



Conservative Treatment of Dentigerous Cysts: Two Case Reports

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Abstract

The purpose of this case reports are to report two dentigerous cysts and spontaneous eruption of teeth after marsupialization on a 9 and 12 years old boys. The children were referred to Cumhuriyet University Department of Pediatric Dentistry with the complaint of a swelling on the jaws. After intra oral and radiographical examination, dentigerous cysts were diagnosed. In cases of this type of dental cysts it is possible to achieve spontaneous eruption of the involved permanent teeth into the dental arch even if they are badly dislocated. Simultaneous with eruption of the permanent teeth, ossification of bone defect can take place. In these case reports after 25 months of follow up spontaneous eruptions of permanent teeth were noticed.

Keywords: Dentigerous cyst; Odontogenic infections; Marsupialization

Introduction

A dentigerous cyst is the most prevalent type of developmental odontogenic cyst [1]. It is associated with the crown of an unerupted tooth [2]. Its pathogenesis is unknown, but it can be explained by the accumulation of liquid between the remnants of the reduced enamel epithelium of the tooth-forming organ and the unerupted tooth crown after its complete development [3,4]. Dentigerous cysts are the second most common odontogenic cyst after the radicular cyst accounting for 24% of all the true cysts of the jaws [5]. In children the frequency of odontogenic cysts is relatively low. Shear has estimated that about 9% of dentigerous cysts occur in the first decade of life [6]. It is more frequent in the second and third decades of life, with a male predilection and mandibula is the most affected region [7,8]. Patients with dentigerous cysts have no painful symptoms unless there is acute inflammatory exacerbation, thus explaining the fact that these lesions are often detected only during routine radiographic examination [9].

Dentigerous cysts are generally discovered when radiographs are taken to investigate a failure of tooth eruption, missing tooth, or malalignment. There is usually no pain or discomfort associated with the cyst unless there is acute inflammatory exacerbation. Radiographs show a unilocular, radiolucent lesion characterized by a well-defined sclerotic margins and associated with crown of the unerupted tooth. While the normal follicular space is 3mm to 4 mm, a dentigerous cyst can be suspected when the space is more than 5 mm [10]. Histologically, dentigerous cysts consist of a fibrous wall containing variable amounts of myxoid tissue and odontogenic remnants. The cyst is lined with nonkeratinized stratified squamous epithelium consisting of mucosebaceous, ciliated and, rarely, sebaceous cells. The epithelial-connective tissue interface is typically flattened, but becomes highly irregular when associated with inflammation [11]. Enucleation and marsupialization are the best options to treat a dentigerous cyst [12,13]. The first is the process in which the cyst is completely removed without rupture; this is generally indicated for small cysts. For large lesions, this procedure can cause fracture of the mandible, tooth devitalization, or removal of impacted teeth associated with the lesions that do not need to be removed. Marsupialization consists of a surgical cavity on the wall of the cyst, emptying its content and maintaining the continuity between the cyst and the oral cavity, maxillary sinus, or nasal cavity, but it is not indicated for infected lesions [14]. This technique is indicated for large cysts, unerupted teeth associated with cysts in pediatric patients, or in patients with systemic diseases, generally the elderly. It permits decompression of the cyst, reducing the extent of the bone defect [15]. The treatment of impacted teeth is a challenge to orthodontists, and the treatment of choice is surgical exposure of the tooth and consequent orthodontic traction, which generally causes a cyst cavity reduction and preserves the unerupted tooth [16,17]. Spontaneous eruption, without orthodontic intervention, can occur after the extraction of deciduous teeth and

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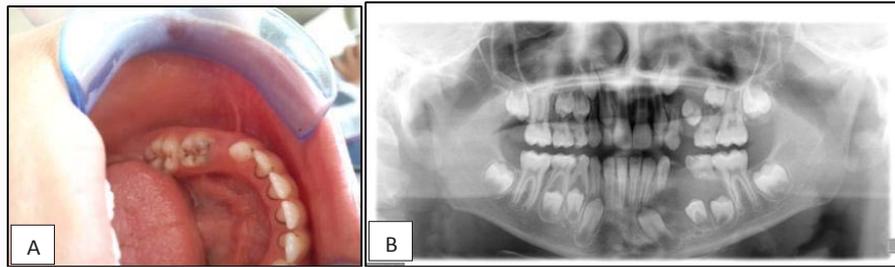


Figure 1: A) Initial oral view and B) panoramic radiograph of the patient.

