

A case of periodontal therapy for a central upper incisor with two roots

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Abstract : There are some reports described about fusion of permanent incisors to supernumerary teeth, but there are few reports about multi-rooted incisors and their treatment cases. We report the treatment of an upper central incisor with two roots in this paper. The chief complaint of the patient was redness and swelling at the buccal gingiva of the upper right incisor. The right central incisor had one crown and two roots fused mesiodistally. Surgical procedure including amputation of the distal root, and filling the bone defect with hydroxyapatite granules was performed after initial treatment. Then, gingival symptoms disappeared and the tooth was preserved without gingival recession of the treated area. It is thought that the treatment of multi-rooted incisors needs to be performed in the same way as the treatment of the multi-rooted molars with furcation involvement.

Key words : incisor, multi-rooted teeth, periodontitis, hydroxyapatite, furcation involvement

Introduction

Some reports¹⁻⁴⁾ have described fusion of permanent incisors to supernumerary teeth, but we cannot find any reports on central incisors with two roots and their treatment cases. We report the periodontal therapy of an upper right central incisor with two roots and its treatment procedure.

Case report

A 51-year-old female visited our hospital (Dental department of Iwate Medical University Hospital) with main complaints

of swelling of buccal gingiva. Intraoral examination revealed severe redness and swelling at the buccal gingiva of the upper right incisors (Fig. 1 a), and probing pocket depth was 8 mm at buccal side with pus discharge (Fig. 1 b). Radiographic examination revealed that the right central incisor had one crown and two mesiodistally fused roots with respective pulps. There was a large bone defect and furcation involvement around the roots, and the two roots showed pulpal-periodontal combined lesion. An endodontic evaluation using an electric pulp test determined that the tooth

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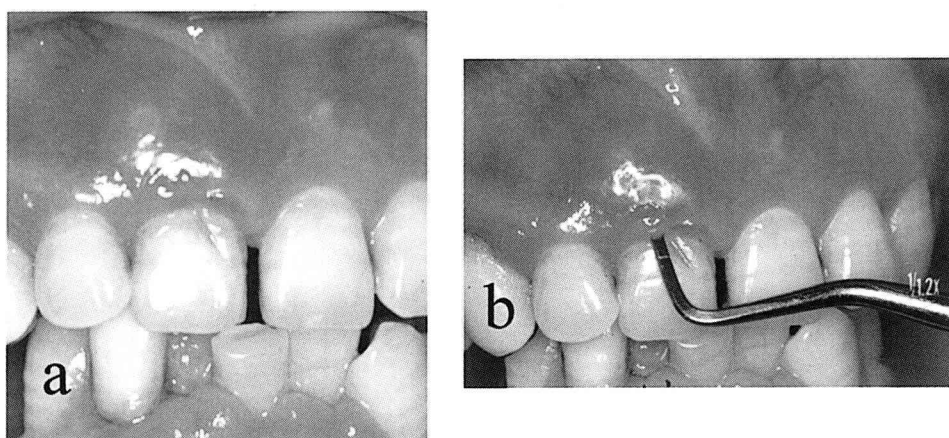


Fig. 1. First medical examination

- a : Swelling and redness were severe at buccal gingiva of an upper central incisor.
 b : Probing depth was 8 mm at first medical examination.

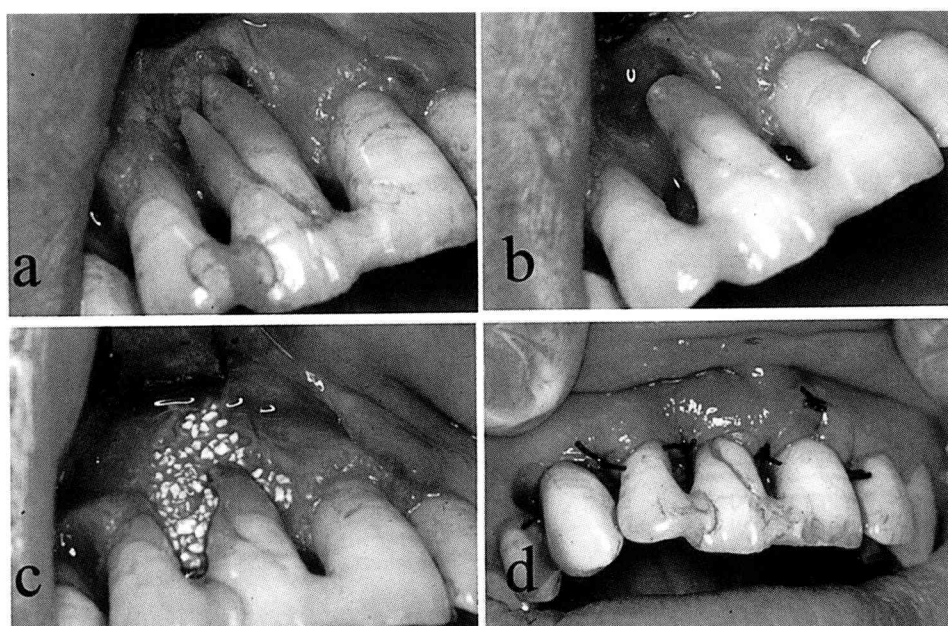


Fig. 2. Periodontal flap surgery.

- a : Two roots of a central incisor.
 b : Root and apex resection.
 c : Implantation of Hydroxyapatite (HAP) granules.
 d : Suture of the surgery site.

was non vital.

