■ Clinical Case Articles

1

Autotransplantation of impacted teeth

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Introduction

Autotransplantation has been carried out for many years, but with varying success rates. As a result, it is seldom regarded as an appropriate treatment option for patients with missing teeth especially with the continued development of osseo-integrated implants.

Since placement of osseo-integrated implants in growing alveolar bone is contraindicated, transplantation of available teeth remains a suitable choice for replacing missing units in the young patient.

Autotransplantation of teeth, if carried out successfully, ensures that alveolar bone volume is maintained due to physiological stimulation of the periodontal ligament.

Although the indications for autotransplantation are narrow, careful patient selection coupled with an appropriate technique can lead to exceptional esthetic and functional results.

One advantage of this procedure is that placement of an implant-supported prosthesis or other form of prosthetic tooth replacement is not needed. Disadvantages are surgical operation need and complication, such as root resorption and attachment loss, can occur.

Case 1

A 13 year old male was referred by local clinic due to impaction of second mandibular premolars(#35 and #45). Panoramic radiographic view revealed the retained primary second mandibular molar and ectopically positioned second premolars in the both side of mandible. The treatment plan was extraction of retained primary second mandibular molars and autotransplantation of second premolars. So he was referred to OMFS for autotransplantation. At first, transplantation of #35 was performed. And endodontic therapy was initiated 1 months after transplantation. After access opening, pulp extirpation and canal preparation, the root canal was filled with calcium hydroxide. At 2 months later radiographic examination, bony healing was seen in the periapical region. The calcium hydroxide dressing was renewed every 2 months. About one year after transplantation, final endodontic therapy was carried out and another radiographic examination revealed that complete lamina dura and bony healing were seen around the root. Transplantation of #45 was attempted 5 months after the transplantation of #35. Endodontic treatment was performed and retrogradely filled with amalgam before #45 was transplanted. After the transplantation of #45, the tooth was splinted with wire for 2 months. When the splint was removed, slight mobility on #45 was notified, but there was no pathologic sign on

radiograph. Radiographic control was performed at intervals of 3 months and it revealed good periodontal and bony healing. One year after the transplantation, both of the teeth were asymptomatic and under good functional and esthetic state.

Case 2

The patient was a 21-year old woman. Her chief complaint was a crown fracture of right second mandibular molar. Preoperative radiographic evaluation revealed that there was a crown-root fracture on #47 due to dental caries and impaction of #48. Because of severe crown-root fracture, the treatment plan was autotransplantation of #48 in the extraction area of #47. When performing the autotransplantation, the total operation time was 40 minutes and of which the extraoral time was 5 minutes. The tooth was splinted with wire over the occlusal surface. The endodontic therapy was initiated 1 week after the transplantation. After access opening, pulp extirpation and canal preparation, the root canals were filled with calcium hydroxide and then the splint was removed. Two weeks later, the calcium hydroxide dressing was renewed. At this time, the tooth was asymptomatic to percussion and there was no mobility. Also, there was no pathologic sign such as root resorption on the radiograph. Radiographic control was performed at intervals of one month. Three months after the initiation of endodontic therapy, the calcium hydroxide was removed and the root canals were filled with customized gutta percha cone. And then the tooth was restored with gold crown. About 12 months after the transplantation, another radiographic examination revealed a good periodontal and osseous healing around the roots. The tooth still remained asymptomatic and in a good functional state.

Case 3

A 12 year old male was referred by local clinic due to the delayed eruption of #36 and #37. Pretreatment radiographic evaluation revealed impacted mandibular first and second molars. The left first mandibular molar was ectopically positioned below the second premolar and circumferentially surrounded with dental follicle. The left second mandibular molar was covered with soft tissue. Treatment was postponed until #37 erupted. After eruption of #37, forced eruption of #36 was attempted first but failed because of its uncooperation. So, the treatment plan was changed into autotransplantation. After transplantation, the tooth was splinted for 2 months using acid-etched technique. Because of severe mobility of the tooth, endodontic treatment was postponed till osseous healing could be seen to a certain extent on the radiograph.

Two months after transplantation, the tooth mobility was reduced even though the splint was removed. Radiographic evaluation revealed a bony healing to a certain extent around the periapical region of #36. About 6 months after transplantation, endodontic treatment was done in two appointments. Radiographic control was performed every 3 months. A continuing periodontal and osseous healing developed and about 16 months after transplantation, a complete lamina dura and bony healing was seen on the radiograph. There was no pathologic sign such as root resorption and ankylosis. There was a normally structured periodontal ligament without any sign of root resorption.