

## A case of odontoma that caused delayed eruption of mandibular first permanent molar

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**Abstract** We experienced a case of odontoma which appeared in the molar region of left mandible and caused delayed eruption of the mandibular left first permanent molar. The tumor aggregate surgically excised was examined clinicopathologically with respect to the appearance, conditions of the adjacent teeth, radiological findings, histopathological findings, postoperative course and others. Findings of excised aggregate:

- 1) The small masses excised weighed a total of 4.835 g. Each small mass was yellowish brown, with an uneven surface covered by a membrane.
- 2) A radiograph showed radiopaque images corresponding to the aggregate of the small masses.
- 3) Histopathological examinations revealed a mass of dental hard tissue in an irregular arrangement. The mass was composed mainly of dentin with a clear tubular structure. The dentin was surrounded sporadically by enamel, cement and a small amount of pulp tissue, resulting in a diagnosis of complex odontoma.

In our case, no relapse has been observed, and the prognosis is excellent. The bulge in the molar region in left side of the mandible has disappeared, and the eruption and root formation of the first permanent molar are in progress.

### Key words

Complex odontoma,  
Delayed eruption

### Introduction

Odontoma is a lesion where the dental hard tissue shows hamartomatous proliferation, resulting in radiologically and pathologically characteristic findings<sup>1-3</sup>). In addition, odontoma is said to be frequently accompanied by dental impaction or loss<sup>4</sup>). We observed a case of odontoma which appeared in the molar region of the left mandible and delayed eruption of the first permanent molar. The tumor aggregate surgically excised was examined clinicopathologically with respect to appearance, condition of the adjacent teeth, radiological findings, histopathological findings, and postoperative course.

### Case report

The patient was 6-year-old-boy. The chief com-

plaints were delayed eruption of the first permanent molar in the left side of the mandible and dental caries. There was no relevant medical or family history.

### History of present illness

The patient visited a nearby dentist regarding the delayed eruption of the first permanent molar in left side of the mandible as the chief complaint. An orthopantomogram taken by the dentist revealed a radiopaque image in left angle of the mandible. Thus, the patient was referred to our department.

### General findings

Both physical and nutritional status were excellent. There were no other remarkable findings.

### Extraoral findings

Right and left facial expressions were almost symmetrical. There were no other remarkable findings.

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Fig. 1 Intraoral view at the first visit

### Intraoral findings

Three first permanent molars were erupted except one in left side of the mandible (Fig. 1). Elongation was observed in the first permanent molar in left side of maxilla. The condition of the dentitions was as follows: Hellman's dental age of IIC; overbite of 2.9 mm; overjet 4.9 mm; and bilateral distal step type terminal planes. Crown diameters were slightly larger than normal, while both the width and length of the dental arch were normal. A slight, painless, bony, hard bulge was observed in the molar region of the left mandible. The surface mucosa was almost normal, without redness, excessive warmth, pressure pain, or sensory paralysis. No loosening was observed in the first and second primary molars.

### Radiological findings

The orthopantomogram showed the radiopaque image, which was outlined by an ovoid form, from the distal part of the second primary molar in the left side of the mandible to the mandibular angle. It also revealed an impaction of the first permanent molar in left side of the mandible (Fig. 2). No germ of a

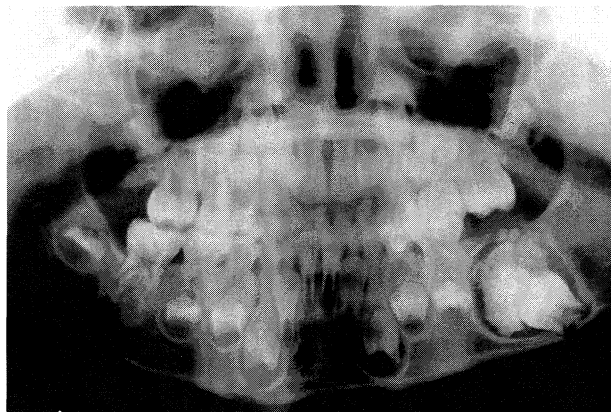


Fig. 2 Orthopantomograph at the first visit



Fig. 3 Occlusal radiograph at the first visit



Fig. 4 Dental radiograph at the first visit

second permanent molar was observed in left side of the mandible. On the occlusal radiograph of the mandible, a buccolingual bulge was observed in the left molar region (Fig. 3). The dental radiograph showed impaction of the left first permanent molar (Fig. 4).



