The movement of one or more teeth from one location in a person’s mouth to another location in that individual’s mouth is referred to as an autogenic dental transplant. It is thought that Ambrose Pare was the first author to describe replantation of teeth in 1562. He detailed the replacement of a tooth for a woman of nobility that was provided from the mouth of one of her ladies in waiting. This would have been an allogenic transplant; this kind of transplant has not been shown to be very successful.

Conversely, autogenic transplants are well documented and have gained acceptance, especially in Europe and Japan. However, autogenic transplants have not attained much popularity in North America, in spite of their documented success. Slagsvold reported on 34 consecutively transplanted premolars with 100% success (Slagsvold and Bjercke, 1978a,b). Ahlberg discussed the transplantation of 33 maxillary canines with 88% success (Ahlberg et al., 1983). Pogrel reported a 72% success rate on 416 transplants performed under less than ideal circumstances (Pogrel, 1987). Andreasen in his four-article series discussed 370 premolar transplants with a success rate of 95% for transplants with incomplete roots and 98% for transplants with completed roots (Andreasen et al., 1990a,b,c,d). Our own survey turned up a success rate of 80.2% among members of the Angle society who responded as having been involved with transplants and 73.9% among chairmen of oral surgery departments who had provided transplants.

The indications for autogenic transplants historically have constituted the need for a tooth in one region in the mouth while having an abundance of teeth in another part of the mouth. A comparison of the esthetic results that have been produced by transplantation in the maxillary incisor area with those found following osseointegrated implants might lead one to consider strongly transplants for anterior replacement (Czochrowska, 2002b,c). Further, the property of developing increased alveolar bone while the transplanted root develops in areas of diminished alveolus provides a powerful incentive for transplantation in such edentulous areas. With the advances in stem cell research and the progress being made in growing dentin, it is probable that tooth-like structures with the potential for implantation will begin replacing edentulous areas in the not too distant future (Batouli et al., 2003; Bianco and Robey, 2001; Gronthos et al., 2002; Krebsbach and Robey, 2002; Miura et al., 2003).

Multiple authors (Slagsvold and Bjercke, 1974; Andreasen, 1980a,b; Northway and Konisgberg, 1980; Andreasen and Kristerson, 1981a,b; Ahlberg et al., 1983; Monsour and Adkins, 1983; Pogrel, 1987; Andreasen 1990a; Czochrowska et al., 2000; Tsukiboshi, 2001) have reported on the
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significance of the care taken during the procedure. It is, in fact, the most critical aspect in the determination of success. Consequently, the practitioner who delivers the transplant should be carefully selected and well prepared. Generally it is suggested that the donor tooth be measured carefully so that the recipient site can be developed precisely. It often is instructive to construct a mock tooth by matching long-cone x-rays of the donor tooth. This can be used for trial insertion prior to extracting the donor tooth. This protocol is especially helpful in minimizing the amount of time that the transplant remains outside of the extraction socket. It is best to use a direct delivery method; i.e., remove the transplant and place it directly into the recipient site. This requires preparing the recipient site before the donor tooth is harvested. This procedure will allow for minimal desiccation of the periodontal membrane or dental follicle. Damage and contamination of the peripheral cells also are concerns if the transplant is placed somewhere other than in the socket. If the transplant cannot be placed immediately into the recipient site, it can be returned to the donor site or it could be placed into a culture medium (there are commercial receptacles such as Sav-a-tooth or ToothSaver for this circumstance).

The extraction should be carried out in a very delicate manner, carefully dissecting the surrounding bone so that no damage is done to the root sheath or its components. Sometimes, a more aggressive removal of surrounding bone must be performed so as to allow a coronal delivery with an intact follicle. An excellent discussion of surgical techniques is provided by Andreasen and colleagues (1990a). With more periodontists performing implants, they have become very adept in providing such a service. Therefore, it is a good idea to consider having a periodontist perform this procedure. They often are more accustomed to the kind of care and attention to soft tissue necessary for successful treatment. They also are more likely to have a recall system conducive to monitoring transplant patients.

CASE ONE

Case 1 is useful in demonstrating a number of the relevant issues discussed here. The patient was missing two premolars in the upper left quadrant and could spare one from the lower left. At initial observation, the root length of the donor tooth was about one-third complete, so we waited for almost a year to allow for increased development. The follow-up photos demonstrate continued root elongation and a successful replacement that has provided 26 years of service to-date.

