discrete radiolucency contiguous to the crown, indicative of pericoronal follicle (Fig 2).

The condyle was exposed using periauricular access under general anesthesia. The tooth crown could be viewed after minimal osseous trephination and it was transversely sectioned from the roots to facilitate removal and to minimize the leverage on the weakened condyle. The tooth was removed with its pericoronal follicle without resection of any bone structure (Fig 3). Soft tissue histopathologic exam confirmed the previous diagnosis of pericoronal follicle. After a 4-year clinical follow-up, the patient reported no adverse symptoms (Fig 4).

Discussion

Frequently, teeth are encountered distant from their normal site of eruption; however a tooth dislocated to a point as far away as the condyle is an uncommon finding. Significant migration may occur before root development is completed. Localized pathologic processes can lead to unerupted teeth migrating considerable distances, particularly in the mandible. In previous case reports involving ectopic teeth in the subcondylar area and condyle, dentigerous cysts appeared to be the cause of these
teeth dislocations, leading them mainly to the subcondylar region. The intracyst pressure can displace a tooth far from its original location. In the majority of these reports, cysts were infected, inducing intraoral or extraoral draining fistulae. Painful swelling was reported in all cases.

In our case, one of the unusual aspects is that the second molar displacement to the condyle was not provoked by a lesion. It seems to be a case of pure migration, which is believed to occur only in permanent mandibular second premolars, canines, and lateral incisors. Another aspect that differentiates this migration case from the previous cases of dislocated third molars to the condyle or subcondylar region is the position of the tooth. While the teeth related to cystic lesions appeared in inverted ectopic positions because of cystic pressure, we report an upright second molar. In migration cases, it is believed that the crown leads the migration, following the direction of tooth long axis.

The etiology of spontaneous tooth migration is poorly understood. It was suggested that the force directed toward the crown as a result of the reversal of blood flow direction during its passage through the pulpal vessels could produce intraosseous migration, but this theory has not been substantiated. More recently, it has been suggested that migrated canines are associated with genetic causes, although generally the migration mechanism remains unresolved.

Surgical extraction of dislocated teeth was carried out in preceding cases because of painful symptoms and infection. The absence of lesion in our case required the removal of only the tooth, preserving the condyle and coronoid process, unlike other reports. An endoscopic approach has recently been used for ectopic tooth removal, providing less traumatic surgery.

This case shows an example of how significant radiographic observation can be. If the patient had not delayed surgery, a more conservative approach could have been undertaken, when the tooth was in a lower position.

References