2023 JEAN DELAIRE CONGRESS
A universal concept for better diagnosis and treatment
June 8-10, 2023 > Nantes
Cité des Congrès
Organised by the JEAN DELAIRE INSTITUTE
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Miniscrew-assisted single-tooth distraction osteogenesis to align an ankylosed infraoccluded maxillary central incisor: A case report

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Abstract :

The ankylosis of permanent incisors is usually caused by trauma. In a growing patient, the ankylosed tooth fails to move along with the vertical growth of the remaining alveolar process, which results in an infraoccluded tooth, gingival margin disharmony and unaesthetic smile.

This case report presents an 23-year-old female patient whose maxillary right central incisor (tooth number 11) had been traumatised eight years earlier. A vertical discrepancy of about 4 mm was exhibited between teeth 11 and 12.

To reposition the crown and gingival margins of the ankylosed tooth to an ideal level, single-tooth dento-osseous osteotomy and distraction of the block of bone containing the tooth was planned. In order to separate the roots of adjacent teeth for opening a space for osteotomy incision, fixed orthodontic treatment with multibracket appliances was initiated on her maxilla. After five months, a single-tooth dento-

osseous osteotomy was performed using a piezoelectric device. To move the tooth in occlusal and buccal directions, two temporary anchorage devices (miniscrews) on her mandible and interarch elastics were applied. Approximately three weeks later, the ankylosed tooth successfully had an ideal position — relative to the adjacent teeth — and a harmonious gingival margin was achieved by minor gingivoplasty on all incisors.