

Case Report

## Talon cusp in maxillary primary central incisor identified in 11-month-old boy

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**Abstract** An 11-month-old boy with a talon cusp in the maxillary right primary central incisor is reported. The patient came to our hospital with an abnormal tooth morphology. An intraoral examination showed that 8 teeth had emerged into the oral cavity, among which 1 tooth was identified with the cusp-like structure on the palatal side that extended from the cingulum to the incisal edge and appeared to be T-shaped in the occlusal view. The incisal edge of the affected tooth was displaced labially and the cusp-like structure was located in the dental arch. Since there were no signs or symptoms to be treated immediately, we decided to carry out periodical examinations. As the patient aged, the height of the cusp decreased. The horn-like extended pulp space was identified in radiographs taken at the age of 3Y0M and 5Y5M. There have been no other signs or symptoms of the affected tooth, except for labial displacement, during the 4.5-year follow-up period.

**Key words**

Displacement,  
Primary tooth,  
Talon cusp

### Introduction

A talon cusp is a tooth developmental anomaly characterized by the presence of an accessory cusp-like structure projecting from the cingulum of an anterior tooth. It has been identified in both of the primary and permanent teeth, and approximately 75% of published studies reported cases in permanent dentition<sup>1)</sup>, while the distribution frequency in primary dentition has been reported to range from 0.06% to 7.7%<sup>2)</sup>. In our previous analysis of 905 Japanese children, we found 7 with talon cusps in maxillary primary lateral incisors, maxillary primary canines, and mandibular primary canines, for a frequency of 0.6%<sup>3)</sup>.

Talon cusps are classified into 3 types based on the degree of cusp formation and extension; Talon, Semi-talon and Trace talon types<sup>1)</sup>. A tooth with the cusp extending at least half the distance from the cemento-enamel junction to the incisal edge is

classified as the Talon type, while the Semi-talon type represents those with a cusp that extends more than 1 mm, but is lower than the height of the Talon type, and the Trace talon type represent a tooth with an enlarged or prominent cingula in any of its variants originating from the cervical third of the root.

Herein, we present a case of a talon cusp identified in the maxillary primary central incisor of an 11-month-old boy along with clinical features and also discuss possible complications of such cases.

### Case Report

An 11-month-old boy was brought to the Department of Pediatric Dentistry in Osaka University Dental Hospital, as his parent had noticed the abnormal morphology for the maxillary right primary central incisor and hoped to receive a precise examination of the tooth. Our initial intraoral examination showed that there were 8 teeth emerged into the oral cavity, among which a cusp-like structure was identified on the palatal side of the maxillary right primary central incisor. The structure extended from the cingulum

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Received on November 18, 2007

Accepted on June 10, 2008

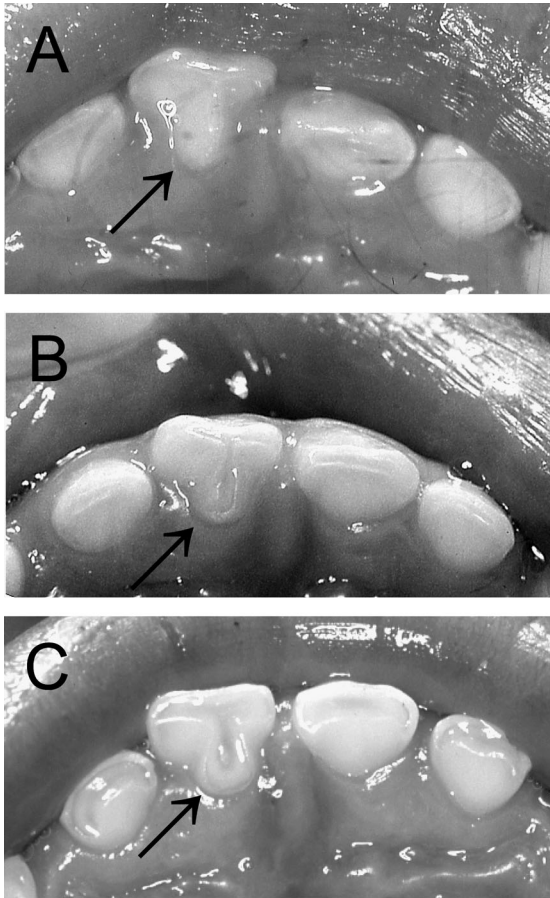


Fig. 1 Talon cusp identified in maxillary right primary central incisor  
Arrows indicate the affected tooth. (A) 1Y7M. (B) 3Y0M. (C) 5Y5M.

to incisal edge and appeared to be T-shaped in the occlusal view. The incisal edge of the affected tooth was displaced labially and the cusp-like structure was located in the dental arch. There were no abnormal signs or symptoms caused by the tooth.

