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Learning Objectives

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

1. Discuss an apical approach to orthodontic treatment planning.
2. List the key considerations involved in orthodontic treatment of patients with asthma.
3. Review the uses of elastomeric ligatures with occlusal guards.
4. Follow a protocol for designing and fabricating in-house three-dimensionally printed brackets.

Article 1

Mair, A. and Richmond, D.N.: *Apical Treatment Planning: A Paradigm Shift in Orthodontic Diagnosis* (pp. 231-241)

1. The apex of a tooth is inherently more resistant to translation than the crown because of its:
 - a) closer proximity to the nasal sinus
 - b) greater distance from the point of force application
 - c) greater distance from the center of resistance (CRes) of the arch
 - d) greater density
2. Far greater anchorage is required to retract an upright or mesially tipped upper canine root into a premolar extraction site, as compared to a mesially tipped canine crown, because:
 - a) the apex is already favorably located
 - b) the CRes is more difficult to locate
 - c) considerable apical translation is needed
 - d) no crown translation is needed
3. Even with ideal mechanics, apical translation typically occurs at a rate of about:

- a) .3-.5mm per month
 - b) .7-.9mm per month
 - c) 2.5mm per month
 - d) 20 μ m per day
4. Large apical movements must be evaluated in light of alveolar limits and the associated risks of:
 - a) dehiscence
 - b) fenestration
 - c) root resorption
 - d) all of the above

Article 2

Vandersluis-Solomon, Y.R. and Suri, S.: *Orthodontic Management of Patients with Asthma* (pp. 244-252)

5. Short-acting β_2 -agonist bronchodilators can cause any of the following except:
 - a) xerostomia
 - b) tachypnea
 - c) alterations in taste
 - d) tooth discoloration
6. About 80% of patients with asthma are reported to have nasal symptoms or rhinitis leading to:
 - a) both upper airway obstruction and mouth-breathing
 - b) gingival hyperplasia
 - c) anterior open bite
 - d) external root resorption
7. The analgesic of choice for orthodontic pain in patients with asthma is:
 - a) ibuprofen
 - b) baby aspirin
 - c) acetaminophen/paracetamol
 - d) naproxen sodium

8. Emergency medical services should be contacted if a patient with asthma experiences an emergency in the orthodontic office involving:

- a) status asthmaticus
- b) a severe attack
- c) symptoms not promptly responsive to bronchodilator therapy
- d) any of the above

Article 3

Kravitz, N.D.; Miller, S.L.; Weissheimer, A.; and Akyalçin, S.: *Versatility of Elastomeric Ligatures with Occlusal Guards* (pp. 264-267)

9. The Alastik elastomeric ligature with guard is commonly referred to as:

- a) a figure-8 tie
- b) a bite turbo
- c) a bumper tie
- d) an O-tie

10. In a mesocephalic or dolichocephalic patient with moderate overbite, elastomeric ligatures with guards may be placed on the:

- a) lower first or second molars
- b) lower first or second premolars
- c) four lower incisors
- d) four upper incisors

11. To serve as cushions against the pushrods of a Forsus Fatigue Resistant Device, elastomeric ligatures with guards may be placed:

- a) laterally on the distal side of the lower canine or first premolar brackets
- b) on the lower anterior teeth
- c) occlusally on the first molar tubes
- d) on the distal ends of the pushrods

12. To shield against irritation from lower-lip pressure, elastomeric ligatures with guards may be placed:

- a) laterally on the distal side of the lower canine

or first premolar brackets

- b) occlusally on the four upper incisors
- c) over bracket posts or tube hooks on the lower molars
- d) upside-down on the lower incisors or canines

Article 4

Palone, M.; Brucculeri, L.; Rumpianesi, M.; Cremonini, F.; and Lombardo, L.: *In-House 3D-Printed Brackets: Design, Fabrication, and Clinical Application* (pp. 269-282)

13. To enhance the mechanical properties and biocompatibility of in-house 3D-printed brackets, postprocessing should include:

- a) printer calibration
- b) stereolithography
- c) photopolymerization
- d) ultraviolet curing

14. The resin recommended by the authors for 3D-printed brackets is a:

- a) hybrid ceramic resin
- b) temporary crown resin
- c) zirconia material
- d) clear aligner/splint resin

15. A vertical slot-height discrepancy of 4.3% in a standard metal bracket can increase slot/archwire play by as much as:

- a) 5°
- b) 7°
- c) 19°
- d) 36°

16. Digital customization of bracket thicknesses for smaller teeth can reduce:

- a) in-out discrepancies
- b) the need for 3rd-order finishing bends
- c) bond failures
- d) all of the above