Emergency treatment of the tooth included temporary splint by direct bonding, occlusal adjustment, endodontic treatment for the two root canals, and draining the pocket. The acute symptoms

largely disappeared in 5 days. After initial treatment, flap surgery was performed under 2% lidocaine with epinephrine local anesthesia, and a full-thickness mucoperiosteal flap utilizing intrasulcular incision was raised on both buccal and

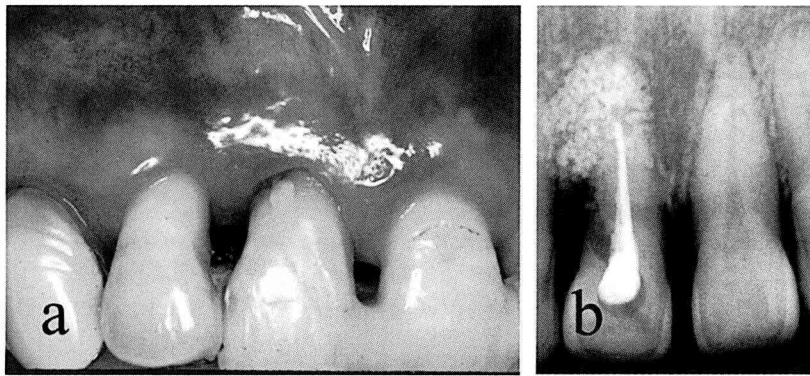


Fig. 3. One year after treatment
 a : One year after surgery with HAP granules.
 b : X-ray findings at that time.

palatal sides (Fig. 2). At surgery, the two roots and a mid-buccally located groove were observed at the tooth (Fig. 2 a). Particularly, an alveolar bone defect surrounding the distal root was noticeable. The distal root was amputated and the canal was closed with glass ionomer cement. Apicoectomy was performed on the mesial root. Thorough debridement of the bony defect and root planing of the remaining root was performed (Fig. 2 b). The bony defect was filled with non-porous hydroxyapatite (HAP) granules (Fig. 2 c). The flap was placed coronally to the presurgical level and was closed with silk sutures (Fig. 2 d). Periodontal dressing was placed for 1 week after the operation. After removal of the dressing, the buccal oblique groove on the tooth was eliminated by filling it with resin.

Maintenance and recall were carried out at 1, 2 and 3 months after flap surgery. At these visits the patient was reinstructed in oral hygiene procedure particularly on the treated areas. One year after the periodontal flap surgery, gingival condition of the treated area was almost healthy (Fig. 3 a). At that time, radiograph revealed that the

HAP granule filling remained at the defect (Fig. 3 b). Moreover, probing pocket depth was 2–3 mm and bleeding on probing was almost negative. Gingival findings and radiographic bone state after flap surgery hardly changed in 2 years compared with the view at one year after surgery.

Discussion

Blank *et al*⁽⁴⁾ reported periodontal considerations in comprehensive treatment on a fused central incisor. In the report, the two roots were separated, and the supernumerary tooth was removed, and then the residual furcation area was removed by odontoplasty. The treatment of fused anterior teeth can be likened to the treatment of multi-rooted posterior teeth requiring furcation therapy, such as root amputation and hemisection.

In this case, alveolar bone surrounding the distal root of the central incisor was severely damaged by the pulpal-periodontal combined lesion. The root amputation of the distal root was necessary in the same way as furcation involvement of multi-rooted molar teeth. The mesial root could be preserved with HAP granule filling because the

alveolar bone surrounding the mesial root remained at mesial and palatal areas of the root. But bleeding on probing at the treated area was sometimes positive. Probably, this reflected the incomplete healing of the HAP filling sites. Ideal periodontal regeneration with HAP filling requires periodontal ligament cells in the healing process⁵⁾. In this flap surgery, the periodontal ligament cells did not seem to exist in the treated areas, because a healthy mesial root was too distant to play a role in periodontal regeneration induced by the periodontal ligament cell. Guided tissue regeneration with HAP⁶⁾ could not be applied in this lesion owing to the lack of the regeneration key cells.

The patient in this case was satisfied with these periodontal treatments. But periodontal repair of the central upper incisor was incomplete without the periodontal ligament cells. A recall system for maintenance that keeps the tooth in good periodontal condition seems to be important to long term tooth preservation. We think that the treatment of multi-rooted incisors needs to be performed in the same way as the treatment of the multi-rooted

molars with furcation involvement.

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2 根を有する上顎中切歯の歯周治療の 1 例

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抄録: 切歯が過剰歯と癒合した症例については報告されているが、複根歯の切歯やその歯周治療例についての報告はほとんどない。我々は、上顎中切歯で 2 根を有する癒合歯の歯周治療例について報告する。上顎右側切歯部頰側の発赤腫脹を主訴として来院した症例で、上顎右側中切歯は歯冠が一つであり、歯根は各々根管歯髄を有する近遠心的 2 根を示していた。治療として、初期治療後、歯周外科時に遠心 1 根の切除と、骨欠損部へのハイドロキシアパタイトの填塞を試みた。その後、歯肉症状は消失し、治療部の歯肉は歯肉退縮をきたすことなく、当該歯を保存することができた。本症例から切歯部における複根歯の歯周治療では、臼歯部の分岐部病変における歯根の治療に準じて行う必要があるように思われた。

キーワード: 切歯, 複根歯, 歯周炎, ハイドロキシアパタイト, 分岐部病変