OTHER JOURNALS IN BRIEF

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by John R. Radford.

MINI-IMPLANTS – 'SURGERY FIRST'

Mini-implant applications in orthognathic surgical treatment

Cousley RR, Turner MJ. *J Orthod* 2014; **41 (Suppl 1):** s54–61

'...an alternative to fixation (intermaxillary fixation, IMF) screws and even to maxillary osteotomy.'

Compared with mini-implants, maxillofacial screws are of larger diameter, increased length and have a bulky head. If these are used to enable tooth movement, potentially this could lead to unfavourable leverage and screw failure. In the late 1990s, maxillofacial bone screws were modified significantly. The resulting mini-implants were used as temporary anchorage devices (TADs) facilitating orthodontic tooth movement. The use of mini-implants has made possible a 'Surgery First' approach when treating patients who would benefit from orthognathic surgery. This strategy requires only minimal presurgical orthodontics, thereby avoiding a 'worsening of their malocclusion and facial profile' before surgery. A 'Surgery First' approach employing mini-implants, also encompasses their use as temporary anchors for those requesting correction of a Class III malocclusion and to enable mandibular-only surgery for those who may have been considered candidates for bimaxillary osteotomies. Mini-implants can also be used in those for whom orthognathic surgery may be indicated but have a reduced number of tooth units including hypodontia.

DOI: 10.1038/sj.bdj.2014.931

MINI-IMPLANTS – FAVOURABLE SITES

Hard and soft tissue considerations at mini-implant insertion sites

Baumgaertel S. *J Orthod* 2014; **41 (Suppl 1):** s3–7

Although the mandibular retromolar region has both anatomical and soft tissue variation, this site for placement of mini-implants is ideal for enabling the uprighting of mandibular molar teeth and full arch retraction.

There is a balance; the mini-implant must simplify tooth movement, yet this has to be weighed against possible traumatic damage to underlying structures. In order to secure primary stability of mini-implants, it is held that thick cortical bone is preferable to thin cortical bone. Placing mini-implants using too low an insertion torque results in poor primary stability, but if the torque is too high there is osteonecrosis of the bone. The placement of mini-implants in the palate is ideal. Mini-implants can be placed between molar teeth, with their single palatal roots, and molar and premolar teeth. In addition, when mini-implants are situated in the palate, they are bounded by attached gingiva. The reason for the sub-optimal outcome when mini-implants are placed through alveolar mucosa maybe more a consequence of tissue mobility and the variable thickness of the underlying cortical bone, than the alveolar mucosa *per se*.

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MINI-IMPLANTS: ANTERIOR OPEN BITE

Molar intrusion in the management of anterior openbite and 'high angle' Class II malocclusions

Cousley RR. *J Orthod* 2014; **41 (Suppl 1):** s39–46

The use of mini-implants to enable molar intrusion in those with anterior openbite, may offer distinct advantages to 'an easy option' extractions and 'quick fix' orthognathic surgery.

Some strategies for correcting an anterior open bite have limitations: 1) extraction of premolar teeth in order to encourage mesial movement of the molars and thereby reduce the mandibular 'hinge axis' may indeed increase lower facial height, 2) a combination of headgear and functional appliances may only retard posterior dentofacial growth, and 3) surgery (maxillary impaction osteotomy) can be associated with morbidity and lack of long-term stability. The key distinction between tooth extraction and headgear anchorage, and the use of mini-implants or mini-plates to enable molar intrusion, is that the latter approach '...improves the vertical skeletal and soft tissue parameters...and lip competence, with minimal incisor extrusion'. As molar intrusion may cause incisor extrusion, the author cautions against this approach in those who have a 'gummy smile' and a Class III skeletal pattern. Because the correction of an anterior open bite is unstable, it is advised that the patient should wear full-time, thermoplastic retainers for at least three months.

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MINI-IMPLANTS: REPLACING MISSING LATERAL INCISORS

Temporary replacement of missing maxillary lateral incisors with orthodontic miniscrew implants in growing patients: rationale, clinical technique, and long-term results

Cope JB, McFadden D. *J Orthod* 2014 ; **41 (Suppl 1):** s62–74

Because mini-implants/miniscrews do not integrate, it is argued they maintain alveolar bone.

Use of a removable or fixed prosthesis to replace a missing lateral incisor tooth may replicate but not augment alveolar bone. Therefore, the dental aesthetic may be compromised. But when using bone and soft tissue grafting techniques with an implant, the dental aesthetic may lack predictability. Then there is an arbitrary recommendation, that implants should not be placed in the aesthetic zone for females younger than 15 years of age, or males younger than 18 years of age. In this paper, the authors illustrate the use of an orthodontic miniscrew (Unitek™ TAD) to restore missing lateral incisor teeth for two patients. One patient was followed up for 8 years but the other patient for only 27 months. For the patient observed for 8 years, the restoration did not assume infra-occlusion and the alveolar bone was maintained.

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