

Editorial

Complications of mini-implant anchorage

The advent of mini-implants has provided a paradigm shift in orthodontic treatment mechanics. The biomechanics involved is completely different from conventional orthodontic mechanics. Orthodontic treatment like group distalisation, arch intrusion etc., that is not possible with conventional orthodontic mechanics may be performed with mini-implant biomechanics.

However, as the mini-implant offer absolute anchorage, the entire magnitude of the orthodontic force is applied onto the teeth and surrounding alveolar bone and the force is not partially dissipated over the anchorage unit as in conventional orthodontic mechanics. This may result in root resorption, especially in the anterior teeth and thinning of the labial cortical plate. The maxillary and mandibular incisors may become extremely upright increasing the possibility of relapse. There is the possibility of occurrence of posterior open-bite and distalisation of the permanent first molars during space closure, especially in first premolar extraction cases resulting in loss of inter-digitation of the posterior teeth. Improper placement or insufficient inter-radicular width may result in the placement of the tip of mini-implant near the root of adjacent teeth or into the maxillary sinus. Under extreme conditions loss of the mini-implant with aspiration into the respiratory or gastrointestinal tract may occur. Mini-implant placed in the retromolar region in the buccal shelf area may become completely embedded in soft tissue and may become very difficult to retrieve. Bleeding may be encountered during the placement of mini-implant on the posterior alveolus of the palate due to the presence of the greater palatine vessels. Breakage of the mini-implant can occur due to inadvertent placement or retrieval.

Placement of mini-implant involves a minor surgical procedure with its concomitant complications such as pain and infection with occasional need for antibiotics. Plaque retention with associated mucosal inflammation may also occur. Mini-implants should be used with caution in medically compromised patients.

Adequate precautions have to be taken to minimize these complications.

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