Dr. Dale M. Gallagher , Oral and Maxillofacial Surgeon, presents

Practical Practice Pearls

For Dental and Medical Professionals

This newsletter is published quarterly and contains useful information about current pharmacology and therapeutics, pathology, techniques, and procedures used for the management of diseases and conditions of the hard and soft tissues of the face and mouth. Please contact us to be added or removed from our fax list, and/or with your comments and suggestions for "Pearl Topics".
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Orthodontic Temporary Anchorage Devices

Anchorage management is an integral part of orthodontic treatment planning. This so-called resistance to unwanted tooth movement determines the amount of intended tooth movement possible. Traditionally, if maximum tooth movement was desired, anchorage strategies were largely dependent on patient compliance with intraoral and extraoral auxiliaries as well as treatment strategies with tipping/uprighting or segmented mechanics. Although the concept is not new, there has been increasing interest in establishing "absolute anchorage" with implantable devices over the last 25 years.

Recently, interest in the use of temporary anchorage devices (TAD's) has increased dramatically. Although there is a plethora of products, these devices can be categorized as modifications of conventional osseointegrated implants (mid-palatal devices), bone screws or bone plates. By providing absolute anchorage, they reduce the need for patient compliance and allow orthodontic tooth movement previously thought to be impossible in terms of vector and range. Management of mutilated dentition including hypodontia, the intrusion of supra-erupted teeth and retraction of maxillary anterior teeth without posterior anchorage loss are perhaps the most common applications.

The optimum device should be minimally invasive, economical, immediately loadable and versatile in terms of applications. Mid-palatal devices are an excellent alternative for absolute retraction of maxillary anterior teeth, but are relatively expensive, require specialized lab work and osseointegration prior to use. Specialized bone plates are more versatile, less expensive and useful in anatomic areas where limited bone volume dictates the use of monocortical screws. However, their use requires two surgeries with incisions, suturing and the associated morbidity. When adequate bone volume is present, modified bone screws are the most economical, versatile and least invasive alternative for temporary anchorage. The surgical armamentarium is minimal and they are easily placed and removed under topical anesthesia or local infiltration.

Although the research is limited, the only downside for miniscrews appears to be the potential for loosening and failure. The literature describing clinical application lists failure rates between 10 and 30%. Failure appears to be associated with use of the smaller diameter mini-screws (1mm-1.5mm), placement in unattached mucosa, and use in patients with "high-angle" facial morphology. Immediate versus delayed loading does not appear to compromise 2mm (diameter) devices which are placed in the attached tissue, designed for immediate loading, and have sufficient length to allow *bicortical* bone engagement for maximum stability. My personal experience has been more favorable with the Rocky Mountain Orthodontic products over the Imtec miniscrews.

Very small titanium bone plates and screws ("miniplates") that are commonly used for rigid fixation of facial fractures and during orthognathic surgery provide extremely solid anchorage. "L" shaped plates with 4 holes are placed so two screws anchor the plate to the bone, and traction is applied to the open holes in the plate that passes through the mucosa, usually near the mucosal-gingival junction. Placement of the miniplates works well in the mandibular parasymphysis regions (anterior to the mental nerves) and in the zygomaticomaxillary buttress areas (superior to the maxillary first molars).

Some surgical bone plate manufacturers have developed miniplates specifically for orthodontic anchorage. These are very small plates that are flat with screw holes on one end (like other miniplates), but the other end is round (like an .045"wire) with a "head" on it for attaching an orthodontic wire or elastics. For example, if an upper second molar requires extrusion, then the miniplate is screwed onto the external oblique ridge of the mandible with the small diameter wire end passing through the mucosa. An elastic is attached from the upper tooth directly to the end of the miniplate. This kind of a miniplate provides very secure anchorage and a variety uses. When placed bilaterally anterior to the mental foramina it can enable Class III elastic anchorage without effect upon the lower dental arch. It can also be used for asymmetrical unilateral space closure without altering midline alignment.

Orthodontic temporary anchorage with miniplates and/or bone miniplates is another very good option to consider for challenging orthodontic movements. There are many uses and clinical applications that reside with the ingenuity of the orthodontist.

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Reasons to Remove Asymptomatic (Painless) Wisdom Teeth

1. Periodontal bone defects distal to the second molars...the defects usually get worse and jeopardize the adjacent teeth (through perio defects or distal caries of second molars).
2. Interference with eruption of second molars.
3. Weak point in the mandible...fractures occur here.
4. The follicle is considered pathologic if its thickness is 2mm or more (measured between the tooth and bone). Here is what can grow in and around the impacted wisdom tooth: Dentigerous cyst, odontogenic keratocyst, odontogenic myxoma, ameloblastoma, mural adenocarcinoma or squamous cell carcinoma.
5. It is *much* easier (for everyone) to have the teeth removed as an adolescent rather than as an adult.
6. Chances are great that the wisdom teeth will become symptomatic (infected, painful and problematic) in the future.

Please share these facts with your patients that have wisdom teeth, and thank you for considering referring them to me for wisdom tooth removal. DMG
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