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Case Report

Intrusion of bilateral maxillary incisors with displacement of the labial alveolar cortical bone and a deformed nostril

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ABSTRACT

Maxillary central incisors are most commonly luxated during oral and maxillofacial trauma in children. In this paper, we describe a rare case of intrusion of both maxillary permanent central incisors in a 10-year-old boy who was involved in a traffic accident, resulting in upward displacement of the labial alveolar cortical bone and a deformed nostril. The information obtained from the plain CT images was not adequate, and 3D-CT images were very useful for precise diagnosis. In this patient with mixed dentition, a vacuum-formed splint proved to be effective for the fixation of the luxated teeth.

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1. Introduction

Tooth luxation occurs in many cases of maxillofacial trauma in children [1]. The maxillary central incisors are most frequently luxated [2]. Tooth luxation is frequently accompanied by a fracture of the surrounding alveolar bone [3]. The alveolar bone in the upper anterior region is thin and tends to fracture partially or totally during tooth luxation. But to the best of our knowledge, the entire labial alveolar cortical bone of the luxated teeth rarely exfoliates in one piece. In this paper, we describe a case of intrusion of both maxillary permanent central incisors in a 10-year-old boy who was involved in a traffic accident, resulting in the detachment of the labial alveolar cortical bone toward the piriform aperture and deformity of the nostril.

2. Case report

A 10-year-old boy was brought to the emergency room of our hospital for management of trauma after a traffic accident. He had been hit by a vehicle while riding his bicycle at night, and had fallen down hitting his face on the handle. General examination at the ER revealed no severe neurological and physical symptoms except for facial trauma. He was then referred to us for management of the facial injury. He had no remarkable medical history. On examination, his lower lip wound extended from the skin to the mucosa (Fig. 1A). He could move his jaws without difficulty. His left nostril was deformed flatly and was slightly bleeding but there was no swelling and no tenderness of the nasal bone (Fig. 1B). Both maxillary central incisors showed luxation and were intruded into the sockets with a fracture of the labial alveolar process (Fig. 1A).

On computed tomography (CT) examination in coronal, sagittal, and axial images, both maxillary central incisors were intruded and fracture of the alveolar process was detected (Fig. 2A and B). There was no fracture in other facial bone sites. Three-dimensional (3D)-CT images clearly showed that the dislodged labial cortical bone had moved upward into the piriform aperture (Fig. 2C and D). Deformation of the nostril was caused by the upward displacement of the dislodged bone.

As there was bleeding from the nostril, we referred the patient to an ear, nose, and throat (ENT) specialist for examination of the nasal cavity, and endoscopic examination revealed neither active

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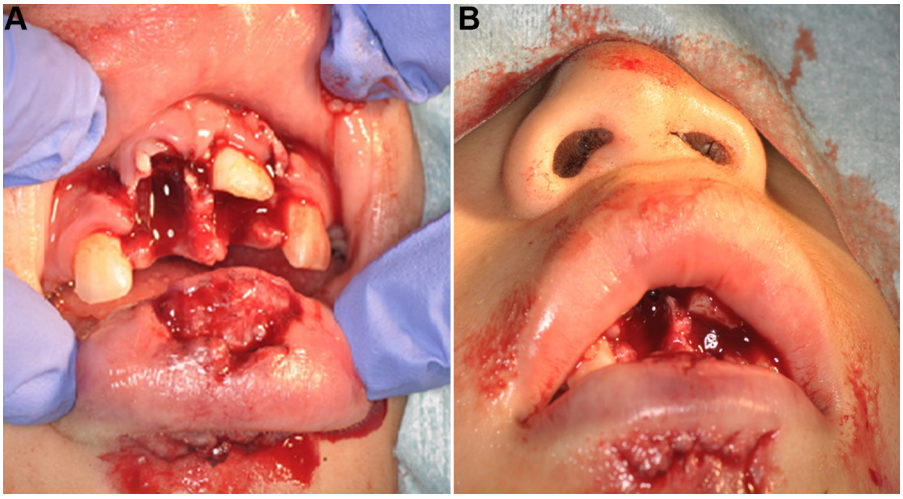

