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Case Report

Multiple idiopathic cervical root resorptions: report of one case with 8 teeth involved successively

Yin-Hua Jiang[1], Yan Lin[1], Jing Ge[2], Jia-Wei Zheng[2], Ling Zhang[2], Chun-Ye Zhang[3]

[1]Department of Oral and Maxillofacial Surgery, The Sixth Affiliated Hospital of Wenzhou Medical University, Lishui 323000, Zhejiang Province, China; [2]Department of Oral Surgery, Ninth People's Hospital, College of Stomatology, Shanghai Jiao Tong University School of Medicine; Shanghai Key Laboratory of Stomatology, Shanghai 200011, China; [3]Department of Oral Pathology, Ninth People's Hospital, College of Stomatology, Shanghai Jiao Tong University School of Medicine, Shanghai 200011, China

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Abstract: Multiple idiopathic cervical root resorptions is a rare condition which is usually detected as an incidental radiographic finding. It involves more than 3 teeth in the same patient and the etiology remains elusive. Diagnosis and treatment of the defect is still challenging. The present report describes a case with progressive multiple external cervical resorption involving 8 teeth, including the history, clinical and radiographic findings. Treatment included surgical intervention and restoration of the defect. A 3-month reevaluation of the case confirmed a stable, uneventful clinical recovery.

Keywords: External root resorption, cervical lesion, tooth defect

Introduction

Multiple idiopathic cervical root resorptions (MICRR), which can be sorted as invasive cervical resorption, are a rare form of external root resorption with unclear etiology. MICRR occurred mainly in the apical and mid-region of the root, as a result of osteoclastic-type destruction of the root surface. MICRR was first identified in 1930 [1], then 28 cases were reported successively until the latest published literature [2-5].

This article describes a case with multiple idiopathic external root resorptions in a healthy young adult female, involving 8 teeth and leading to the loss of 4 teeth, in whom no cause could be identified or any reason determined for its occurrence.

Case report

A healthy 26-year-old Chinese female attended the dental clinic at the Sixth Affiliated Hospital of Wenzhou Medical University with discomfort of mandibular anterior teeth in February 2012.

Medical and family/social history

The medical history was noncontributory and the patient was healthy, with no record of systemic disease or abnormal blood picture. The patient recalled no history of early tooth loss in parents, grandparents, or siblings. The family had no pets and no close contact with cats.

Dental history and clinical assessment

At the time of first visit, cervical root resorptions were found on the panoramic view in teeth 41, 42 and 43 (**Figure 1**). The distal surface of 41, both mesial and distal surfaces of 42, mesial surface of 43 were involved. The involving teeth were extracted due to the extensive resorption area and replaced with a partial fixed dental prosthesis. The extracted teeth and surrounding tissues were subject to pathological examination and showed normal inflammatory response with no abnormal cell.

The patient revisited us for an unscheduled appointment with complain of biting pain of teeth 44, 45 in July 2013. Radiographic exami-

Figure 1. Panoramic radiograph showed radiolucency at the distal surface of 41, both mesial and distal surfaces of 42, mesial surface of 43.

nation demonstrated a radiolucent cervical lesion at the mesial and distal surfaces of 31, 44, the distal surface of 32, the mesial surface of 45 (**Figure 2**). After excluding systemic diseases, the patient underwent treatment including root canal therapy and cervical soft tissue curettage for 44 and 45. The gingival tissues between 44 and 45 were underwent pathological examination and revealed chronic inflammatory gingival hyperplasia with no evidence of giant cells.

The patient revisited for routine examination in December 2013. Periapical radiographs confirmed small lesion on the mesial surface of 46 (**Figure 3**). On the same month, the patient referred to us for treatment of fracture of tooth 31. The affected tooth was extracted and surrounding gingival tissues were submitted for biopsy (**Figure 4**). A buccal intrasulcular full-thickness flap was raised to remove granulation tissues and expose resorptive defect area of tooth 32. When probing the lesion, a hard and rough surface was detected and a thin layer of predentin was found at the pulp side. The resorptive defect was then debrided and filled with glass ionomer cement (Fuji II LC, GC Dental Suzhou Co., Ltd) (**Figure 5**). The biopsy revealed the pulp of 31 contained degenerated necrosis tissues, part of the resorpted area was covered by new bone tissues.