The best age for transplantation is determined by the stage of tooth development. Because it is desirable that the tooth experience revascularization, the best results are obtained well before the apex of the root closes. Andreasen first set the ideal time as that at three-quarter root completion
(Andreasen et al., 1970). Slagsvold and Bjercke (1974) discussed the other aspects of development that need to be taken into consideration when determining the best stage of development for transplantation. They included the number of roots (depending on which tooth is being transplanted) and the depth of the recipient site. Stressing that the root responds best when it is about 4 to 7 mm in length, they pointed out that the proximity of the maxillary sinus or the mandibular nerve might dictate moving up the timetable for performing the transplantation. It is worth noting that, as the apices of transplantable teeth are approaching apexification (typically about 18 years-of-age for third molars) and the opportunity for vital revascularization is waning, the appropriate age for implantation is at the time when facial and alveolar growth is coming to a halt. Of course, teeth can be transplanted later than this, but these patients will require endodontic treatment after the periodontium has healed.

Monsour and Adkins (1983, 1984) performed experiments with beagle pups transplanting teeth at various stages of development and placing them at different depths. Half of the teeth had just completed crown formation and the other half had differing amounts of root formation. Some were placed completely submerged, some partially erupted, and some in partial occlusion. The transplants that responded the best were those that had partially completed roots and were completely submerged. Transplants that were placed in occlusion simply did not survive (Andreasen 1981c). There was a gradient of success between these two extremes.

If the transplant survives the procedure well, there is an excellent chance that the root will continue to grow in length (Paulsen and Andreasen, 1998). This is obviously desirable in terms of functional support for the tooth. Slagsvold and Bjercke reported in 1974 that radiographs demonstrated a 1.3 mm (6%) reduction in root length. Andreasen reported that 14% of transplants experienced a total arrest of root development at the time of transplantation, 65% experienced a partial arrest, and 21% achieved full root development (Andreasen et al., 1990c).

**CASE TWO**

Case 2 demonstrates the ability of transplanted teeth to continue to grow and even to provide a viable canal that will allow endodontic treatment. It is regrettable that the perceived urgency of the impaction did not allow a bit more formation of the root. Teeth transplanted at a developmental stage too close to crown completion can have greater difficulty forming than those transplanted when root formation is at least half completed. Another complicating factor in this case was the questionable quality of dental care prior to receiving the bridge and lapses in oral hygiene shortly
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thereafter. Nevertheless, the patient continues to do well with a highly functional prosthesis.

Case 1. Intra-oral photos and panarex reveal agenesis of the upper right 2nd premolar and upper left 1st and 2nd premolars (Sept., 1977).

Case 1. (cont.). Mock tooth for trial insertion developed from long-cone x-rays. Records taken seven months after the lower left 2nd premolar was transplanted into the upper left premolar region (Jan., 1979).
Case 1 (cont.). Final records taken 34 months after transplant and 16 months of appliance wear (May, 1981).

Case 1 (cont.). Follow-up photos taken 20.5 years after transplantation (Feb., 1998).

Case 1 (cont.). Left: Periapical view taken 4 months after transplant; note the development of the lamina dura, periodontal space and continued growth of root length (Oct., 1978). Middle. Periapical view taken 4 years, 5 months after transplant; root development is complete and apex has closed (Nov., 1982). Right. Periapical view taken 20 years later shows no signs of failure (Feb., 1998).

As suggested above, this becomes important because of the trade off in
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systems. On one hand, the practitioner can be more assured of an increased root length by delaying the timing of transplantation, but prolonged delay can reduce the chances for a vital pulp. Once the tooth is transplanted, the vital components within the pulp chamber have the potential to be totally replaced through a process of revascularization. Initially the neurovascular components necrotize, but an infiltration of new capillaries marks a revitalization of the pulp chamber during the first four weeks after transplantation (Andreasen and Kristerson, 1981c; Byers et al., 1992). This progresses to a proliferation of mesenchymal cells and the laying down of new cell layers along the dentinal wall. As new dentin is formed, a regeneration

Case 2 (cont.). Left: There is continued root progress, but idiopathic aberration begins to form (July, 1965). Middle: Root formation continues (Feb., 1966). Right: Questionable care has resulted in the loss of the first molar (Sept., 1975).