Fig. 1. Clinical view at initial examination. (A) The lower lip wound penetrates from the skin to the mucosa. Both maxillary central incisors were intruded into the sockets with a fracture of the labial alveolar process. (B) The left nostril is deformed.

bleeding nor severe damage in the nasal mucosa. Under local anesthesia the lower lip was sutured, and subsequently the dislodged bone was repositioned. As the intruded teeth obstructed repositioning of the dislodged bone, the teeth was first pulled out of the sockets and immersed in sterile saline, and then the dislodged cortical bone was held with a pean and carefully repositioned until the deformed left nostril improved. Thereafter, the removed teeth were reimplanted in the sockets and the mucosa was sutured. There were no rigid anchoring teeth for fixation, except for the lateral incisors that were relatively stable. Canines had not erupted and only the cusps of the premolars were partially exposed. Therefore, we decided to use a vacuum-formed splint [4]. After temporary stabilization with acid-etch composite resin between the lateral incisors, an impression of the maxilla was taken, and a vacuum-formed splint was made on a plaster model and inserted the next day (Fig. 3A–C). After 3 weeks, pulpectomy of the teeth was performed and 4 weeks later the vacuum-formed splint was removed [5] (Fig. 4A and B). At 6-month follow-up, the

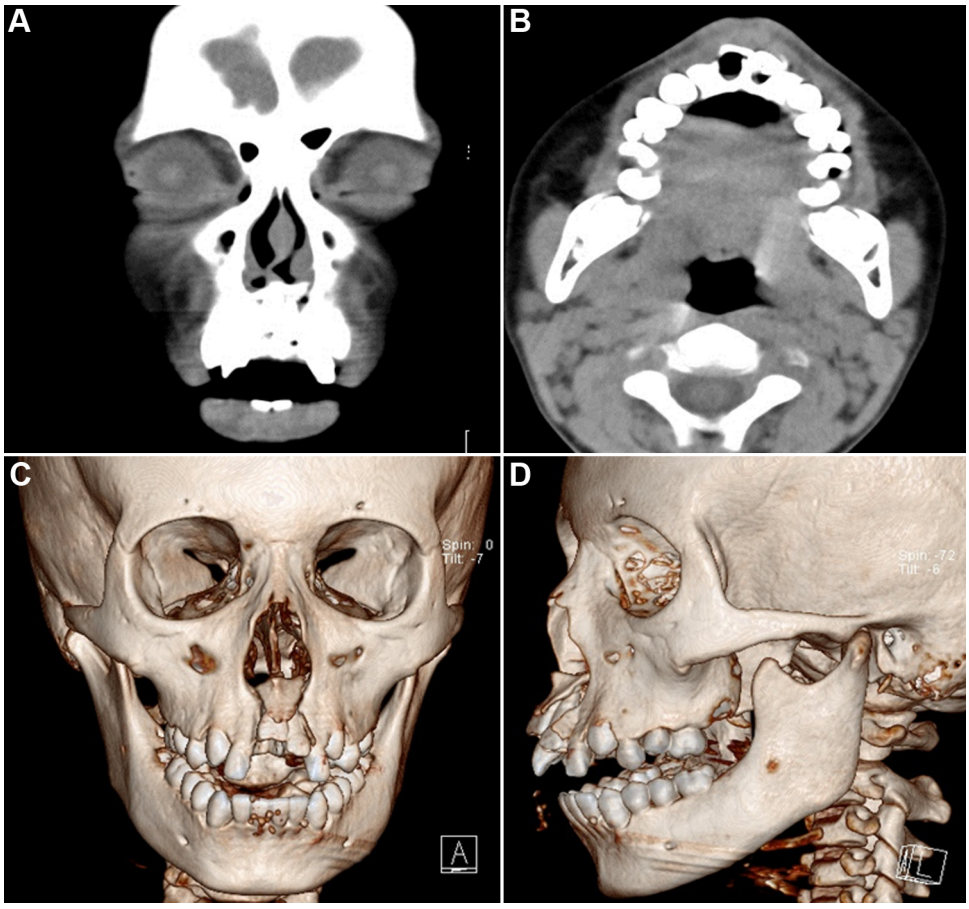

Fig. 2. Computed tomography (CT) images. (A) Coronal image. (B) Axial image. (C and D) 3D-CT images.

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