Temporary anchorage devices in orthodontics

Konstantinos Bakos
UAB School of Dentistry, USA

Orthodontic anchorage is an important factor in obtaining good treatment results. Stable anchorage is a pre-requisite for orthodontic treatment with fixed appliances. Until lately, several conventional orthodontic modalities, such as transpalatal arches, headgears, Nance buttons, or the application of differential forces, were used for this purpose. However, it is difficult to obtain stable anchorage with such appliances even with the full cooperation of the patient. Their clinical effectiveness lies in their ability to maintain close contact with the bone thus remaining stable during orthodontic treatment while resisting reactive forces thus minimizing anchorage loss. Systematic reviews show success rates ranging from 80% to 100% for the Tads. Mini-implants were introduced at the start of the 21st century as a new means of precisely controlling tooth movements during some orthodontic treatments. MIs are fabricated from stainless steel, commercially pure titanium, or titanium alloy with a diameter of 1 to 2 mm and length of 8 to 20 mm, and they are not osseointegrated. Mini-implants are frequently placed between the roots of teeth, but may also be sited in the roof of the mouth. They are then connected to a fixed brace to help move the teeth. Survival of non-osseointegrated implants seems to be affected by many risks. The use of MIs significantly decreased or negated loss of anchorage. MIs were found more effective in supporting anchorage when they were used in the mandible, between the second premolar and the first molar, when two MIs were inserted into a patient’s jaw, when they were directly connected, when they were used in adult patients, as well as when treatment lasted more than 12 mos. MIs used for anchorage have a success rate of 87.7%, with no significant differences between the various subgroups.

Biography

Konstantinos Bakos has completed his dental training at Aristotle University of Thessaloniki in Greece and his advanced educational training in Orthodontics at University of Alabama, USA. He is currently a PhD candidate and scientific Assistant at the Department of Orthodontics at Aristotle University of Thessaloniki. He is an eligible member of the American Board of Orthodontics and a WFO, EOS, GRESLO and EOGME fellow.

bakosdc@yahoo.gr