Case 2 (cont.). Left: A bridge has been placed between the transplant and the second premolar (April, 1976). Middle: Patient presents with periodontal involvement of distal abutment/transplant (April, 1980). Right: The bridge is removed and endodontics performed (Feb., 1983).

Case 2 (cont.). Left: The bridge is replaced even though problems persist in the furcation area (Nov., 1983). Right: Lesions on the mesial and distal areas are abated, but the furcation area remains as a persistent problem area for this transplanted tooth that has provided service for 40 years (March, 1998). Case presented courtesy of Drs. L. Prosterman, L. Slapcoff and M. Moskovich.
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of new, functioning nerve fibers can be seen. The apex can close off, forming a normal root ending. Endodontics typically is not required for these teeth.

Once a root approaches apical closure (stage 5, or when there is about four-fifths root completion), the potential for complete revascularization is compromised (Öhman, 1965; Pauelsen and Andreasen, 1995). Irreparable necrosis places the tooth at risk for infection and rejection. It is advisable to initiate a coronal opening for conventional endodontic treatment about 7 to 10 days after the transplant (Andreasen 1981a, b). This timing of intervention will allow critical healing of the periodontal apparatus. Once the pulp has been extirpated, the canal should be treated with calcium hydroxide to encourage continued healing and eventual apical closure. The tooth can be monitored at progressively increasing intervals, and a conventional root canal can be performed. Andreasen (1992) stresses the need for complete sealing of the root canal along the entire internal surface of the root. He distinguishes this from the needs of teeth infected by decay and subsequent periapical lesions, where the important seal must be obtained primarily at the apex. This treatment results in a completed root transplant that yields a 98% success rate in his studies.

When enacting a transplant, it is best to try to place the graft at the same level from which it was harvested (Andreasen, 1992). As mentioned above, the length of the graft or the surrounding anatomy can prevent this. In that case, the transplant should be placed as deep as possible, and certainly deep enough that the surrounding gingival tissue can be placed coronal to the cementoenamel junction. An optimal tissue closure is that in which the gingiva from the facial/buccal surface abuts with that on the lingual surface; such a depth generally will provide an excellent result. A depth that only will allow closure of the soft tissue around the crown also will work, but it is preferable that this occurs no deeper than the cervix of the tooth.

When it comes to securing the transplant, rigid fixation must be avoided. Not only will hygiene be a problem, but the graft also must be able to interface with the newly created socket in order for periodontal ligament cells to proliferate and form a healthy suspension (Kristerson and Andreasen, 1983). A likely alternative would be ankylosis (Andreasen et al., 1990). If the graft is placed deep enough to allow soft tissue closure, sutures are an excellent method of fixation. Triple O black silk sutures have excellent closing properties and are easy to retrieve. These sutures also can be used to close the gingiva on the crown and create a hammock to hold the tooth in its socket. As more of the crown is left exposed following the transplant, orthodontic attachments can be improvised to secure the graft. If wires are used to fixate the transplant, they should be very light and flexible. Figure 1 illustrates examples of appropriate fixation.
Figure 1. Recommended methods of fixation following transplantation. *Left:* Black silk suture material. *Right:* Wire bonded to adjacent teeth with bent frame to support tooth (transplant has been bonded with Histocryl™).

Figure 1 (cont.). *Left:* Orthodontic attachments that will be stabilized with very resilient wire. *Right:* Hammock soldered to a band on an adjacent tooth. If they are connected to the transplant as on the left, the connection should be made with very resilient wire and maintained for only 10-14 days.

The prognosis for a transplant is improved considerably if areas of infection are avoided during the placement of the transplant or if efforts are taken to heal the region prior to transplantation (Pogrel, 1987). Even so, the patient should be placed on a full regimen of antibiotics beginning about two days prior to the procedure (Andreasen, 1992). Andreasen suggests that there is a possibility of arrested revascularization if the graft becomes infected, and lists as possible sources of contamination extra-oral handling or exposure to bacteria from the saliva or the coagulum. Again, it bears repeating that the care exercised during transplantation is one of the most important factors relating to the success of the procedure.

