Dentigerous Cyst Associated With an Impacted Anterior Maxillary Supernumerary Tooth

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ABSTRACT

A dentigerous cyst is a developmental odontogenic cyst which develops from the reduced enamel epithelium in an impacted permanent tooth and is rarely associated with supernumerary teeth. The purpose of this article was to report the case of an 8-year-old Korean boy with a dentigerous cyst associated with an impacted anterior maxillary supernumerary tooth and its dental management. (J Dent Child 2008;75:104-7) Received February 11, 2007 Accepted March 1, 2007.

KEYWORDS: CYST DENTIGEROUS, TOOTH IMPACTED, TOOTH SUPERNUMERARY

A dentigerous cyst is a developmental odontogenic cyst which originates through alterations of the reduced enamel epithelium in an unerupted tooth after the crown has been fully formed.[1] Supernumerary teeth are accessory teeth that result from hyperactivity of the dental lamina.[2]

Approximately 95% of dentigerous cysts involve the permanent dentition, and approximately 5% are associated with supernumerary teeth.[1] Rarely, supernumerary teeth are associated with dentigerous cysts, which are not common in the first decade of life.[3]

The purpose of this article is to report the case of an 8-year-old Korean boy with a dentigerous cyst associated with an impacted anterior maxillary supernumerary tooth and its dental treatment procedure.

CASE REPORT

In September 2000, an 8-year-old boy presented to the dental clinic at Ilsan Paik Hospital, Inje University, Kyunggi-Do, South Korea, with the chief complaint of malposition of the upper right central incisor. The clinical and radiographic evaluations revealed rotation of the upper right central incisor and a supernumerary tooth impacted labially to the upper dental arch. The supernumerary tooth's crown was surrounded by a well-defined radiolucency (Figures 1 to 4).

Under local anesthesia, the supernumerary tooth and the cystic lesion surrounding its crown were removed. The enucleated cyst wall was submitted to histological examination, which revealed a cavitary lesion lined by squamous epithelium with chronic inflammation and cholesterol granuloma. The histopathological findings confirmed the diagnosis of a dentigerous cyst associated with a supernumerary tooth (Figures 5 to 7).

Following the surgical procedure, the patient was provided with maxillary fixed appliance for correction of the tooth's malposition (Figures 8 and 9). The clinical and radiographic evaluation of the patient at the age of 11 years revealed no recurrence of the cystic lesion (Figures 10 and 11).

DISCUSSION

A dentigerous cyst is the most common of all follicular cysts and is always associated with an impacted, embedded, or unerupted tooth's crown.[4] Supernumerary teeth occur in less than 1% of the general population. An alteration of growth with local hyperactivity of the parent dental lamina is currently the most widely accepted theory to explain the etiology. Heredity also plays some role.[5]

The premaxillary region appears to be the most common site of predilection for supernumerary teeth. The clinical importance of supernumerary teeth is connected with the interference with the adjacent regular teeth, and possible pathological changes in the jaw due to the presence of supernumerary teeth.

Supernumerary teeth may cause retention and malposition of the adjacent permanent teeth. Dentigerous cyst formation is another problem associated with an unerupted supernumerary tooth.[2,6]

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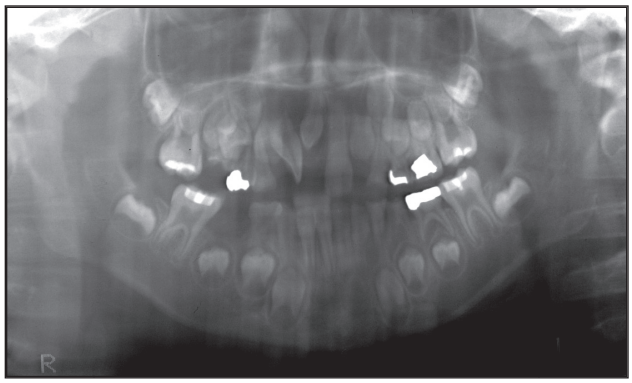

Figure 1. Panoramic radiograph of an 8-year-old patient showing rotation of the upper right central incisor and impacted supernumerary tooth.

