Dentigerous Cyst Associated With Inverted and Fused Supernumerary Teeth in a Child: A Case Report

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Abstract

Aim: To present a report the case of a 10-year-old boy with a dentigerous cyst associated with inverted and fused supernumerary teeth in the anterior maxilla and to point out the relationship between supernumerary teeth and dentigerous cysts. ***Method:*** The supernumerary teeth were removed and the cyst was enucleated. ***Result:*** The patient has remained asymptomatic and experienced no recurrence during the 11 months since the operation. The result of the surgical treatment is considered satisfactory. ***Conclusion:*** Supernumerary teeth should be extracted to prevent possible effects on adjacent regular teeth and possible cystic development in children.

Key Words: Dentigerous Cyst, Odontoma, Supernumerary Tooth

Introduction

Supernumerary teeth are accessory teeth that result from hyperactivity of the dental lamina [1]. Almost all (98%) occur in the maxilla, mostly in the anterior palate [2,3]. According to Brook (1974), supernumerary teeth are present in 0.8% of primary dentitions and in 2.1% of permanent dentitions [4].

Dentigerous simply means having or containing teeth [5]. Dentigerous cysts are developmental odontogenic cysts and are always associated with an unerupted or developing tooth bud [6]. Dentigerous cysts around supernumerary teeth account for 5% of all dentigerous cysts, most developing around a mesiodens in the anterior maxilla [7]. Dentigerous cysts are uncommon in the first decade of life [8].

The following report presents the case of a 10-year-old boy with a dentigerous cyst containing two inverted and fused supernumerary teeth that were associated with an odontoma.

Case Report

A 10-year-old boy was referred to the Department of Paediatric Dentistry at Gülhane Military Medical Academy, Ankara, Turkey, because his permanent maxillary central incisor had failed to erupt. There was no history of dental anomalies or craniofacial, dermal or skeletal dysmorphologies.

No extra-oral alteration was observed in the clinical examination. A clinical intra-oral examination revealed a cross-bite malocclusion. The permanent right central incisor was missing but its space had not been lost and the permanent lateral incisor was slightly deviated *(Figure 1).*

Figure 1. *Intra-oral clinical appearance of the patient.*

A panoramic radiograph revealed the presence of an opaque, calcified mass resembling two fused and inverted supernumerary teeth associated with an odontoma-like malformation *(Figure 2).* The

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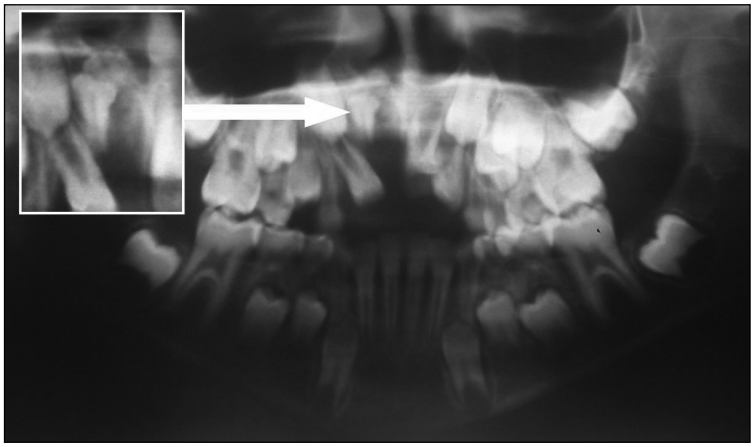

Figure 2. *Panoramic radiograph of the10-year-old patient showing inverted supernumerary teeth associated with an odontoma. Note the radiolucency around the supernumerary teeth.*

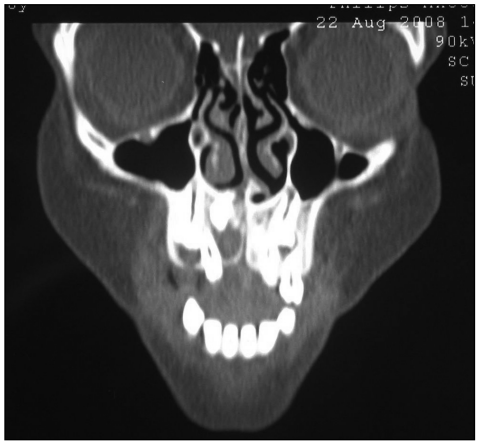

Figure 3. *Computerised tomography revealed that the cyst and the supernumerary teeth were located next to the nasal floor.*

teeth were surrounded by an irregular radiolucency. Computerised tomography of the maxilla confirmed that the mass was located very close to the nasal floor *(Figure 3).* The patient denied having symptoms such as swelling or pain. After consultation with the Departments of Orthodontics, it was decided that the patient would receive orthodontic treatment following surgical removal of the mass.

The patient was operated under local anaesthesia. To avoid excessive bone loss, the teeth were partially exposed and removed with the surrounding cystic soft tissues *(Figure 4).* The extracted mass contained two fused supernumerary teeth and an odontoma *(Figures 5 and 6).*

Figure 4. *Surgical excision of the cyst.*

Routine histological examination of the enucleated specimen confirmed the diagnosis of a dentigerous cyst *(Figure 7).* The patient has remained asymptomatic and experienced no recurrence during the 11 months since the operation.

