



Periodontal breakdown and pathologic root resorption of primary molars following traumatic injuries to the chin: case report

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Traumatic injuries to the chin impact facial and oral soft tissues with lacerations, abrasions, and contusions. The anterior segment of the mandible may be fractured as a result of direct impact to the chin.^{1,2} Several reports describe fractures of posterior teeth³⁻⁷ and the mandibular bone at the subcondyle area.⁸⁻¹¹ Kennedy⁶ reports pulp necrosis in a primary molar as a result of indirect trauma to the chin. No report has described the effect of chin trauma to the supporting tissues of molars. This report presents an unusual pattern of resorption attributed to a traumatic injury to the chin.

Case report

History and chief complaint

K.B., a healthy girl, had had regular care since she was 4 years old. At her routine recall examination at age 7, she reported she had been refraining from chewing on the right side for 3 weeks due to sensitivity of the right mandibular teeth. Her parents' report of an injury to the chin 1 month earlier was supported by a scar observed on the child's chin.

Examination

Clinical examination revealed that the mandibular right second primary molar had a minor nontreatable fracture of an amalgam restoration at the marginal ridge. The tooth was sensitive to percussion and exhibited mobility slightly more than physiologic. The surrounding soft tissue was normal, with no swelling, redness, or sensitivity to palpation. Adjacent and opposite teeth were asymptomatic. A periapical radiograph (Fig 1) did not reveal any



Fig 1. A periapical radiograph of the mandibular right primary molar exposed one month after the chin trauma.

suspicious findings, except a slight widening of the periodontal ligament around the mesial root of the mandibular right second primary molar. Re-examination of that area on the previous bite-wing radiograph exposed 5 months earlier (Fig 2) showed class 2 amalgam restorations (placed 3 years earlier) with normal appearance of the teeth, the periodontal ligament, and supporting bone.

Treatment

No further treatment was performed, the patient was dismissed without any special recommendations except oral hygiene instructions, and scheduled for a follow-up examination in 1 month. The patient returned after 6 weeks with both mandibular right primary molars presenting increased mobility and sensitivity to percussion. A sinus tract was observed on the buccal gingival papilla between the primary molars. A periapical radiograph (Fig 3) showed extensive resorption of both roots of the second primary molar and the distal root of the mandibular right first primary molar. A wide periapical lesion with bone loss surrounded the affected primary molars. Both primary molars were extracted and space maintenance instituted.

Discussion

Reports of the effect of traumatic injuries to the chin have been limited to multiple fractures of posterior

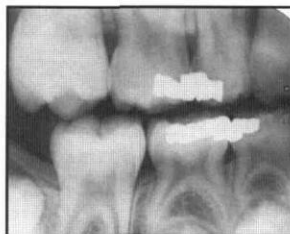


Fig 2. A right side bite-wing radiograph of case exposed at the routine follow-up examination five months before the chin trauma.



Fig 3. A periapical radiograph exposed 11 weeks post trauma. Extensive root resorption of both roots of the second primary molar and the distal root of the first primary molar can be seen.

teeth with or without exposure of the pulp.^{4,5,7} No reports on periodontal breakdown and root resorption of posterior teeth were found in a literature search. This could be due to a low probability of such a complication occurring. Andreasen² stated that trauma to the primary dentition is usually confined to the supporting structures. This statement may apply to the primary incisors. In molars, however, multiple roots and greater root surface lower the probability of severe damage to the periodontal ligament when compared with incisors. This case presented periodontal breakdown that resulted in external root resorption.

Kennedy⁶ described a case of a noncarious primary molar with radiographic interradiolar radiolucency and fistula in a 5-year-old child who had been involved in a car accident. He attributed these findings to a necrotic pulp which resulted from an unnoticed chin trauma. Pulp necrosis as a result of disruption of the blood supply following luxation and subluxation injuries is a common finding in incisors.² These teeth have one root with a single apex and no alternative route for blood supply. The pulp chamber of molar teeth, on the contrary, receives its blood supply through three apices. This may explain the rare condition in which the pulp in molars becomes necrotic due to ischemia. It was suggested that a tooth can have a necrotic pulp and still have no radiographic sign of periodontal involvement, as long as the pulp is not infected.^{2,12} The interradiolar radiolucency found by Kennedy⁶ and in the present case report can be explained by bacterial invasion from the oral cavity through ruptured gingival and periodontal fibers.

A slight widening of the periodontal ligament was observed around the apex of the mesial root of the mandibular right second primary molar 3 weeks after the injury. This should be a warning sign for rapidly progressing process of external inflammatory root resorption.

Children experiencing traumatic injury to the chin in which the mandibular teeth are forced against their maxillary opponents should be observed, as external root resorption and necrosis can occur. Any sign of tooth damage, periodontal involvement, or prolonged

sensitivity should alert the dentist to consider treatment. Success of root canal treatment in primary teeth depends on the amount of preoperative root resorption,¹³ and it is not clear whether it would have been successful in this child at the time of intervention. A conservative treatment (i.e., pulpectomy) could no longer be considered when the extensive root resorption was found more than 2 months after the injury, and the teeth were, therefore, extracted.

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