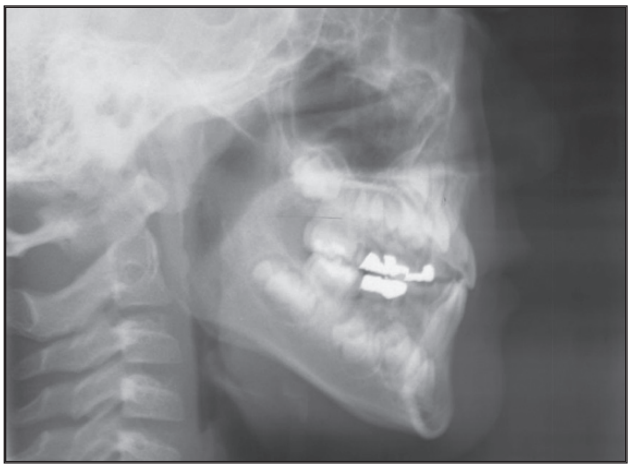

Figure 2. Lateral cephalogram of an 8-year-old patient showing the supernumerary tooth impacted labially to the upper dental arch.

Figure 3. Upper occlusal radiograph of an 8-year-old patient showing a well-defined radiolucency surrounding the supernumerary tooth's crown.

Figure 4. Intraoral clinical appearance of an 8-year-old patient.

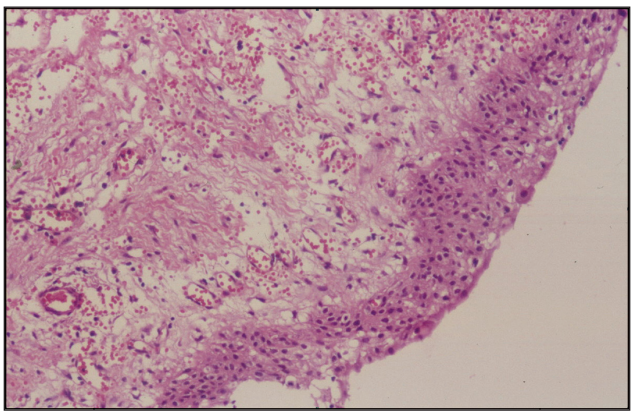

Figure 5. Dentigerous cyst wall (magnification X100)

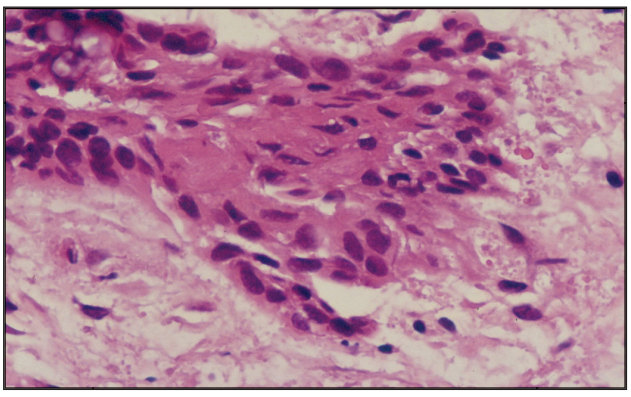

Figure 6. Dentigerous cyst wall (magnification X400).

Stafne found that 6% of supernumerary teeth have dentigerous cyst development.[5] Hurlen and Humerfelt found that dentigerous cysts associated with the supernumerary teeth occurred in 7% of the cases,[6] and Asaumi et al reported that dentigerous cyst formation arising from supernumerary teeth comprise 11% of the cases.[7]

Galil reported the case of an impacted supernumerary lower premolar having a dentigerous cyst,[8] while Campos and Durr reported the case of a dentigerous cyst associated with 2 impacted teeth—a supernumerary and an inverted premolar.[9] Papadopoulos reported the case of a dentigerous cyst extending from upper right central incisor to the left second premolar associated with a supernumerary tooth located palatally to the left central incisor.[10] Most and Roy, meanwhile, reported a dentigerous cyst associated with a supernumerary tooth that involved both maxillary sinuses.[11] Vele et al reported the case of a dentigerous cyst in the maxillary sinus originating in a supernumerary tooth, and[12] Som et al

reported the case of a mass in the floor of the nasal fossae that was a dentigerous cyst of a supernumerary tooth.[13] Most of the cases were found in patients over 20 years of age. Asaumi et al reported that, of their 51 cases of supernumerary teeth occurring in those over 20 years of age, 19 (37%) had dentigerous cyst formation, with only 3 cysts being discovered in those under 19 years.[7]