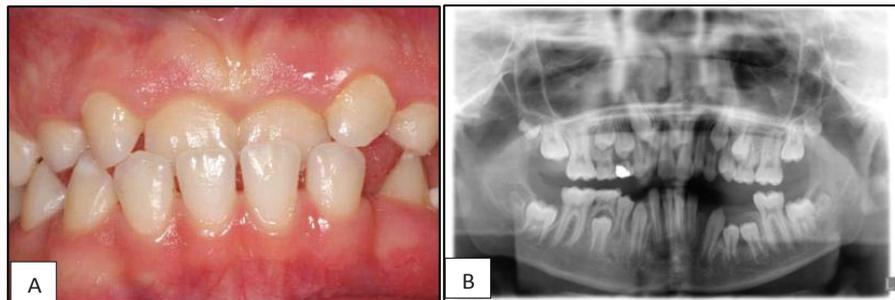


Figure 2: A) Intraoral view of anterior cross bite at central incisors. B) Panoramic radiograph after marsupialization (After 15 months).

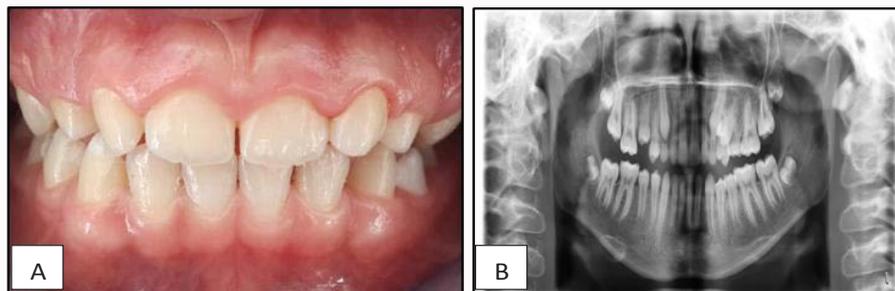


Figure 3: A) After 25 months, intraoral and B) radiographic appearance of the patient.

cyst marsupialization [18]. The purpose of these case reports was to present the management of dentigerous cysts in two children and spontaneous eruption of teeth after marsupialization.

Case Presentation

Case presentation 1

A 9 years old boy was referred to Cumhuriyet University Department of Pediatric Dentistry with the complaint of a swelling on left side of his mandible. Intraoral examination revealed swelling, which produced bulging of the cortical bone of firm consistency and on the buccal surface of the mandible, the bone was thin and anterior cross bite at central incisors (Figure 1A and 2A). Radiographic examination showed a unilocular, radiolucent area associated with primary left canine and primary second molar and crowns of permanent canine and premolars (Figure 1B). The patient didn't complain of pain and there wasn't any inflammation symptom around the lesion. The patient's mandibular deciduous canine and second molar teeth was extracted, so the cyst cavity was opened and the drainage was achieved. After marsupialization spontaneous eruption of the permanent canine and premolars were expected (Figure 2B). The malocclusion was corrected with cross bite appliance. Patient was recalled for 6 months intervals. After 25

months the patient's mandibular canine and premolars eruption was determined spontaneously (Figure 3).

Case presentation 2

A 12 year old boy was referred to Cumhuriyet University Faculty of Dentistry, Department of Paediatric Dentistry with the complaint of a swelling on right side of his maxilla since 3 months. On general examination, the patient was apparently healthy. There



Figure 4: Initial panoramic radiograph shows the cystic lesion involving the maxillary right primary canine and the permanent canine.

