Clinical applications of mini screw implants as temporary anchorage devices

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Commentary:
Anchorage is defined as resistance to unwanted movement of teeth. During orthodontic treatment, the controlled anchorage is a prerequisite for predictable treatment outcomes. This helps to prevent undesirable tooth movements. It is achieved by absolute anchorage (also known as infinite anchorage) which means there is no movement of the anchorage unit even as a result of reactionary force applied to move teeth. This can be achieved with only ankylosed teeth or Implants such as Temporary anchorage devices (TADs) that depend on the bone to inhibit tooth movement1. TAD’s have been proven to be highly successful in providing effective anchorage without the need for patient compliance. The advantages of TAD include their ease of placement and removal, cost-effectiveness, and providing absolute skeletal anchorage. Studies have shown that at least 2.5mm of bone width is required, where CBCT (Cone beam computed tomography) provides optimal information. An angulation of 60-70 degrees is advocated to avoid damage to the roots2. Sites for the mini-implant placement includes between the maxillary first molar and second premolar on the palatal aspect 2-8mm from the alveolar crest. On the buccal aspect, interradicular region between first and second premolar 5-11mm from the alveolar crest. In the mandible, the interradicular spaces between the first molar and canines can be chosen provided it is at 11mm from the alveolar crest3. Various applications of TADs include correction of deep bite, extraction space closure, Anterior and posterior retraction of multiple teeth, distallization of molars, uprighting, and extrusion of impacted molars. Various complications of mini implants exist which include irritation of the tissue, infection, and inflammation. To minimize the complications it is advised to load the mini implants in keratinized gingiva and to prescribe 0.2% chlorhexidine mouth rinse4.

References

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