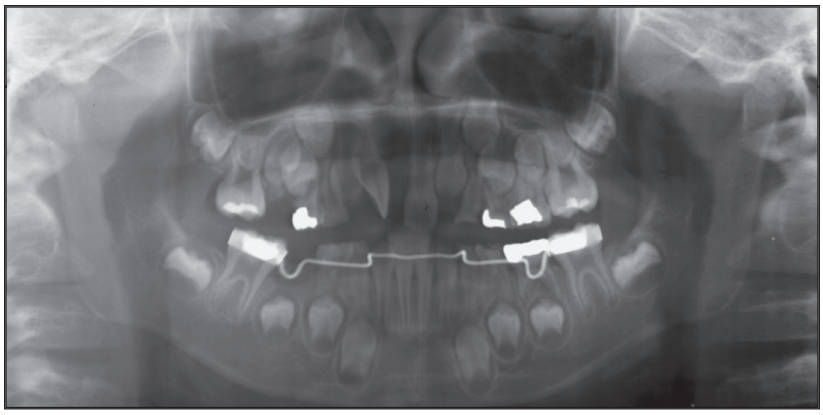

Figure 7. Panoramic radiograph of an 8-year-old patient after removing the supernumerary tooth and the cyst surrounding its crown.

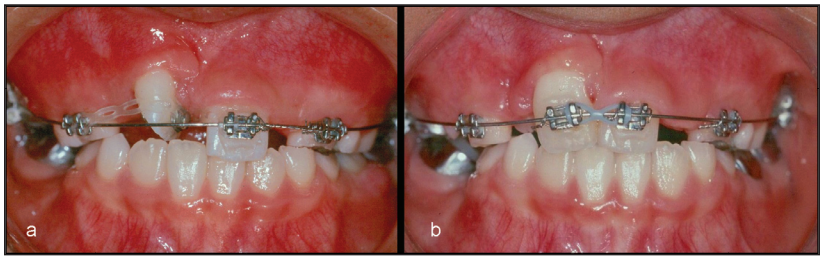

Figure 8 (a – b). Clinical appearance of an 8-year-old patient during the orthodontic procedure.

Although these cysts are not common in the first decade of life, Lustmann and Bodner reported the case of a 9-year-old female and a 12-year-old male with dentigerous cysts associated with supernumerary teeth.[1] Additionally, Shetty and Sandler reported the case of an 8-year-old boy who was later found to have a dentigerous cyst associated with a supernumerary tooth.[3] It should be remembered that cystic transformation of the follicle of the supernumerary tooth is possible at an early age, although it is rare.

Supernumerary teeth should be extracted in children to avoid possible effects on neighboring teeth and/or cystic development. Enucleation of dentigerous cyst associated with a supernumerary tooth would be the treatment of choice. If the cyst is in intimate relation with the apices of permanent teeth, marsupialization followed by enucleation of the cyst with the supernumerary tooth would be the recommended treatment.[1]

Figure 9. Clinical appearance of an 8-year-old patient after removing the fixed orthodontic appliance.

Figure 10. Clinical appearance of the patient at the age of 11 years.

Figure 11. Panoramic radiograph of the patient at the age of 11 years.

CONCLUSIONS

The dentigerous cyst is a developmental odontogenic cyst which is associated with the crown of an impacted or unerupted tooth and is rarely associated with impacted supernumerary teeth. In this case, an 8-year-old boy presented with a dentigerous cyst associated with an impacted supernumerary tooth with rotation of the adjacent permanent tooth, and surgical and orthodontic treatment was performed. Supernumerary teeth should be extracted to prevent possible effects on adjacent regular teeth and possible cystic development in children.

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