The patient was scheduled for 3-month dental hygiene recalls and was followed-up until now, without any further complications.

Discussion

Idiopathic cervical root resorption is distinguished by progressive, latent, destructive resorption of cervical root areas [6]. If the lesion involved more than 3 teeth in the dentition, the

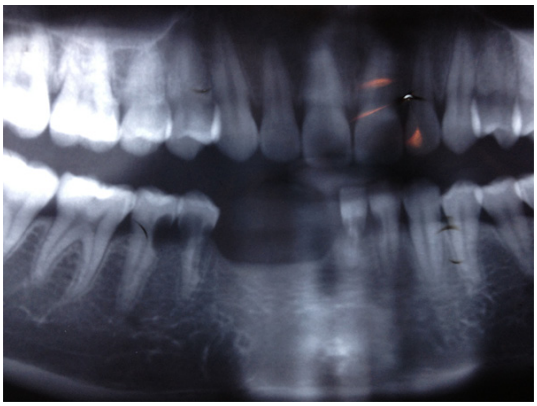

Figure 2. Panoramic radiograph showed both mesial and distal surfaces of 31, 44, the distal surface of 32, the mesial surface of 45 were involved.

patient can be diagnosed as multiple idiopathic cervical root resorption (MICRR). It is relatively rare to find idiopathic cervical root resorption and even more uncommon for multiple idiopathic cervical root resorption in dental clinic [7]. The number of teeth that had cervical root resorption ranged from 5 to 24 per patient. More teeth were involved as the condition progressed. There was no predilection dental region or tooth among the involved teeth. The patient reported here was a 26-year old female, who had 8 teeth involved, which confirmed the fact that MICRR was found most frequently associated with younger females [8]. The reasons remain unclear.

Clinical and radiographic examination

Clinically, the patient will not have any uncomfortable feeling until the defect has become enlarged and encroaches on the pulpal tissue and cause some mild-to-moderate sensitivity. The resorptive condition is often detected by routine radiographic examination. Common external gingival signs include hypertrophy with tissue that bleeds easily upon probing, and the tooth may appear pink because of the proliferation of the gingiva into the resorbed area. When the resorbed area is evaluated with a probe or explorer, a definitive sharp edge can be found at the junction of the affected and unaffected areas of the root as well as a hard surface, unlike the typical softer consistency of dental caries.

Radiographically, imaging of the affected tooth takes on the appearance of an “apple core” if

