

Clinical Image

Invasive Cervical Resorption of Autotransplanted Tooth with Complete Root Formation

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CLINICAL IMAGE

Invasive cervical resorption is a type of external root resorption, and the term was first coined and described at length by Heithersay [1]. A 73-year-old male patient visited the outpatient clinic of Niigata University Medical and Dental Hospital for transplantation of the mandibular right third molar to the site of the mandibular left second molar. The donor tooth was extruded, with a periodontal pocket depth of <3mm. It was extracted using forceps, taking precautions not to damage the root surface. The medial surface was carious and was restored from the crown to the cervix of the tooth using resin. Although the recipient site had been missing a tooth for more than 30 years, we were able to prepare a four-wall socket at this site using burs to allow adaptation to the form of the donor tooth. After placement of the donor tooth in the newly prepared socket, the flaps were carefully sutured back to allow them to adapt to the transplanted crown. The transplanted tooth was placed slightly below the occlusal plane and splinted with an orthodontic wire and resin. The sutures were removed after 7days postoperatively, and the wire splint was removed at 3 weeks postoperatively. Endodontic treatment was carried out by an endodontist at 3 weeks postoperatively. The transplant was obturated with thermoplasticized gutta-percha and the sealer (CANALS-N (Showyakuuhinkako Co.Japan) when no signs of failure were clinically and radiographically observed. There was no evidence of clinical mobility, and the tooth exhibited a high tone of percussion and disappearance of the periodontal space at the apical area, radiographically visible at 5 months postoperatively. Replacement root resorption was observed in the apical area of the transplant, but this was not progressive. A localized radiolucency was observed at the cervical region of the distal surface on a periapical radiograph at 24months postoperatively. As the root resorption in this area was progressing, the cavity was exposed by raising mucoperiosteal flaps, performing curettage of the granulation tissue, and restoring the area with resin at 78 months postoperatively. Unfortunately, the peritransplant tissue did not heal well; and the transplant was finally removed at 79 months postoperatively (Figure 1).

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Although the etiology of invasive cervical resorption is unknown, physical or chemical trauma have been recognized as potential predisposing factors [1-3]. During tooth transplantation, the removal of the donor tooth may cause defect or damage to the cement enamel junction. Moreover, in case of progressive replacement root resorption, it is possible that infection of the dentinal tubules and/or root surfaces occurs because of dental caries, restorations, root canal treatment, and periodontal disease in the donor teeth before operation [4]. In this case, in addition to the damage caused by extraction of the donor tooth, extrusion and restoration of the tooth were thought to contribute to the occurrence of invasive cervical root resorption (Figure 2).



Figure 1 (A) The mandibular right third molar was transplanted to the mandibular left second molar site; (B) The donor tooth was extruded with a periodontal pocket depth of <3 mm; (C) The medial surface of the tooth was carious from crown to cervix and was restored with resin; (D) A four-wall socket was prepared at this site, and the donor tooth was then positioned in this newly prepared socket.



Figure 2 Postoperative periapical radiographs (A) at 1 week post-transplantation and (B) at 3 months post-transplantation. Replacement root resorption is seen at the apical area (arrow); (C) at 28 months post-transplantation. Invasive cervical root resorption is observed (arrow); (D) at 77 months post-transplantation. Invasive cervical root resorption has progressed (arrow).

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