Talon cusp affecting the primary maxillary central incisors in two sets of female twins: report of two cases

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Talon cusp refers to a cusp-like structure projecting from the cingulum area of a maxillary or mandibular anterior tooth. Shafer et al.[1] and Mellor and Ripa[2] reported that talon cusp is uncommon and occurs in maxillary and mandibular permanent incisors. Most cases of the anomaly have been reported in the permanent dentition. Ninety percent of the talon cusps occur in anterior permanent teeth, and 91% of the affected teeth are in the maxilla.[2–4] However, Henderson[4] first described a case in a primary maxillary incisor. The affected tooth was a maxillary left central incisor. In 1987, Morin[5] reported a case of talon cusps affecting both primary maxillary central incisors.

Talon cusps are particularly susceptible to caries due to the presence of developmental grooves or fissures at the junction of the cusp and the lingual tooth surface.[2, 4] Talon cusps have been reported to contain a pulp horn.[1, 2, 4] They have a multifactorial etiology combining both genetic and environmental factors.[6, 7] This anomaly may be due to hyperactivity of the dental lamina, which occurs most commonly in the anterior region.[3] An increased incidence of talon cusp has been reported in Mohr syndrome[8] and Rubinstein-Taybi syndrome.[9]

This report describes cases of two sets of twins (from two families) of talon cusp affecting the primary incisors.

Case report 1

Twelve-month-old Taiwanese twins visited the Dental Department of Taichung Veterans General Hospital, Taiwan. One sister (case 1a) had a complaint of traumatic injury to the left maxillary incisor that occurred 5 days before the visit. Neither patient's medical history was remarkable. Normal soft tissue and development of the primary dentition with a large overjet was found in both girls. Both maxillary incisors of the younger sister exhibited a well-defined lingual cusp (Figs 1, 2). The maxillary left incisor of the older sister (case 1b) showed a well-defined talon cusp (Fig 3). Radiographic examination suggested that the talon cusps were composed of normal enamel and dentin and contained a horn of pulp tissue (Figs 2, 3). No family members had a history of

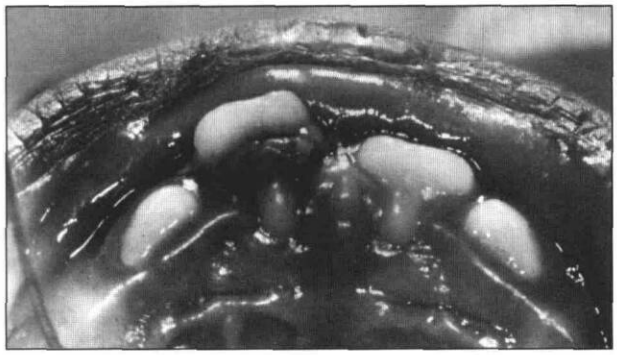

Fig 1. Case 1a. Talon cusps affected both maxillary incisors. Crown fracture with pulp exposed of maxillary left central incisor (mirror view).

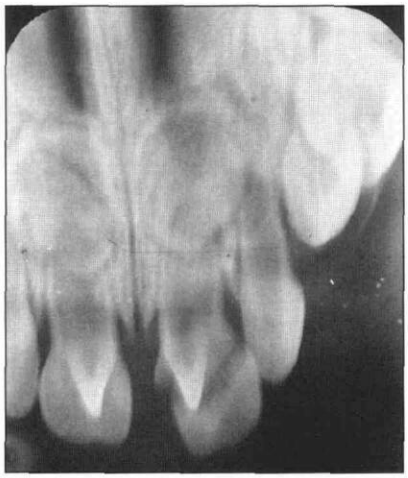

Fig 2. Periapical radiograph of case 1a.

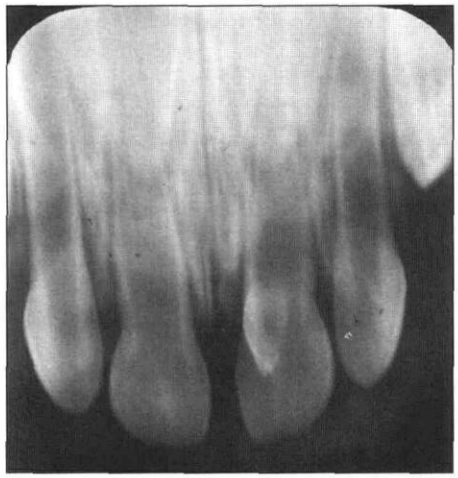

Fig 3. Periapical radiograph of case 1b. Talon cusp affected maxillary left central incisor.

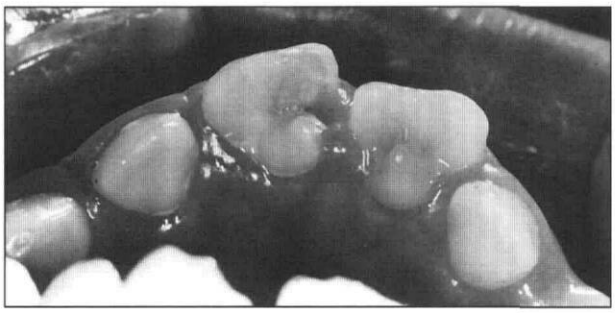

Fig 4. Case 2a. Talon cusps affected both maxillary incisors.