Once a transplant has healed and sufficient time has been allowed for revascularization to take place (about 3 to 4 months), there is a brief period (approximately 6 to 9 months) during which the transplant will tolerate orthodontic tooth movement (Paulsen and Andreasen, 1995). Heavy and prolonged forces should be avoided, as should eccentric tooth movements. The skills that have been developed for implantation should be implemented in planning cases that involve transplants. Effort should be made to place the transplant near its ultimately prescribed position so that minimal movement will be required to fine tune the placement of the tooth.
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Another area in which the science of implants bears similar insight into that of transplantation is the concept of space; i.e., having enough room to be able to accommodate a transplant. As with the creation of a socket for the delivery of an implant, care must be taken to avoid the adjacent root structures by at least 1 to 2 mm when preparing the recipient site for a transplant. It also is helpful to have about 0.5 to 1 mm of bone both labial and lingual to the transplant graft. Andreasen (1992) reported on cases that demonstrate the removal and replantation of the labial plate of bone to accommodate the placement of the graft into a compromised alveolus. Between the osteogenic potential of the transplanted root surface and the remarkable healing potential of autogenous bone, these grafts work with incredible success. Such transplant cases, as presented by Scandinavian surgeons, profoundly challenge the esthetic potential of today’s finest implants. To this extent, proficiency with the procedure could well force a new paradigm in the realm of esthetic replacement of anterior teeth. The esthetics of a restored biological root—that which is left when a premolar is used to replace an incisor—has far more esthetic potential than most implants, and we only have knowledge of the esthetic quality of implants for their first 15 to 20 years. How will they look as our patients enter their geriatric years?

One of the more recently perceived benefits of autogenic transplants is the aforementioned osteogenic potential (Czochrowska et al., 2000). As the root develops its full potential length, alveolar bone can develop in the vicinity. If the tooth is erupting, the alveolus is brought along. If the root is growing away from the plane of occlusion, e.g., growing into the maxillary sinus, the depth of the alveolar bone is increased. Considering this new potential, transplants might well be considered the treatment of choice in cases where grafting is a likelihood, especially when the encroachment of the maxillary sinus yields a limited alveolar dimension. Even if the transplant fails, it might be considered useful in the development of the site for an eventual implant. Particularly when considering the appropriateness of age in planning either an implant or a transplant, a transplant might buy time for the eventual placement of an implant once alveolar growth is completed.

CASE 3

In case 3, the conditions of oligodontia, microdontia and severely inadequate depth of alveolus were present. While the case was presented and treatment started in 1977 (before osseointegration was an accepted phenomenon in North America), it would be a challenge even today. Numerous grafts would have been required, lifting the maxillary sinus and attempting a vertical augmentation of the alveolus, especially on the left side where ankylosis was causing an intrusion of the premolar region. With transplants, the final result was one that allowed easy restoration, but the
significance of this case lies in the vertical increase in alveolar bone in the region of the developing transplant.

Case 3. Intra-oral photos and panarex showing Class II, division 1 malocclusion with spacing due to microdontia and oligodontia—congenital absence of 10 teeth (Feb., 1977). Complicating the case is the minimal alveolus in the maxillary premolar regions.

Case 3 (cont.). Photos and panarex following transplantation of the lower right 3rd molar into the upper right premolar region (June, 1978). Notice the relative intrusion (worsening condition due to ankylosis) of the upper left primary molars. Lower Right: Photo shows the floor of the maxillary sinus during the second transplant (Aug., 1978).
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Case 3 (cont.). Left: Lower left third molar flush against the inferior membrane of the maxillary sinus. Right: Adequate surrounding gingiva allows for soft tissue closure.

Case 3 (cont.). Periapicals and intraoral photos show continued growth of the third molars, initial formation of the furcation, and increased vertical development of the alveolus (Sept., 1979). Note that no brackets have been placed on the developing 3rd molars.

Case 3 (cont.). Periapicals taken at the final appointment. Apices have closed and the elevation in the floor of the sinus is visible (Oct. 1981).
Case 3 (cont.). Panarex taken July, 1987. Periapicals and intra-oral photos reveal what would have been an easy restorative situation had the patient been interested (Feb., 1998).

CASE 4

Case 4 also presents an example of alveolar development in a patient with multiple congenitally missing teeth. The patient also was handicapped by a profound Class II, division 1 malocclusion. Serial extraction was performed concurrent to Phase I treatment with a functional regulator of Fränkel. During this time, the overjet was reduced from 9 mm to 3 mm, and the depth of bite was reduced anteriorly. Lower second molars were placed into the upper premolar region. Serial periapical x-rays show a nice increase in the alveolar height, as the roots have grown into the floor of the maxillary sinus. When growth was complete, implants were placed in the
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maxillary canine sites, as well as in two sites in the lower posteriors. The patient finished with a very adequate occlusal table.

