

Multiple idiopathic root resorption in monozygotic twins: case report

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Abstract

Idiopathic root resorption of the permanent dentition is encountered occasionally during routine dental examinations. A case is presented of this relatively rare condition in monozygotic twins. Examination of siblings and the patients' mother did not show a resorptive process. A 6-month follow-up examination revealed the resorption to be arrested.

External root resorption of the permanent dentition is a condition which is sometimes diagnosed from routine dental examinations. There are multiple causes mentioned in the literature for this condition including trauma (Sussman 1980), periapical inflammation, reimplantation of avulsed teeth, tumors, cysts, and tooth impactions (Shafer et al. 1983). Factors contributing to multiple external root resorption include endocrine imbalances such as hypophosphatasia (Tangney 1979), hyperparathyroidism (Goultshin et al. 1982), and hypothyroidism (Becks 1939), although some of these have come under question (Newman 1975). Orthodontic movement is also a causative factor (Shafer et al. 1983) and perhaps accounts for the greatest number of cases. Rates of external resorption following orthodontic treatment vary and range from 49% (Newman 1975) to 100% (Dougherty 1968). Although genetic predisposition is possible, Newman (1975) failed to find a distinct mode of inheritance, stating that autosomal dominant, autosomal recessive, and polygenic modes of inheritance were all possible in external root resorption.

Those cases of multiple root resorption for which a causative factor cannot be determined are termed idiopathic, and the prevalence of these cases is controversial. Massler and Perrault (1954) showed resorption in at least 4 teeth in all 301 of their cases, yet other authors describe it as a much less common condition (Stafne and Slocumb 1944; Kerr et al. 1970). A sexual predominance is also questionable. Kerr et al. (1970), in a literature review found all cases to be female, and Newman's (1975) study showed a female-to-male ratio of 3.7:1. On the other hand, Nitzan et al. (1981) state a male predomi-

nance in their report, and other isolated cases in the literature have been of men, (Soni and La Velle 1970; Sussman 1980), or male adolescents (Belanger and Coke 1985; Brooks 1986).

Generalized idiopathic root resorption is a rare condition, and this paper adds an additional 2 reports to the existing literature. These 2 cases are unusual in that they involve monozygotic twins, which, in the authors' opinion, is the first such reported case.

Case Report

Two 14-year, 7-month black females were seen at a dental clinic operated by the Virginia Commonwealth University School of Dentistry for routine initial dental appointments. They were accompanied by their mother, who confirmed that they were identical (monozygotic) twins.

The patients had no previous dental experience and their medical history was noncontributory. Head and neck examination of both adolescents was within normal limits. Clinical intraoral examination of both patients revealed a full complement of erupted permanent teeth in good Class I occlusion. No carious lesions were noted clinically. Both patients had mild generalized gingivitis, and pocket depth and tooth mobility were normal.

Radiographically, no carious lesions were found on bite-wing films of twin 1. It was discovered from viewing these films, however, that there was considerable diminution in the root length of the mandibular first molars and second premolars (Fig 1). At this point a radiographic examination was performed on twin 2. As with her twin sister, no carious lesions were noticed radiographically, and the same resorptive process seemed to be taking place (Fig 2).

Because of the unusual resorptive pattern, the twins then were scheduled for panoramic radiographs to determine if this resorption involved any other teeth. The radiographs revealed an almost identical resorptive



FIG 1. Bite-wing radiographs of twin 1, showing diminution of root length of the second premolars and first molars.



FIG 2. Bite-wing radiographs of twin 2, showing the same resorptive process.



pattern in both patients. This resorption involved all maxillary premolars and first molars and all mandibular premolars and molars. A resorptive process involving the maxillary and mandibular central incisors was questionable, but not conclusive from the panoramic radiographs (Fig 3). Twin 2 showed the same generalized resorption pattern, involving all maxillary premolars and all posterior mandibular teeth. Resorption of the mandibular incisors and left canine was also questionable, but an exact determination could not be made from this film (Fig 4, page 78). Because possible etiologic causes could not be found (bruxism, previous orthodontic treatment, trauma, etc.) a diagnosis of generalized idiopathic tooth resorption was made. This information was conveyed to both patients and mother and the patients were reappointed for sealant placement.

At the return appointment, radiographs were obtained from the mother, a younger male sibling, and an older half-sister. None of the other family members showed evidence of a resorptive process. The maternal

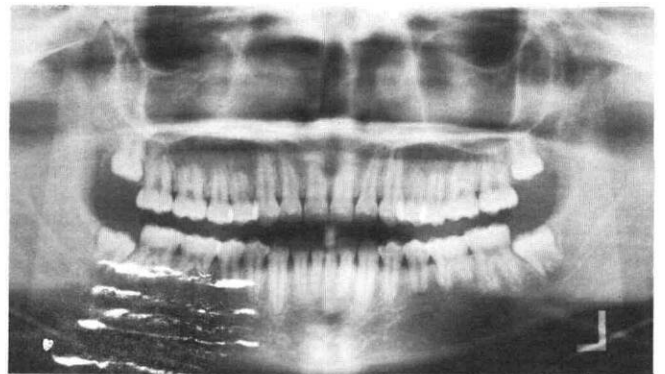


FIG 3. Panoramic radiograph of twin 1, showing generalized root resorption.

grandmother was reported to be edentulous, her teeth "having gone bad" at an early age. The maternal grandfather was no longer living. The patients' father's whereabouts were unknown.

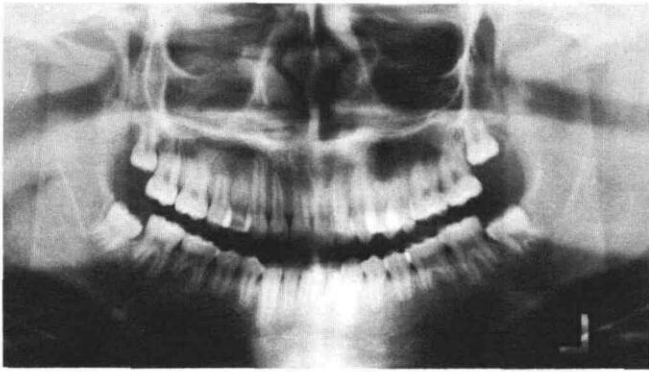


FIG 4. Panoramic radiograph of twin 2, showing the same resorptive pattern.

After sealant placement the twins were reappointed for a 3-month follow-up and advised to contact the clinic if any oral changes were noticed, including soreness or swelling of gingival tissues, pain on eating, and loosening of teeth.

Periapical radiographs taken 6 months following the initial visit revealed that resorption appeared to have ceased.

Discussion

Generalized idiopathic tooth resorption is a rather rare dental condition. This case report describes this unusual condition in monozygotic twins. A genetic component to this anomaly has been described in the literature (Newman 1975) and this report helps to confirm a possible genetic connection, since both twins are afflicted with almost identical resorption patterns. Although local environmental factors cannot be completely dismissed, the striking similarities in both patients point to a genetic likelihood in these 2 cases. The patients will continue to be followed and periapical radiographs taken periodically to monitor radicular changes.

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