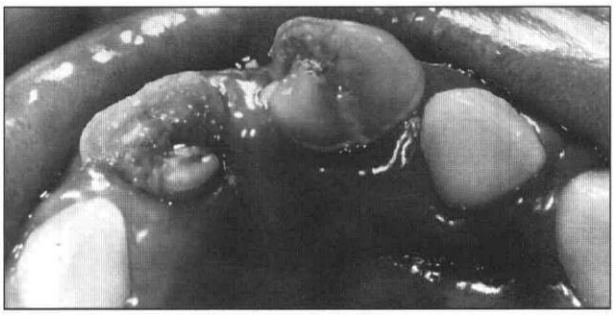

Fig 5. Case 2b. Talon cusps affected both maxillary incisors. Severe decay of both maxillary incisors was noted.

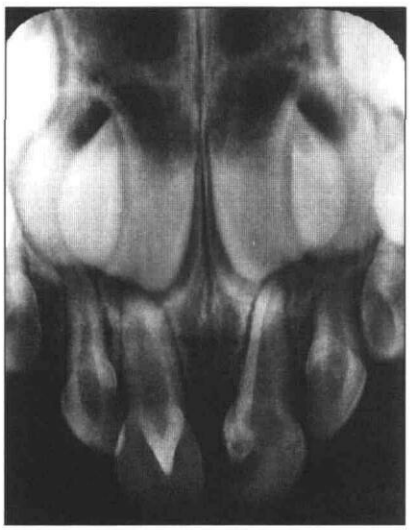

Fig 6. Periapical radiograph of case 2a.

Fig 7. Periapical radiograph of case 2b.

this anomaly. The traumatized maxillary central incisor was extracted due to a complicated crown fracture and pulp necrosis (Figs 1, 2), and sealant was applied to the maxillary right central incisor.

Case report 2

Two 3-year, 6- month-old Taiwanese girls visited the Dental Department, Taichung Veterans General Hospital on February 19, 1994, due to dental caries (case 2a, 2b). Both medical histories were unremarkable. Oral examination of both girls revealed normal primary dentition development with a large overjet. Both children had maxillary incisors with talon cusps (Figs 4, 5). The incisors had caries, which was treated with restoration or extraction. Radiographic examination suggested that the talon cusps were composed of normal enamel, dentin, and a horn of pulp tissue (Figs 6, 7). The permanent incisors were normal in shape and size in both children. No family members had a history of this anomaly.

Discussion

Talon cusps are rarely found in the primary dentition. Less than 10% of the reported cases have occurred in primary teeth.[2,10,11] These four cases occurred in girls, in the primary dentition, and in twins from two different families. This may imply that talon cusp is of genetic etiology.

Due to the deep lingual grooves of talon cusps, caries susceptibility is high. Henderson[4] recommended prophylactic sealing of the grooves as a preventive measure. In the twins in case 2, all of the talon cusp incisors showed caries. Bottle feeding had not been stopped until 3 years old, which may be one reasons for the caries. In case 1 caries was not found with the talon cusps, but these patients were quite young. Sealant was applied to the lingual grooves to prevent caries. Early diagnosis is important for proper treatment.

Talon cusps have been reported to contain an extension of the pulp.[2,4] In our four patients, the extension of the pulp into the talon cusp was noted radiographically. The talon cusps extended more than half the distance from the cementoenamel junction to the incisal edge. The absence of pulp extension also has been reported, suggesting that pulpal horns are not a routine finding in talon cusps.[12]

Occlusion may be altered by the presence of a talon cusp, particularly when it occurs in a maxillary tooth.[10,11,13,14] All four of the cases showed a large overjet, which may due to the talon cusps. To eliminate occlusal interference in the presence of a talon cusp, the affected tooth may be displaced labially. In case 2, bottle feeding had not ceased until age 3 years, and pacifier sucking habit had not ceased until 3 1/2. The twins in case 1 had no pacifier sucking habit, but were still on the bottle. The feeding habit and pacifier sucking may also have contributed to the large overjet and open bite.

Treatment modalities of talon cusp[2,4,10,14] have included gradual, periodic reduction of the cusp with fluoride as a desensitizing agent; single appointment reduction with and without pulp therapy; sealant for

developmental grooves; and partial reduction with camouflage. In addition, orthodontic correction has been necessary.

A review of the literature[4–6, 11, 12, 15, 16] revealed that 17 cases of talon cusps in primary dentition have been reported previously (Table). Including the present cases, a total of 21 cases of primary talon cusp have been reported. Of these 21 cases, 16 were of Chinese origin (Table). The prevalence of primary talon cusp in Chinese may be higher than other ethnic groups. Chen[16] suggests that talon cusps may be seen in primary incisors of Chinese children as frequently as in their permanent incisors. The authors agree, but feel further investigation is needed to confirm this suggestion.

TABLE. CASES OF TALON CUSP IN PRIMARY DENTITION

Author	*Year*	*Number of Patients*	*Ethnic Origin*
Henderson[4]	1977	1	Filipino
Mass[15]	1978	1	?
Natkin[12]	1983	1	?
Mader[11]	1981	1	Caucasian
Davis & Brook[6]	1986	6	Chinese
Chen & Chen[16]	1986	6	Chinese
Morin[5]	1987	1	Hispanic
Liu	1995	4	Chinese
Total		21	

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