Case 4. Initial records reveal a significant Class II, division 1 malocclusion, with eleven congenitally missing teeth (March, 1983).

Case 4 (cont.). After serial extraction and 16 months of wearing a functional regulator, overjet has been reduced as have spans in the edentulous spaces (Dec., 1985).
Case 4 (cont.). *Top:* Periapical taken at transplantation of the lower left second molar into the upper left premolar site (March, 1987). *Bottom:* Bilateral periapicals taken at transplantation of lower right second molar into the upper right premolar region (May, 1987).

Case 4 (cont.). *Upper:* Roots begin to grow into maxillary sinus (Aug., 1987). *Lower:* Apexification is nearly complete; alveolar depth has increased as the roots have grown into the maxillary sinus (Oct., 1989).
Case 4 (cont.). Implants have been placed in the canine sites (May, 1996).

Case 4 (cont.). *Upper Left:* Case waiting for growth to be sufficiently complete for implants to be delivered (June, 1993). *Remaining Photos:* Final records show the establishment of an excellent occlusal table.
Cases presented by Andreasen and Zachrisson, and by Hans Paulsen in his chapter in this monograph, in which transplanted premolars have been used to replace missing maxillary incisors, demonstrate a development of interproximal gingival papillae and gingival contours that is not currently predictably possible when using implants (Andreasen, 1992; Czochrowska et al., 2000; 2002a,b,c). The cases shown reveal tissues that were judged to be normal or slightly hyperplastic, making them a superior treatment alternative to implants when replacing maxillary anteriors. When it is considered that we are not far from being able to culture stem cells that will allow the creation of dentin specific to an individual patient, and that we will be able to develop that tissue into a scaffolding that will take on the form of the root that we wish to replace, it becomes even more regrettable that we in North America are not actively developing the techniques and skill to predictably deliver transplants.

One of the difficult aspects of transplants is case selection limitation due to inadequate donor teeth. The inadvertent use of a premolar may cause a drain on anchorage in terms of providing a full facial profile. When one considers the aesthetic benefits of premolars used to replace maxillary incisors, especially in the aftermath of a traumatic episode and resultant compromised alveolar width, we gain a new appreciation for the concept of intentional loss of anchorage (protraction) to support facial profile.

**CASE 5**

Case 5 provides an excellent example of the beneficial use of transplants to turn a potential loss into a real gain. The patient is missing four second premolars. His significant Class II, division 2 malocclusion, with deep bite, 6 mm overjet, and the roll and entrapment of his lower lip provide a situation that would render a disastrous collapse in facial fullness if we were to simply remove the four primary molars and close the spaces through conventional orthodontics.

Instead, a functional appliance was used to facilitate the eruption of the lower posterior teeth, while encouraging a shift in his dentition that resulted in an excellent overbite and overjet relationship. Use of this appliance simultaneously protected the third molars from the heavy occlusion that was transplanted into the lower second premolar sites and improved space closure potential. An excellent improvement in facial profile was attained in a case that otherwise was highly prone to labial inversion.
Case 5. Initial records of a Class II, division 2 patient with congenital absence of four 2nd premolars and marked retrusion of the lower dentition. Conventional extraction in this case would devastate the facial profile (May, 1991)

Case 5 (Cont.). Photos demonstrating transplantation of the upper third molars into second premolar sites and the use of functional appliances to facilitate tooth movement and keep posterior teeth out of occlusion during fixed orthodontic treatment.
Case 5 (cont.). Final records show excellent improvement in facial profile due largely to lip support and improved maxillary-mandibular position (June, 1995).

Case 5 (Cont.). Panarex taken 56 months after transplantation shows continued success of the transplants (Jan., 1997). This case was treated by Dr. Michel DiBattista.
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THE SURVEYS

All members of the Edward H. Angle Society of Orthodontists were surveyed, as were each of the departmental chairpersons of all of the American departments of oral surgery. The response rate among Angle orthodontists was 65.5% and 46.6% for surgical chairs. Of the respondents 20.9% of the orthodontists had been involved in a transplant case, while 47.9% of the oral surgeons had transplanted a tooth. As Figure 2 shows, those orthodontists who had been involved in more than four transplant cases experienced about a 90% success rate, while those who had been involved in fewer had a generally lower success rate. Figure 3 shows that the rate of success did not appear to be correlated to experience among oral surgeons. Nine of the responding 48 departments nation-wide teach autogenic transplantation of teeth, with about 45 being performed by oral surgery residents annually (15 to 20 of those are being carried out at the University of California San Francisco).

