

CASE REPORT



An accessory root on the maxillary lateral incisor: Case report

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Abstract

Tooth-related morphological anomalies are local contributors to periodontal disease. Accessory root formation is one of the rare anomalies of in incisor teeth. A 65-year-old male patient who has type II diabetes and hypertension applied to our clinic. Clinical examination has shown that the upper right central incisor tooth had an 8 mm deep periodontal pocket on the distal and a 7 mm deep periodontal pocket on the mesial aspects of the tooth. Accessory root was seen on the mesiobuccal aspect of root of the upper right lateral incisor tooth in coronal portion. The accessory root was excised with surgical operation and the bone defect in the area was regenerated. Post-surgery periodontal healing was uneventful. Periodontal pocket depth decreased to 4 mm on the 4th month after surgery. This case discusses accessory root formation may accelerate the accumulation of dental plaques and subgingival calculus. Thus, early detection of anomalies in root morphology is important in the effective treatment of periodontitis.

Keywords: Accessory root, Periodontitis, Risk factors

Introduction

Periodontitis is an infectious disease that is characterized by periodontal pocket and attachment loss as a result of destruction in the tissues surrounding and supporting the tooth containing the alveolar bone, periodontal ligament, cementum, and gum.^[1] The main etiological agent of periodontitis and other periodontal diseases is microbial dental plaque, also known as biofilm.^[2] Some of the anatomical abnormalities in the teeth are considered to be factors that contribute to periodontal diseases as they increase plaque accumulation.^[3] Accessory root form, usually seen in mandibular canine, premolar and molar teeth, is a rare anomaly in maxillary lateral incisors.^[4-6] It has been reported that accessory root formation may occur as a result of traumatic injury of the Hertwig's epithelial root sheath during the root development or changes in the functions of odontoblasts.^[7]

Case Report

A 65-year-old male patient who has type II diabetes and hypertension applied to Ondokuz Mayıs University, Faculty of Dentistry, Department of Periodontology with complaints of inflammation and mobility in the upper right central incisor tooth. The anamnesis has been showed that the patient was using

antidiabetic, antihypertensive, and antiaggregant drugs. The patient also reported no use of cigarettes and alcohol. The patient was able to provide oral hygiene. At the clinical examination, the probing depth was 7 mm and 8 mm, respectively, on the mesial and distal aspect and bleeding was detected on the probing [Figure 1a]. The mobility of the upper right central incisor tooth was valued as Class II using Miller's mobility index.^[8] The periodontal pocket was not found in other regions. As a result of radiographic examination, vertical bone loss was observed on the distal surface of the upper right central incisor tooth and accessory root could not be detected on the radiography due to superposition. In the retrospective radiography scan of the patient, a periapical film which shows an accessory root was found [Figure 1b].

After Phase I periodontal treatment, scaling and root planning were performed under local anesthesia in the relevant area. To prevent mobility, temporary splinting was performed by attaching the retainer wire with the composites between the upper right canine tooth and the upper left central incisor tooth's buccal surface due to the deep closure. This procedure was also performed to prevent mobility that may increase during and after surgery and to create a stable environment for wound healing. Premature contacts causing occlusal trauma were detected and removed with articulation paper. Surgery for the area was planned 2 weeks

after the initial treatment. On the day of surgery, infiltration anesthesia was applied to the surgical area from the labial and palatal mucosa (Ultracain® D-S Forte 40 mg/ml Epinefrin 0.012 mg/ml). After applying anesthesia, full labial and palatal mucoperiosteal flaps were removed and the presence of accessory root was detected [Figure 2a]. The inflammatory lesion in the bone defect area was cleaned and the accessory root was amputated. After debridement of the bone defect, root planning was performed. No foramen corresponding to the accessory canal was found in the root of the upper right lateral incisor tooth. The cancellous xenograft was placed in the defect area from the labial and palatal aspects and platelet-rich fibrin obtained from 20 cc of blood taken from the patient was placed on the graft to act as a membrane [Figure 2b]. Primary closure of the wound was fixed using a 5-0 propylene suture. For the postoperative infection control 2 times a day for 5 days amoxicillin plus clavulanic acid, 0.15% benzydamine hydrochloride (Augmentin-BID® 1000 mg) and 0.12% chlorhexidine gluconate mouthwash (Andorex®), for pain control dexketoprofen tablet (Arveles Film Tablet 25 mg) was prescribed to patient. Sutures were removed on the 15th day after the operation. In the clinical examination performed on the 4th month after the operation, it was observed that the pocket depths decreased to 4 mm. The gingival color and consistency were healthy; there was no bleeding in the probing [Figure 3a]. Radiographic image shows healing in bone [Figure 3b].