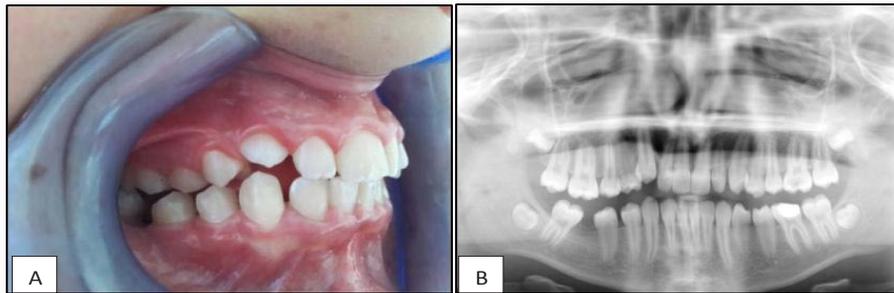


Figure 5: A) Intraoral view of the canine eruption. **B)** Spontaneous eruption of the maksillar right canine after 25 months.

was no significant past medical history. Intraoral examination revealed red swelling, which produced bulging of the cortical bone of firm consistency. The swelling was well defined, firm in consistency, painless on palpation. There was no bruit or pulsation. There were no signs of any acute periodontal condition or carious lesions. Radiographic examination showed a thin sclerotic border surrounding the well-defined unilocular radiolucent area that was associated with the root of primary maxillary right canine and an unerupted permanent maxillary right canine (Figure 4). There was irregular root resorption of the primary maxillary right canine. After clinical and radiological examination the diagnosis of dentigerous cyst was made. Surgical marsupialization of the cyst was chosen as the treatment of choice. The treatment consisted of extraction of the maxillary right primary canine and marsupialization of the cyst cavity. The surgery was done using local anesthesia. Maxillary right primary canine was extracted. This opened the cyst, and its liquid content leaked out. After marsupilization spontanous eruption of the permanenet canine was expected. After 6 months follow up visit showed that the radiographic radioluceny had decreased and canine was erupting without ortodontic traction or any other therapy. After 25 months the patient's maxillary canine eruption was determined spontaneously (Figure 5).

Discussion

Dentigerous cyst is the most common type of developmental odontogenic cyst [1]. Dentigerous cysts are usually associated with an embedded or unerupted tooth [19,20]. Even though it has no symptoms, sometimes it can cause maxillary expansion and facial asymmetry [21,22]. Asymptomatic intraoral swelling and a large radiolucent area with well-defined limits that involve permanent teeth as observed on radiographic examination and can cause their dislocation near the base of the mandible [3,12]. Although evidence in the literature suggests that dentigerous cysts occur more frequently during the second decade of life these lesions can also be found in children adolescents [23,24]. The incidence of dentigerous cysts is twice as high male patients compared female counterparts [25,26]. Our patients had the clinical and radiographic features of a dentigerous cyst. Several treatment options include complete enucleation and marsupialization. If the cyst is associated with a supernumerary tooth, complete enucleation of the cyst along with extraction of the tooth may be the first choice [27,28]. If preservation of the displaced teeth is desirable, and in a young patient where the lesion is isolated, marsupialization is a rather conservative treatment option [11,29-31]. Marsupialization is the conversion of a cyst into a pouch by suturing the cyst lining to the oral mucosa. This method has fewer complications than enucleation regarding the preservation of important anatomical structures and developing permanent

tooth germs. It is believed that new bone formation is stimulated because marsupialization decreases intracystic pressure [32,33] The disadvantage of marsupialization is the pathologic tissue left in situ [32,33]. Although the tissue taken from the window can be submitted for pathologic examination, there is a possibility of a more aggressive lesion in the residual tissue [32]. In our cases, we chose conservative treatment based on the age of the patients and the strategic value of the associated teeth.

All our cases regardless of the dimension of the cyst were treated with extraction of the primary teeth. The leaking out of the cyst's fluid during an extraction of a primary tooth or during a decompression, respectively, confirms the clinical impression of the cyst. Children have greater capacity to regenerate destructed bone. Therefore, conservative treatment for spontaneous eruption of these teeth is carried out well. Teeth with open apices have more eruptive potential and fewer associated pathologic lesions within the dentigerous cyst. In all our patients, the bone defect ossified without complications. None of the patients showed signs of persistence or recurrence of the cyst. These results suggest that it is worth starting the treatment by marsupialization the cyst even when the permanent teeth are severely displaced.

Conclusions

These case reports show the necessity for early diagnosis and treatment of impacted teeth associated with a dentigerous cyst. Marsupialization might be the first treatment option for conservative management of dentigerous cysts in children. This study showed that by extracting the deciduous tooth, opening the cyst and ensuring continuous drainage, it is possible to achieve spontaneous eruption of the involved permanent teeth into the dental arch even if they are badly dislocated. Simultaneously with eruption of the permanent teeth, ossification of bone defect can take place.

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