The patient was born following premature labor (36 weeks of gestation), though he had no medical disorders. In addition, none of his family members were reported to be affected by an abnormal tooth morphology. Since there were no signs or symptoms to be treated immediately, we decided to carry out periodical examinations. At the age of 1Y7M, an intraoral examination showed a reduction in height of the cusp (Fig. 1A). At 3Y0M, the reduction of the cusp was prominent and its height was less than half of that noted at the first examination (Fig. 1B). Further, a radiographic examination showed that there were no supernumerary teeth and only the

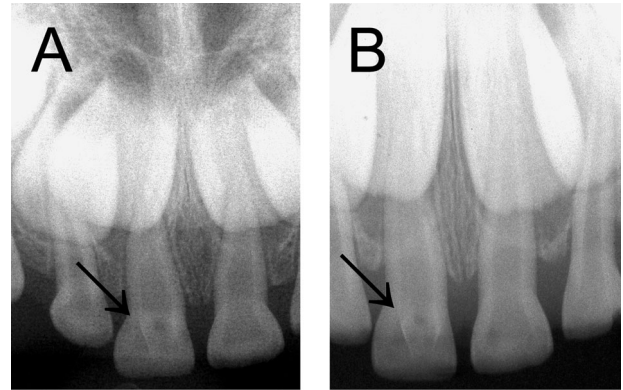


Fig. 2 Periapical radiographs of maxillary primary incisor region  
(A) 3Y0M. (B) 5Y5M.

cusp-like structure with a horn-like extended pulp space was identified (Fig. 2A). At 5Y5M, the height of the cusp had not changed (Fig. 1C) and a radiographic examination at that time revealed an extended pulp space (Fig. 2B).

## Discussion

There have been a number of reports of talon cusps, most of which occurred in permanent dentition. On the other hand, talon cusps in primary dentition have been frequently identified in Asian populations<sup>4</sup>. To our knowledge, there are only 2 cases of children aged less than 1 year old reported, in which bilateral and unilateral talon cusps were identified in Taiwanese boys aged 10 months and 9 months, respectively<sup>5</sup>. The parent of the former patient brought him to the hospital after noticing a strange shape in the oral cavity, while in the latter case extra teeth were noted on the palatal side. In the present case, the parent noticed an abnormal tooth morphology of the unilateral primary central incisor at the age of 10 months. Since talon cusps are reported to vary widely in shape, size, structure, location, and site of origin<sup>1</sup>, the clinical appearance would also be variable, especially just after emergence into oral cavity. Clinicians should keep in mind that a talon cusp is a possible abnormality in that area, even during early childhood.

Although there are several cases reported talon cusps identified at an early age, none have described longitudinal follow-up examinations of the affected tooth. We followed the present patient for approximately 4.5 years. The cusp was considered to be a

Talon type, according to the classification of Hattab *et al.*<sup>1)</sup>, based on its T-shape in the occlusal view seen at the first examination. On the other hand, reduction in height of the cusp gradually progressed and the occlusal view of the affected tooth had changed into a Y-shape by the age of 3 (Fig. 1B).

Possible complications of a talon cusp are reported to be displacement of the affected tooth, caries lesion in the developmental groove, and irritation of the tongue during speech and mastication, though many cases without any signs or symptoms have been reported<sup>1)</sup>. When severe functional disturbance or esthetic problems occur, clinical intervention, such as a slight reduction of the tip of the cusp or even extraction of the affected teeth, should be considered<sup>6)</sup>. Most cases with a talon cusp identified in primary central incisors showed displacement of the affected teeth<sup>5,7)</sup>. In the present case, labial displacement of the affected tooth was noted, which was estimated to be caused by contact of the cusp with the incisal edge of the mandibular incisor. Although his parent felt uneasy about the condition, no treatment was recommended, since the affected tooth was a primary tooth and would exfoliate at an early age.

Associations of a talon cusp with other dental anomalies and variations have been reported<sup>1,8)</sup>. In contrast, there were no findings of tooth anomaly except for the affected tooth based on visual oral examinations in our case. Further, there were no abnormal findings in the permanent successors seen in periapical radiograph images taken at the age of 5Y5M. Recently, talon cusps appearing in primary maxillary lateral incisors were speculated to be associated with a high percentages of anomalies in the permanent successors<sup>9)</sup>. Therefore, we intend to continue careful observations regarding this point in future periodical examinations.

Dens evaginatus is defined as an extra cusp or tubercle that protrudes from the occlusal surface of an affected tooth, with a talon cusp one form of dens evaginatus found in the anterior region<sup>10)</sup>. Since a fracture or attrition of the cusp may lead to pulpal involvement, prophylactic restorative method to reinforce the cusp by composite resin is recommended<sup>11)</sup>. As for the talon cusp itself, it is possible that restorative reinforcement would be effective, especially in cases in which the opposing tooth has strong contact with the affected tooth. In addition,

that preventive technique should be used in cases with a high cusp (Talon type in classification of Hattab *et al.*<sup>1)</sup>).

In the present case, the cusp had reached the incisal edge at the first examination, though the height decreased gradually as the patient aged, which was considered to be caused by attrition. Although his parent is uneasy regarding the esthetic problems caused by labial displacement of the affected tooth, we consider it better to perform no intervention until it is replaced by a permanent successor.

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