Fig. 5 Photograph of the excised aggregate

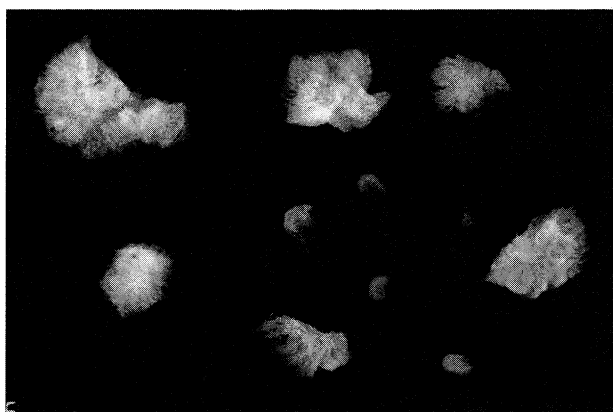
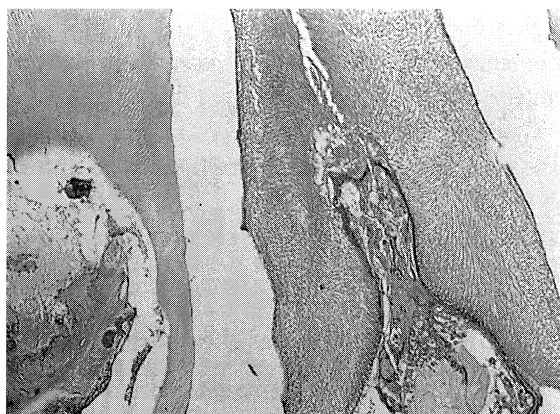


Fig. 6 Radiograph of the excised aggregate



a



b

Fig. 7 Micrographs of the excised aggregate

a: H&E, Original mag. 40×

b: H&E, Original mag. 200×

### Findings of clinical examinations

General examinations and blood tests revealed no remarkable findings.

### Clinical diagnosis

A hard tissue-forming tumorous lesion was suspected.

### Treatment and course

#### (from admission to discharge)

Intraoral excision of the tumor was performed under general anesthesia. The tumor was located in the region between the distal part of the second primary molar in left side of the mandible and the angle of mandible. The mandibular canal was dislocated downward. Only the tumor was excised and the first permanent molar in left side of the mandible was preserved.

### Findings regarding the excised aggregate

The small masses excised weighed a total of 4.835 g. Each small mass was yellowish brown, with an uneven surface covered by a membrane (Fig. 5). The radiograph showed radiopaque images corresponding to the aggregate of the small masses (Fig. 6).

### Histopathological findings

Histopathological examinations revealed a mass of dental hard tissue in an irregular arrangement. The mass was composed mainly of dentin with a clear tubular structure. The dentin was surrounded sporadically by enamel, cement and a small amount of pulp tissue, resulting in a diagnosis of complex odontoma (Fig. 7).

### Discussion

Odontoma accounts for about 17% of all odonto-

genic tumors<sup>1)</sup>. Odontoma is classified into two types, compound and complex. Histologically, complex odontoma is most common and can be rather easily distinguished from other odontogenic tumors. Radiologically, however, it is necessary to carefully examine the radiopacity and the structure of tumor, as described by Higuchi *et al.*<sup>4)</sup> There are no established theories regarding the causes of odontoma<sup>1)</sup>. Odontoma is accompanied by impacted teeth in many cases<sup>3)</sup>, and a relation to the formative period of permanent teeth has been suspected due to the usual age of onset.

In our case, no germ of a second molar was found in left side of the mandible, while delayed eruption was observed in the first molar, suggesting a relationship between the odontoma and the tooth germ formation of the permanent teeth.

The frequency of complex odontoma is highest in the mandible, according to Higuchi *et al.*<sup>4)</sup> and Abe *et al.*<sup>5)</sup>. On the other hand, Kameyama *et al.*<sup>6)</sup> reported the frequency in different regions as follows: 71.7% for molars; 22.6% for anterior teeth; and 5.7% for premolar. Abe *et al.*<sup>5)</sup> also reported the molar region as the site most susceptible to odontoma.

Many reports have found that odontoma is most frequently detected in teen-agers<sup>3-8)</sup>. In addition, according to some reports, the opportunity to detect odontoma in children is associated with delayed eruption of the permanent teeth or prolonged retention of the primary teeth<sup>9)</sup>. These observations are thought to be based on the relationship between formation of the permanent teeth and the age when patients visit their dentists.

Kuroyanagi *et al.*<sup>10)</sup> have reported that odontoma is accompanied by impacted teeth, or *vice versa* in 63% of cases. In our case, odontoma caused the impaction and malposition of the first permanent molar in the mandible.

With respect to prognosis of odontoma, excision alone appears to prevent relapse<sup>11)</sup>. In our case as well, no relapse has been observed with excellent prognosis. The bulge in the molar region in left side of the mandible has disappeared, and eruption and root formation of the first permanent molar are in progress. The denture was placed to prevent the

elongation of the antagonistic first permanent molar, and the course of recovery is under observation. Early detection and timely excision of odontoma are usually lead to the spontaneous eruption of tooth<sup>9)</sup>. In our case, if the subsequent observation reveals no eruption of first permanent molar in left side of the mandible, we will perform the fenestration and attempt the traction of the tooth.

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