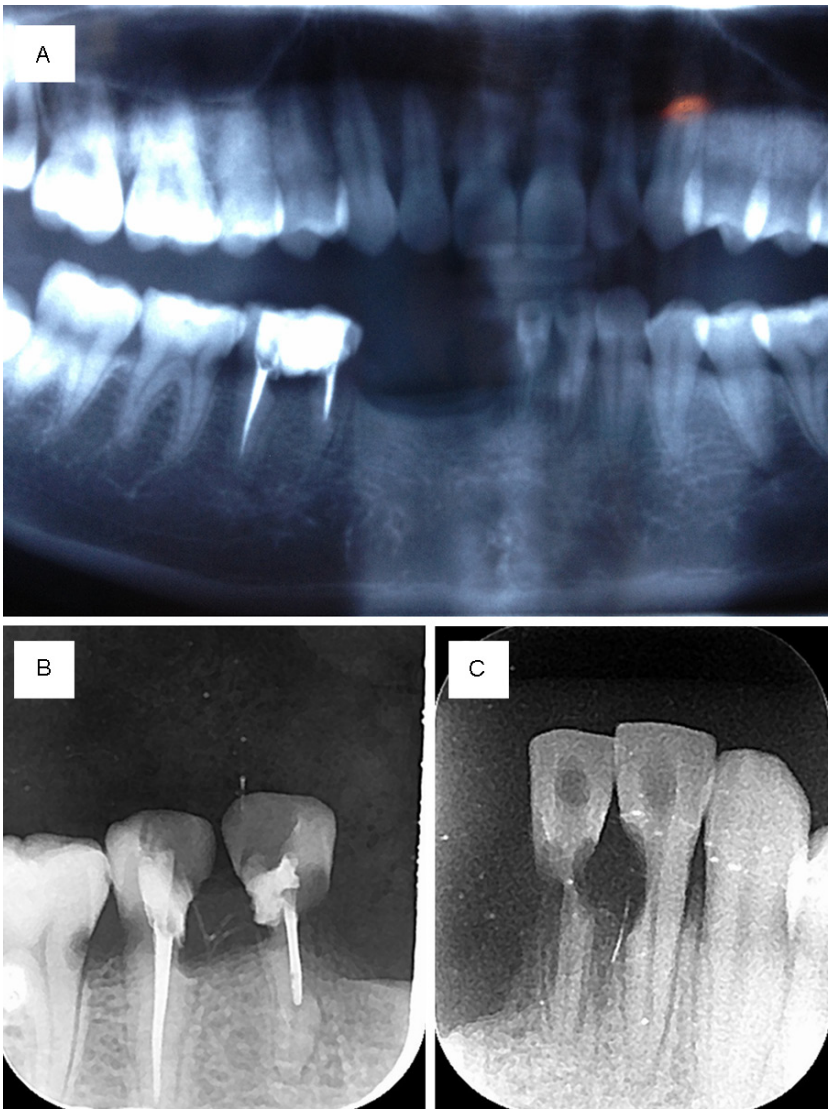

Figure 3. Panoramic radiographs and periapical radiographs of the involved teeth. A. Panoramic radiograph showed radiolucency at the mesial surface of 46. B. Periapical radiographs showed radiolucency at the mesial surface of 46. C. Periapical radiographs showed radiolucency at both distal and mesial surface of 31, mesial surface of 32.

both mesial and distal surfaces are involved. A characteristic radiopaque line generally separates the image of the lesion from that of the root canal [9], as the resorptive cavities are usually shallow and confined to the cementum layer without penetrating deeply into the underlying dentin, the pulp usually remaining protected by a thin layer of dentin until late in the process [10]. As in this patient, the resorbed defect of teeth 32 was covered by a thin layer of predentin on the pulp side, while teeth 44, 45 were at late stage of process and required root canal therapy. As panoramic radiographs and periapical radiographs are two-dimensional images, cone-beam CT is recommended for evaluating cases of multiple idiopathic cervical resorption, especially to determine the extent of lesions on the buccal and linguapalatal surfaces [11].

Clinical classification of invasive cervical resorption depending on the amount of destruction were as follows [9]: class 1 is a small invasive resorptive lesion near the cervical area with shallow penetration into dentin; class 2 is a well-defined invasive resorptive lesion that has penetrated close to the coronal pulp chamber but shows little or no extension into the radicular dentin; class 3 is a deeper invasion of dentin by resorbing tissue, not only involving the coronal dentin but also extending into the coronal third of the root; class 4 is a large, invasive resorptive process that has extended beyond the coronal third of the root.

In the present case, the resorption was exhibiting a progressive pattern, teeth 41, 42 and 43 were first found with class 4, 4 and 3 resorption, then teeth 44 and 45 were found with class 4 and 3 resorption, later tooth 46 was found with class 1 resorption, and teeth 31 and 32 were found with class 4 and 3 resorption at last.