Discussion

Cervical enamel extensions, enamel pearls, and palatal grooves on root surfaces are often considered as co-etiological factors associated with advanced localized periodontal destruction.



Figure 1: (a) Initial clinical view (Before). (b) A periapical radiography showing the accessory root

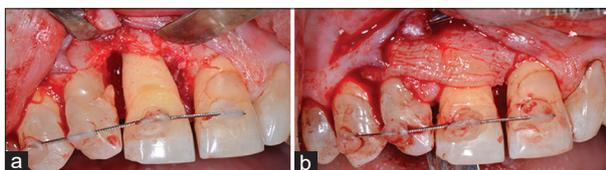


Figure 2: (a) A vestibular appearance of the tooth after reflection of a mucoperiosteal flap (b) platelet-rich fibrin

[9] Accessory roots formation is seen most ordinarily in mandibular canines, premolars, and molars.[10] They are rarely found in maxillary or mandibular incisors.[7,10] In 1984, Kogon informed an accessory root extending from the root of the mandibular central incisor.[11] An accessory lateral canal 1 mm below the cemento-enamel junction was also sighted in this accessory root. In our case, the accessory root originates from the cemento-enamel junction. The etiology of mechanisms underlying the accessory root formation are still incisor and presumed that accessory root formation may have occurred during root development by suffered some traumatic injury of the Hertwig’s epithelial root sheath. Our case is compatible with the literature with the presence of the anomaly in the incisor tooth and having no radicular canals. Yavuz *et al.* reported an accessory root in the distal aspect with a 7 mm periodontal pocket depth of the maxillary lateral incisor.[4] The root canal of the tooth with necrosis was treated, the defect area was cleaned by surgical operation, the accessory root was removed with a drill, and then the defect area was filled with autogenous graft. No perforation was observed on the root surface after drilling and no canal was reported in the accessory root. They reported that the defect site healed on the radiograph which was taken 1 year after surgery. In our case, no channel or any perforation observed after removing accessory root. Du *et al.* identified an accessory root-like structure on the mesiolabial aspect of the root of the upper left central incisor tooth.[6] Due to severe periodontal destruction upper left central incisor tooth was deemed hopeless and extracted. As a result of their histological examination, they reported that dentin tubules show an organized and radial structure in the coronal region and an irregular vortex-like structure in the apical region and no pronounced root canal formation is observed. Saglam *et al.* reported in a 63-year-old male patient with hypertension 6 mm long canal-free accessory root in the mesial aspect of the maxillary lateral incisor.[12] Successful clinical and radiographic improvement were observed as a result of periodontal and endodontic treatments in the tooth with Miller Class II mobility and 7 mm periodontal pocket in the mesial.

Due to accelerating the accumulation of dental plaques and subgingival calculus, the accessory root formation considerably promoted the progression of periodontal disease. Contralateral teeth of the patient should be thoroughly controlled to rule out the presence of similar anatomic anomaly.

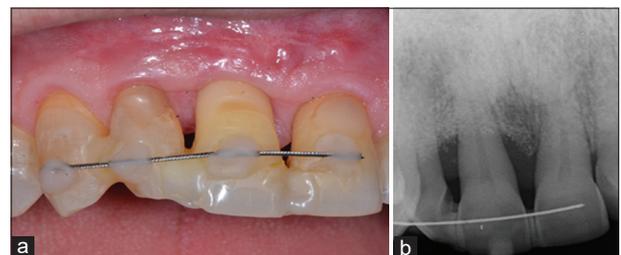


Figure 3: (a) 4 months after treatment clinical view (After) and (b) periapical radiography

Conclusion

When severe localized periodontal destruction is detected in only a single tooth, anatomical structures such as accessory root formation anomalies in clinical and radiographic examinations should not be overlooked and further urgently necessary treatment options must be started.

Clinical Significance

This case report demonstrates a root-like formation on the upper right lateral incisor tooth, which contributed to severe local periodontal destruction. Anatomical anomalies such as accessory root formations in the teeth with localized severe periodontal destruction should not be overlooked in clinical and radiographic examinations and urgently necessary procedures should be initiated not to progress further.

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