Figure 2. Success related to experience for orthodontists

Figure 3. Success related to experience for oral surgeons
The responses as to characterization of success were vastly different between oral surgeons and orthodontists. The orthodontists generally were satisfied if the tooth took on a healthy periodontal membrane, did not ankylose and was still present five to ten years down the line (hopefully for a lifetime). Only the University of California San Francisco had a system for following patients long term, and that was for two years only. Oral surgeons seldom are called upon to provide extended follow-up, making implementation of a recall program awkward. As periodontists become more proficient in the surgical techniques needed in delivering implants, it becomes more reasonable to consider their increased participation in transplantation procedures.

Perhaps it is the paucity of articles in their journals, but our survey yielded little knowledge or acceptance of this procedure among oral surgeons, even though it is practiced in Scandinavia and Japan with great success. One director suggested that we might be better advised contacting the endodontic department. Other statements provided little evidence that oral surgeons were interested in taking autogenic transplants seriously: “In most instances, implants have eliminated the need for this procedure.” “At present there is not sufficient documentation and research to support teaching this technique.” “Implants have obviated the need for transplants.” “Last year we transplanted four third molars, but we did 1625 implants.” “We do autogenic transplants on patients who can’t afford implants.”

Conversely, orthodontists who responded provided the following information:

- Of the orthodontists who had not done a transplant, 32 (16%) had not been able to find an oral surgeon to do one. Many of them had made multiple efforts.
- Twenty-two orthodontists said that they had a hard time finding an oral surgeon who seemed competent in the procedure. It was not a priority procedure for oral surgeons.
- Forty-one said that they felt that a primary deterrent was the litigious nature of our society.

When considering treatment options in the replacement of missing teeth, we must consider space closure, replacement by a fixed or removable prosthesis, transplantation or implants. If there are sufficient teeth available, space closure is an excellent option. Generally speaking, prostheses place a drain on the integrity of surrounding teeth. As a result, transplants (especially in Scandinavia) and implants (more recently in North America) have
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gained favor during the last two decades. A fair comparison of these two options must take into consideration the following:

- Transplants generally cost a fraction of the cost of implants.
- Transplants are a biological solution, whereas implants are an artificial one.
- Transplants (for the time being) rely upon the availability of donor teeth, while implants can be purchased easily.
- Transplants can grow alveolar bone and even interdental papillae during eruption, while implants do not erupt and, therefore, cannot.
- The age for effecting a vital transplant is dissipating at the same time that one can provide, for the first time, an implant.
- Transplants can be moved, while implants cannot and make excellent anchor units.
- Transplants often do not require a prosthetic completion, while implants do.
- Transplants are susceptible to caries, but implants have been shown to be prone to new-tech hygiene problems.
- Both have excellent prognoses, but there are some patients (especially those involving the replacement of maxillary anterior teeth) in whom the potential for soft tissue improvement profoundly tips the advantage scale toward transplants.

When the time arrives that we can generate root-like structures through bioengineering, transplants will gain dominance, especially for the replacement of teeth with visible gingival margins. In the meantime, it is regrettable that the oral surgery community is not better preparing themselves for proficiency in this technique-sensitive dental procedure. It is our hope that this will change.

In summary, autogenic dental transplants can provide a superior form of tooth replacement. The longevity of this treatment is well established, especially when the surgery is accomplished with care. When we consider the potential, not to mention what the future might hold, it is hard to comprehend why more transplants are not being done in North America. If, for example, your appreciation has not yet developed for the need of transplantation as a treatment option, please consider the dilemma presented in Case 6. The lower left second molar is impacted, probably ankylosed.
Case 6. Left: Panarex showing impaction of the lower right second molar. How do you treat this condition? Do you allow your oral surgeon to remove all four third molars? Right: Panarex taken after two years of trying to elevate the tooth that turned out to be ankylosed. If a transplant might have worked, there are now no donor teeth.

Are you going to allow your oral surgeon to remove all four third molars at the time that the second molar is exposed and an attachment is placed? Do not let it happen that the potential donor teeth are absent when it is decided that the tooth is never going to erupt and behave in a healthy fashion.

REFERENCES


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