Etiology of multiple idiopathic cervical root resorptions

In recent years, several etiologic factors have been advocated for MICRR. Except for the systemic and idiopathic form, MICRR was strongly

Figure 4. The removed teeth and surroundinginflammatory granulation tissues.

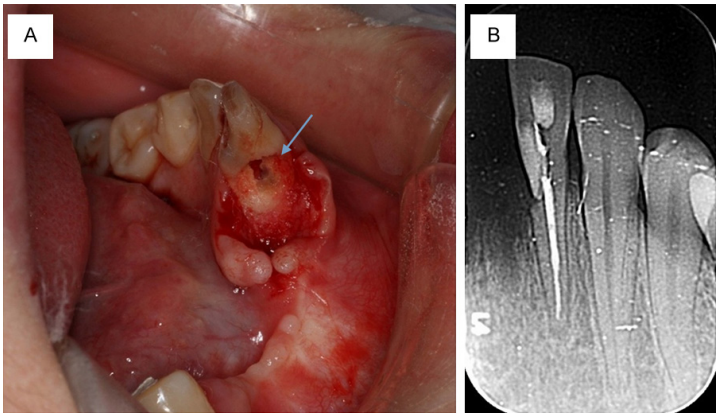

Figure 5. The involved tooth 32. A. Extraction and debridement of tooth 31 exposed the resorptive defect of tooth 32. B. Treatment for tooth 32 included subgingival curettage, root canal therapy and restorative filling.

associated with orthodontic treatment, trauma, and intracoronal bleaching, either alone or in combination [8]. The pattern of resorption begins in the area of the cemento-enamel junction, and progress rapidly over a short time. It has been speculated that it is the result of local damage or alteration of the cervical aspect of the root surface, rendering it susceptible to osteoclasts with resorptive-clastic activity during an inflammatory response of the periodontal ligament to traumatic or bacterial stimulus [12]. Pressure can be another etiologic factor as many cases were involving orthodontic tooth movement, tumors, cysts and impacted teeth. In such cases, resorption tends to cease as soon as the source of pressure is removed [9].

In the present case, there was no obvious etiologic factor identified, and the lesion was considered to be idiopathic form.

Treatment

The prediction and prevention of MICRR are still impossible, and precise diagnosis and treatment are often far from easy, depending on the severity and localization of the defect. The treatment of MICRR often involves surgical exposure of the invaded surface to completely remove the inflammatory tissues, but high failure rate was seen due to recurrence [13]. Exposure of the resorption defect combined with ostectomy has also been advocated to reduce recurrence [14].

For class 1 defect, subgingival curettage combined with restorative filling was recommended. Restorative materials such as amalgam, glass ionomer, resin-modified glass ionomer [15], and mineral trioxide aggregate [16] have been proposed to fill the resorptive area. For class 2 and 3, except subgingival curettage and restorative filling, root canal therapy is necessary if the defect is very close to the pulp and remaining thin dentin layer is at risk of perforation during removal of granulation tissues [10]. It is important for clinicians to consider that this type of lesion may not be an endodontic problem. Careful clinical and radiographic examination of each case can not be too much emphasized since it is important to exclude pulp involvement and preserving the vitality of the pulp. The treatment for class 4 is to com-

pletely remove the involved teeth and inflammatory tissues.

After losing her three mandibular anterior teeth, the patient expressed a strong desire to preserve the tooth and consented to a treatment plan with root canal treatment, periodontal surgery, and filling the defect for teeth 44 and 45. As teeth 31 was at the latest stage of MICRR, surgical extraction was performed. The 3-month follow-up periodontal evaluation showed no periodontal pocket greater than 3 mm, abutment mobility, or bleeding upon probing.

Disclosure of conflict of interest

None.

Address correspondence to: Jing Ge, Department of Oral Surgery, Ninth People's Hospital, College of Stomatology, Shanghai Jiao Tong University School of Medicine, No. 639, Zhi-Zao-Ju Rd., Shanghai 200011, People's Republic of China. E-mail: 2044328567@qq.com

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