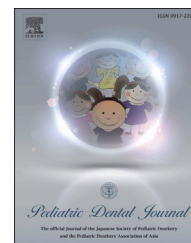


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Case Report

Complete resorption of an impacted and inverted supernumerary tooth: Report of an unusual case



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ABSTRACT

The presence of supernumerary teeth is a relatively frequent odontogenic disorder. Supernumerary teeth should be extracted immediately if any complications such as diastema and delayed eruption are present; early diagnosis is therefore crucial.

A 6-year-old boy had an impacted and inverted supernumerary tooth in the anterior maxilla. Removal was recommended but was not performed, at the patient's request. The patient's condition was monitored using oral and radiographic examinations for a period of 2 years. During that time, the supernumerary tooth underwent extensive resorption. The resorption of an impacted supernumerary tooth is extremely rare. In this unusual case, resorption was complete.

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1. Introduction

Supernumerary, or extra, teeth are relatively frequent in disordered odontogenesis. The condition can be diagnosed by radiography or by clinical signs [1]. However, patients with supernumerary teeth are sometimes asymptomatic. Supernumerary teeth can be found in almost any region of the dental arch and may or may not have erupted. Liu reported that 34.8% of supernumerary teeth were in the vertical position, 46% were in the inverted position, and 19% were in the transverse position. All the inverted and transverse-oriented supernumerary teeth were unerupted [1].

In general, supernumerary teeth, particularly those in the anterior maxillary, may interfere with the eruption of maxillary incisors, which in turn creates abnormal diastemas. The

roots of adjacent teeth may be resorbed [1–3]. Early diagnosis and treatment are therefore important to prevent or minimize complications. Whereas some authors recommend immediate removal of the supernumerary teeth following the initial diagnosis, others prefer to defer surgical intervention until complications occur [2,3].

Dental root resorption is caused by odontoclastic/osteoclastic cells [4]. The process is broadly classified by the site of origin (internal vs. external). Internal root resorption may be induced by chronic dental pulp inflammation, restorative procedures, herpes zoster virus infection, cracked tooth syndrome, or invaginated cingulum. External root resorption is associated with trauma, orthodontic forces, impacted teeth, and the presence of necrotic pulp with periapical inflammation [5]. Both external and internal root resorption can be idiopathic or caused by trauma and/or orthodontic movement.

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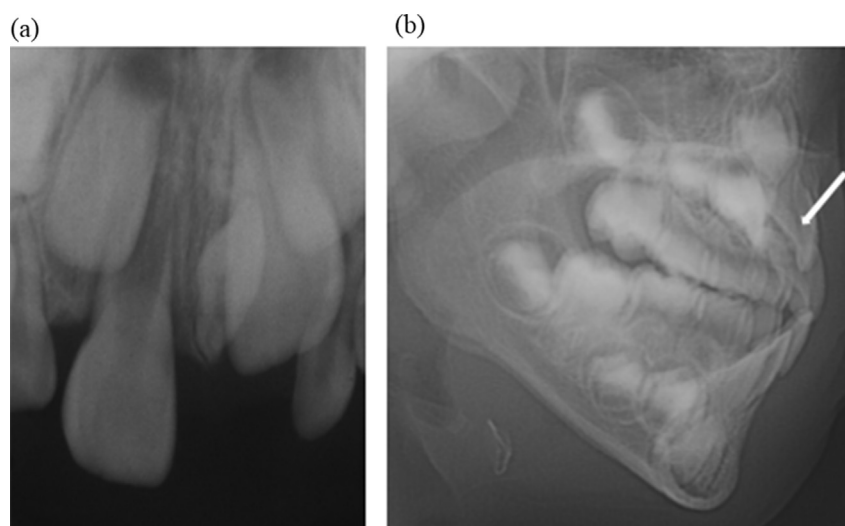


Fig. 1 – Initial radiographs, at 6 years of age. (a) Periapical radiograph: the root formation of the supernumerary tooth was near complete. (b) Lateral cephalogram: a supernumerary tooth (arrow) can be seen on the palatal side of the maxillary central incisor.

This paper reports the extensive resorption of an impacted and inverted supernumerary tooth without any complications such as resorption of the adjacent tooth or destruction of the adjacent bone.

2. Case report

A 6-year-old boy with an impacted and inverted supernumerary tooth was referred to the Pediatric Dentistry Clinic at Tokyo Medical and Dental University. His medical history was significant only for a penicillin allergy. There was no history of orofacial trauma, and the patient's mother denied any similar familial abnormality.

The permanent maxillary right central incisor had erupted, but the left remained unerupted. Periapical radiography showed that the impacted and inverted supernumerary tooth was on the mesial side of the unerupted permanent left central incisor. The root formation of the supernumerary tooth was near complete (Fig. 1a). Lateral cephalography showed that the tooth was located on the palatal side of the permanent incisors in the maxilla (Fig. 1b).

Although tooth extraction was recommended, the patient and his mother declined treatment. Therefore, the periodic follow-up through clinical and radiological examinations was performed without tooth extraction.

After 8 months, the permanent maxillary left incisor had begun to erupt, exhibiting obvious midline diastema (Fig. 2a). Periapical radiography showed that the root of the supernumerary tooth had been partially resorbed (Fig. 3a).

Radiographic examinations were performed every 3–4 months, revealing progressive root resorption of the supernumerary tooth (Fig. 3a–e). At 15 months after the initial examination, the root had been resorbed completely. Only the crown, covered by a thin layer of enamel, remained (Fig. 3c). By 18 months, the maxillary left central incisor had erupted

completely and the supernumerary tooth had been resorbed mostly (Fig. 3d). At 22 months, the area between the permanent central incisors bore few traces of the supernumerary tooth (Fig. 3e). The midline diastema closed as the tooth was resorbed (Fig. 2b). The patient remained asymptomatic during the 2-year follow-up period, and both central incisors responded positively to electric pulp testing. The supernumerary tooth had not interfered with surrounding structures or with permanent tooth eruption.

3. Discussion

The complications encountered most frequently with supernumerary teeth are midline diastemas, disordered eruption of adjacent permanent teeth, and primordial or follicular cysts with bone destruction [1–3]. Supernumerary teeth reportedly induce resorption of the roots of adjacent teeth and of the surrounding bone [2], but resorption of the supernumerary tooth itself has never been reported.

Root resorption is a condition associated with either physiologic or pathologic processes that cause the loss of cementum and dentin. It sometimes occurs with intrapulpal infection, orthodontic tooth movement, adjacent-tooth impaction, tooth injury, or the presence of a tumor [4].

In addition, root resorption is a physiologic event for the primary teeth. The deciduous root is resorbed physiologically as the permanent successor erupts. The roots of primary teeth, which are congenitally missing permanent successors, are resorbed as well [6]. The mechanism of physiological resorption is unclear [7] but may include tissue pressure associated with the eruption of permanent teeth, mechanical-occlusal trauma, and/or inflammation resulting from these conditions.

Resorption of the root surface is caused by odontoclastic/osteoclastic cells. During the resorption process, all root

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