Y-shaped Lower Bilateral Incisors A Previously Undescribed Oral Malformation

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(Received 22 December 1994 and accepted 22 February 1995)

Key words: Y-shaped teeth, labial talon cusp, bilateral lower incisors

Abstract

A case of Y-shaped lower bilateral central incisors found in an 18-year-old Japanese man is reported. Each of the central incisors had an abnormally high cusp located at the labial surface. The cause of this malformation of the lower central incisors is obscure, but we suspect that it was due to hyperplasia of the labial surface of the central lobe of the incisor during tooth development.

Introduction

Abnormal or accessory cusps are found occasionally on the labial surface of the anterior teeth. The most common form of abnormal cusp is a prominent lingual cingulum, and a markedly enlarged lingual cingulum is known as a talon cusp^[1] because of its resemblance to an eagle's talon. In the case of a talon cusp, an additional connection with the incisal edge produces a T-shaped crown contour of the upper incisor or a Y-shaped lower one^[2]. It is exceedingly rare for abnormal cusps to exist on the labial surface of an incisor, especially in the lower jaw.

We report a case of Y-shaped permanent lower incisors which occurred bilaterally. This is the first reported case of lower permanent incisors with a labial cusp.

Case Report

The patient, an 18-year-old Japanese man, was referred to the oral surgeon of Iwate Medical University with mandibular fracture caused by a traffic accident. He gave a history of iron deficiency anemia 3 years previously, which had been resolved by medication. The mandibular fracture was cured completely by surgical treatment. Intraoral examination on admission revealed Y-shaped bilateral lower central incisors. A markedly developed, longitudinally oriented cusp blended with the labial surface of the incisor, resulting in a Y-shaped occlusal view (Figs. 1 and 2). There were prominent vertical grooves at the junction between the labial cusp and the labial surface of the tooth. Dental plaque with black-brown pigmentation occurred in the cervical area and around the well developed labial cusp. A moderate degree of attrition at the incisal edge of Y-shaped teeth was also seen. Roentgenographic examination revealed that the Y-shaped teeth had roots of normal shape and length. Although there was crowding of the mandibular anterior teeth, there were no remarkable changes macroscopically and radiographically in the teeth except for the lower central incisors with the Y-shaped crown contour.

Discussion

The talon cusp is an anomalous cusp-like structure projecting from the lingual cingulum area of the upper or lower anterior teeth, and is defined as extending at least half the distance from the cemento-enamel junction to the incisal edge^[3]. It is commonly seen in upper permanent incisors, and is rare in lower perma-

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nent incisors^[4] or deciduous teeth^[5]. Only a few cases^[6-8] of high abnormal cusp on the labial surface of the anterior teeth have been reported, and these are named "labial"^[6] or "facial" talon cusps^[7]. The present patient had a high abnormal cusp on the labial surface of both lower central incisors.

Characteristic developmental grooves have been observed on the lateral aspects between the abnormal cusp and the tooth surface in both talon cusp and labial talon cusp.

A few investigators have reported that some patients with Rubinstein-Taybi syndrome^[9] or Mohr syndrome^[10] have multiple talon cusps. A labial talon cusp and multiple talon cusps have been reported in a child with incontinentia pigmenti achromians^[6,11]. Furthermore, dental anomalies have been seen in patients with talon cusp^[3]. In the present case, no general abnormalities in the oral and maxillofacial region could be seen.

Davis^[12] and co-workers, have suggested that talon cusp is related to genetic and environmental factors, or racial differences. In addition, a talon cusp may be the result of an outfolding of the enamel organ during tooth development^[13], hyperplasia of the dental lamina^[12,14], may be of hamartomatous origin^[11]. The anterior teeth are composed of four developmental lobes. If each lobe has a potential for hyperplasia during tooth development, the central, mesial or distal lobe may form a protrusion or accessory cusp. Snyder^[15] has reported a "mesial marginal ridging" of the incisor labial surface in prehistoric Arizona indians. Schulze^[2] has reported a mesial abnormal cusp on the labial surface of the upper canine. We suspect that the labial talon cusp in the present case may have been hyperplasia of the labial central lobe, though proof of this must await accumulation of further information from reports of other examples.

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Fig. 1 Labial view of the lower incisors.

Fig. 2 Occlusal view of the lower incisors (mirror image)