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Learning Objectives

After completion of this exercise, the participant will be able to:

1. Discuss the diagnostic and mechanical principles involved in early orthodontic treatment.
2. Compare a hybrid approach using sectional fixed appliances with other methods of clear aligner treatment.
3. Fabricate an orthodontic elastic placer for patient home use.
4. Describe the diagnostic advantages of three-dimensional segmented STL renditions of the teeth and jaws.

Article 1

Kennedy, D.B. and Sinclair, P.M.: *Master Clinician: David B. Kennedy, BDS, MSD, FRCD(C)* (pp. 327-341)

1. Lower force levels are required to achieve skeletal expansion for patients in the early mixed dentition because:
 - a) any crossbite is likely to be unilateral
 - b) the suture is still immature
 - c) the nasal base is wider
 - d) all of the above
2. Palatally displaced ectopic canines are more prevalent in all of the following groups except:
 - a) females
 - b) patients with small or missing lateral incisors
 - c) patients who have a history of trauma to the deciduous incisors
 - d) patients who have a family history of ectopic canines
3. There is a more of a tendency for lower second

permanent molar impaction when the angle between the lower first and second permanent molars is:

- a) greater than 24°
 - b) less than 24°
 - c) less than the angle between the upper first and second molars
 - d) not improved by placement of a lower lingual arch
4. Serial extraction treatment is appropriate in a patient with a:
 - a) protrusive dentition
 - b) full face
 - c) shallow overbite or open bite
 - d) any of the above

Article 2

Palone, M.; Cervinara, F.; Casella, S.; Siciliani, G.; and Lombardo, L.: *Resolution of a Complex Malocclusion Using a Hybrid Aligner Approach* (pp. 343-353)

5. The incidence of scissor bite in children is reportedly:
 - a) 1.1%
 - b) 5.1%
 - c) 8.8%
 - d) 11.1%
6. In this case, the first phase of clear aligner treatment was ended because the:
 - a) scissor bite had been corrected
 - b) scissor bite had not been corrected
 - c) patient had worn all 12 sets of aligners as prescribed
 - d) required interproximal reduction had not yet been performed

7. The second phase of treatment involved all of the following except:

- a) refinement aligners
- b) fixed buccal sectional appliances
- c) a palatal miniplate
- d) criss-cross elastics

8. Post-treatment cephalometric superimpositions demonstrated:

- a) retroclination of the upper anterior segment
- b) intrusion and proclination of the lower anterior segment
- c) vertical control of the patient's skeletal divergence
- d) all of the above

Article 3

Deshpande, S.; Shenoi, S.B.; and Hattarki, R.S.: *An Efficient and Ergonomic Device for Easy Elastic Wear* (pp. 359-360)

9. The authors' SEAT acronym stands for:

- a) systems extension and acceptance team
- b) secure ergonomic application tool
- c) simple elastic applicator tool
- d) stress-free elastic attachment turner

10. The device is fabricated from:

- a) a plastic orthodontic elastic placer
- b) .036" stainless steel wire
- c) .010" stainless steel ligature wire
- d) a 6-7" length of elastomeric chain

11. After placement, the elastic is released by:

- a) pressing the upper and lower arms of the device together
- b) disengaging the straight arm from the hook
- c) hooking the elastic with a finger
- d) pushing the plastic sleeve forward

12. The elastic will not be released until desired because of:

- a) the reciprocal force between the elastic and the hook
- b) the grip of the plastic sleeves
- c) the device's reverse-action property
- d) all of the above

Article 4

Lewit Borohovitz, C.; Abraham, Z.; and Redmond, W.R.: *The Diagnostic Advantage of a CBCT-Derived Segmented STL Rendition of the Teeth and Jaws Using an AI Algorithm* (pp. 361-369)

13. Cone-beam computed tomography (CBCT) is best described as:

- a) three-dimensional slicing
- b) volumetric imaging
- c) magnetic resonance imaging
- d) interventional radiology

14. CBCT generates several hundred two-dimensional scans, which are processed by the computer to create rectangular cubes called:

- a) voxels
- b) pixels
- c) texels
- d) perceptrons

15. To create a user-friendly 3D landscape of the DICOM data produced by a CBCT, the file should be converted to:

- a) high-resolution 3D slices
- b) artificial intelligence software
- c) a digital model
- d) STL format

16. The most common machine-learning method of image recognition and classification is:

- a) volume rendering
- b) DICOM-to-STL conversion
- c) a convolutional neural network
- d) a tensor flow