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CE Editor: **Dr Allen H. Moffitt**

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APRIL 2022 LEARNING OBJECTIVES:

After completing this course, the participant will have:

1. An understanding of the differences in root morphology based on the position of the impacted maxillary central incisor in the alveolar process.
2. Awareness of the effects of age on the microimplant-assisted rapid palatal expansion in treatment for transverse maxillary deficiency.
3. An appreciation for the long-term effects on alveolar bone from the use of either bone-anchored or tooth-anchored rapid palatal expansion appliances.
4. Familiarity with differences in the treatment effects observed in total arch distalization with either miniscrews or ramal plates in patients with Class III malocclusion.

Article 1: The differences of root morphology and root length between different types of impacted maxillary central incisors: A retrospective cone-beam computed tomography study, by Guosheng Wu et al

1. The purpose of this trial was to use 3-dimensional data to analyze the differences in root morphology and root length between 3 different types of impacted maxillary central incisors.
   1. True
   2. False

2. The impacted incisors were divided into 3 groups: (1) labial inversely impacted maxillary central incisors, crown directed upward, and the palatal aspect of the crown facing labially; (2) labially positioned impacted incisors, crown located on the labial side of the alveolar bone and the long axis of the tooth below the palatal plane; and (3) palatally impacted incisors: crown located on the palatal side of the alveolar bone.
   1. True
   2. False

3. The authors reported that the frequency and percentage of occurrence of dilaceration were greater for labially positioned than for palatally positioned impactions.
   1. True
   2. False

4. The authors concluded that obstruction from the alveolar bone would cause different root morphology: the root bends labially in labial impaction, and root morphology showed an obvious L-shaped curve. The dilacerated part of the root in palatal impactions bent palatally and showed a continuous C-shaped curve.
   1. True
   2. False

Article 2: Age-dependent effects of transverse maxillary deficiency treated by microimplant-assisted rapid palatal expansion: A prospective cone-beam computed tomography study, by Haichao Jia et al

5. This study evaluated the short-term effects of microimplant-assisted rapid palatal expansion therapy on the teeth and skeleton of patients with transverse maxillary deficiency at different ages to assess the ideal treatment time for orthopedic maxillary expansion.
   1. True
   2. False

6. The patient population evaluated was divided into 3 groups: early adolescent (aged 11-14 years), late adolescent (aged 15-19 years), and young adults (aged 20-24 years).
   1. True
   2. False

7. The authors reported that 4 of the 60 patients studied exhibited failure of the palatal suture opening (2 men in the adolescent group and 2 men in the old adult group).
   1. True
   2. False

8. The authors concluded that the midpalatal suture could be expanded by microimplant-assisted rapid palatal expansion more easily in patients aged <20 years than in patients aged ≥ 20 years.
   1. True
   2. False

Article 3: Long-term effects on alveolar bone with bone-anchored and tooth-anchored rapid palatal expansion, by Shivam Mehta et al

9. The purpose of this study was to evaluate the long-term effects of bone-anchored and tooth-anchored expansion appliances on alveolar bone in vertical and horizontal dimensions, compared with controls, using cone-beam computed tomography.
   1. True
   2. False

10. The mean age of patients in the bone-anchored appliance group was 13.69 ± 1.74 years ($n = 20$), the tooth-anchored expansion appliance group was $13.9 + 1.14$ years ($n = 21$), and the control group was 13.3 ± 1.49 ($n = 19$).
    1. True
    2. False

11. The authors reported that the bone-anchored and tooth-anchored expansion groups led to no significant difference in the intermolar width and vertical bone loss compared to controls in the short term.
    1. True
    2. False

12. The authors concluded that in the long term, there was no difference in the treatment outcomes of intermolar width, molar angulation, palatal width, buccal bone thickness at the alveolar crest, and bone thickness root apex of maxillary first molar between the 3 groups. However, tooth-anchored expansion appliance significantly increased vertical bone loss in the long term compared with control.
    1. True
    2. False

Article 4: Comparison of treatment effects after total mandibular arch distalization with miniscrews vs ramal plates in patients with Class III malocclusion, by Byong Moo Yeon et al

13. This study compared the skeletal changes posttreatment after total mandibular arch distalization with buccal interradicular miniscrews vs ramal plates in patients with Class III malocclusion.
    1. True
    2. False

14. The sample comprised Class III malocclusion patients treated with total arch distalization: 20 patients via miniscrews in the interradicular space and 20 via ramal plates.
    1. True
    2. False

15. The authors reported buccal miniscrews produced molar intrusion with counterclockwise rotation of the occlusal plane.
    1. True
    2. False

16. The authors concluded that the ramal plates showed less distalization with extrusion of the mandibular molars than buccal miniscrews.
    1. True
    2. False