Autogenous Dental Transplants: Description of a Clinical Case

The dental transplant was already in use more than 2,000 years ago, reaching a peak in the Middle Ages, but it was only after the 1950s that this subject appeared in the scientific literature. This article describes the case of a young woman whose mandibular left second and right first molars had to be extracted and were replaced using the maxillary third molars. The positive clinical and radiographic results over a 5-year period encourage the use of this technique. (Int J Periodontics Restorative Dent 2001;21:367-371.)

The results of osseointegrated implant treatment have attained a high level of reliability and predictability; moreover, the field of application of this method is progressively growing because of recent successes in the various techniques of bone regeneration or incremental expansion. As a consequence, the autogenous dental transplant (ATT) method has practically lost its value as a therapeutic option in edentulism.

The ATT, the transplant of unerupted or erupted teeth from their original position to an alveolar extraction socket or to a surgically prepared socket in the same patient, is supported by limited documented studies. However, there is considerable historic evidence that this tooth transplant technique was already in use by several populations more than 2,000 years ago, and it reached a peak in the Middle Ages. But it was only in 1956, with the work by Fong,1 Apfel,2-4 and Miller,5-7 that the transplant technique attained scientific relevance. In the 1970s, this technique was reevaluated because of the work of Andreasen and
coworkers on tooth replantation, the biologic principles that are the basis of recovery, and the cause of failure, together with the adaptability of such results to the tooth transplant.

The purpose of this article is to provide a clinical contribution to the ATT technique, which can represent an alternative to traditional prostheses with the right indications.

Method and materials

A 27-year-old woman came under the authors’ clinical observation complaining about a buccal fistula in correspondence with the mandibular left second molar. Upon clinical examination, the tooth showed a reconstruction with a post and core and presented pain upon vertical percussion. The radiographic analysis revealed several areas of periapical and interradicular radiolucency (Fig 1). Root fracture was diagnosed. Consequently, the tooth had to be extracted.

On the right side of the maxilla, the third molar was inclined buccally and was functionally inactive (Fig 2). Following the patient’s approval, it was decided to extract this tooth and transplant it into the mandibular left second molar socket during the same therapeutic session.

A study was made of the dental casts upon which the ATT was simulated (Fig 3). The patient was treated with antibiotics for 3 days before and 2 days after the intervention. The extraction of the mandibular left second molar (together with surgical revision of the socket), the extraction of the maxillary right third molar, and implantation of the third molar (Fig 4) were performed. An occlusal bite plate was applied for sustaining and
protective purposes, and a liquid diet was prescribed for 2 weeks.

After 1 month, the clinical result was fairly acceptable. Radiographic controls were carried out at 6-month intervals and did not show evidence of root resorption. After 18 months, the implanted third molar showed a negative response to a pulp vitality test and was treated endodontically. The last clinical examination (after 5 years; Figs 5 and 6) showed good integration of the implanted tooth.

In the meantime, the mandibular right first molar presented with the same kind of pathology, and the same treatment was planned using the maxillary left third molar (Figs 7 and 8). The tooth remained vital at long-term observations and did not reveal evidence of root resorption 3 years after transplantation (Figs 9 and 10).
Discussion

The reported clinical case treated with the ATT technique has provided satisfactory results over a 5-year period. Considering the limited case histories, it is not possible to draw definite conclusions. However, by comparing our data to the positive results obtained by other authors, we can state that the ATT can be considered a valid alternative technique when certain parameters are followed: (1) this technique is indicated only for patients with good health conditions and good oral hygiene, (2) the transplanted teeth must have an adequate extent of vital periodontal ligament, (3) tooth extraction must be as atraumatic as possible to protect the periodontal tissues, and (4) the interval between the extraction and the implantation of the tooth must be as short as possible.

The ATT represents a technique of easy application that allows for a functional recovery in a short time and at a low cost, especially when compared with traditional prosthetics or implants. Moreover, the maintenance of a vital periodontal ligament in the transplanted tooth allows for the preservation of the mechanical, nutritive, sensory, and osteogenetic functions of the ligament itself.

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References