Figure 5. *Excised specimens showed a cystic soft tissue and fused supernumerary teeth associated with an odontoma-like malformation*

Figure 6. *Supernumerary teeth.*

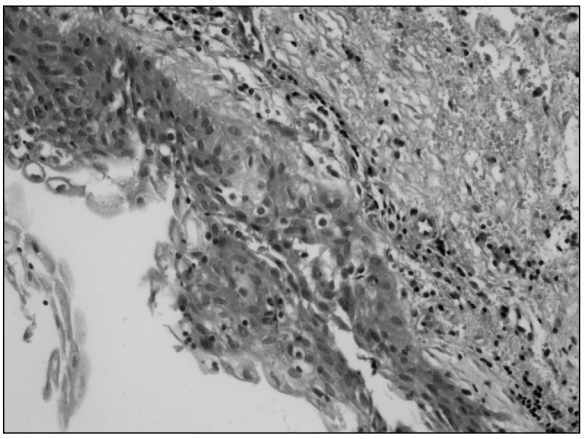

Figure 7. *Dentigerous cyst lined by non-keratinised epithelium [magnification 11x 400].*

Discussion

Next to the radicular cyst, the dentigerous cyst is the second most common type of odontogenic cyst and is always associated with the crown of an impacted, embedded, or otherwise unerupted tooth [9]. Dentigerous cysts are typically asymptomatic and may be large, destructive, expansile lesions of bone [10]. The highest incidence of dentigerous cysts occurs during the second and third decades. Radiographic appearance is that of a well-defined radiolucent lesion, which may be unilocular or multilocular in appearance. In addition to its potential for bone destruction and because of the multipotential nature of this epithelium derived from the dental lamina, several entities may arise in or be associated with the wall of a dentigerous cyst. In a study by Brannon (1976), 8.5% of clinical dentigerous cysts were found histologically to be odontogenic keratocysts [11]. Studies by Leider et al. (1985) [12] and by Gardner and Corio (1984) [13] have shown that in 50-80% of cases, cystic ameloblastoma appeared radiographically as dentigerous cysts.

Treatment of choice for dentigerous cysts is surgical removal. Because of the potential for occurrence of an odontogenic keratocyst or the development of an ameloblastoma or mucoepidermoid carcinoma, all such lesions, when removed, should be submitted for histopathologic evaluation.

The incidence of supernumerary teeth in the primary dentition is 0.2-0.8%, with an unknown male:female ratio [3]. The incidence of the condition in the permanent dentition is 1.5-3.5%, with a male:female ratio of 2:1 [13].

Problems associated with supernumerary tooth are failure to erupt, displacement of a permanent tooth, crowding, and pathologies associated with supernumerary tooth and surgical difficulties that can occur during alveolar bone grafting and implant site preparation [2]. Resorption of roots adjacent to a supernumerary may occur but it is extremely rare [14]. Management of a supernumerary tooth depends on the type and position of the tooth and on its effect or potential effect on adjacent teeth. Removal of the supernumerary tooth is recommended where associated pathology is evident, central incisor eruption is delayed or inhibited, there is altered eruption or displacement of central incisors, orthodontic alignment of an incisor in close proximity to the supernumerary is envisaged, or spontaneous eruption of the supernumerary has occurred [2].

As we pointed out earlier, dentigerous cyst formation is another problem that may be associated with supernumerary teeth [1,14]. Primosch (1981) reported an enlarged follicular sac in 30% of cases, but histological evidence of cyst formation was found in only 4-9% of cases [15]. According to Asaumi et al. (2004), dentigerous cyst formation arising from supernumerary teeth comprises 11% of the cases [16]. A further study [17] found that 6% of supernumerary teeth have dentigerous cyst development and Hurlen and Humerfelt (1985) [18] suggested that dentigerous cysts associated with the supernumerary teeth occur in 7% of cases.

This report also describes a development of an odontoma-like malformation associated with supernumerary teeth. Odontomas are pseudo-tumoural lesions composed of both epithelial and mesenchymal cells; they may be the cause of noneruption or impaction of teeth and retained primary teeth [19]. Odontoma represents a malformation with a high degree of histomorphologic differentiation similar to the process producing supernumerary teeth, “multiple schizodontia,” or locally conditioned hyperactivity of the dental lamina [20]. According to Kaugars et al. (1989), odontomas were found to be in association with an unerupted tooth in 48% of cases and in conjunction with a dentigerous cyst in 28% of cases [21]. Surgical removal of the odontoma as soon as possible is the optimal treatment.

Conclusion

In summary, dentigerous cyst development associated with impacted permanent teeth is not uncommon. However, such development as a result of an inverted fused supernumerary tooth associated with an odontoma, is rare. Supernumerary teeth should be examined very carefully to prevent possible effects on adjacent regular teeth and possible cystic development in children.

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