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Learning Objectives

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

1. Fabricate an auxiliary spring for correction of excessive root torque in cases with buccally erupted ectopic canines.
2. Discuss the advantages of autotransplantation as a treatment option for patients with missing or compromised teeth.
3. Describe a boneborne appliance for extrusion of ankylosed maxillary first molars.
4. Design a cantilever spring for uprighting impacted mandibular second molars.

Article 1

Ciarlantini, R.; Agani, K.; Venugopal, A.; Raiman, J.; and Melsen, B.: *Effective Torque Correction for Buccally Erupted Ectopic Canines* (pp. 88-98)

1. The authors' auxiliary spring is made from:
 - a) stainless steel wire
 - b) nickel titanium wire
 - c) TMA wire
 - d) either b or c
2. Lingual root torque is delivered by:
 - a) twisting the free mesial end of the spring clockwise
 - b) twisting the free mesial end of the spring counterclockwise
 - c) reinforcing the main archwire with a passive lingual arch
 - d) adding an opposing deactivation moment
3. Excessive buccal movement of the root into the labial cortical plate during the orthodontic alignment phase can cause:

- a) thinning of the gingiva
 - b) a partial appearance of the underlying root contour
 - c) a "washboard effect"
 - d) any of the above
4. Torque expression can be affected by any of the following except:
 - a) play between the archwire and bracket slot
 - b) dimensional imprecision of the bracket slot
 - c) lack of patient cooperation
 - d) archwire materials and stiffness

Article 2

Christensen, J.R.: *Autotransplantation: Team Development and Treatment Protocol for Enhanced Success* (pp. 99-109)

5. The most important advantage of autotransplantation over other techniques for replacement of missing or traumatically damaged teeth is that it can be performed in:
 - a) patients with anodontia
 - b) the mixed dentition
 - c) cases involving root fractures
 - d) bone-deficient sites
6. The ideal time for autotransplantation is:
 - a) when root development of the donor tooth is one-half to two-thirds complete
 - b) when root development of the donor tooth is fully complete
 - c) immediately after avulsion of the tooth being replaced
 - d) when the patient has completed growth
7. Autotransplantation can be a feasible solution for a missing tooth or teeth in any of the following

situations except:

- a) first permanent molars compromised by decay or hypoplasia
- b) ectopically erupting canines
- c) maxillary anterior teeth compromised by ankylosis or trauma
- d) anomalies such as anodontia or oligodontia

8. If the pulp tissue does not survive the transplantation procedure:

- a) the orthodontist will need to alter the plan for tooth movement
- b) the endodontist will need to treat the necrotic pulp to prevent infection and root resorption
- c) the surgeon will need to prepare the recipient site accordingly
- d) the restorative dentist will need to match the shape and color of the original tooth

Article 3

Schmid-Herrmann, C.U.; Fuhrmann, V.U.; Werbelow, L.; Koehne, T.; and Kahl-Nieke, B.: *Extrusion of Ankylosed Maxillary First Molars Using a Boneborne Vertical Distractor* (pp. 110-116)

9. Ankylosis of a tooth should be suspected when:

- a) progressive infraocclusion of the tooth is observed
- b) vertical development of the alveolar process seems to stagnate
- c) application of orthodontic force fails to move the tooth
- d) any of the above

10. A post-orthodontic “tabletop” restoration of an ankylosed tooth is a possibility in cases with moderate infraocclusion and:

- a) missing anterior teeth
- b) traumatic injuries
- c) moderate or absent residual growth
- d) dubious bone conditions

11. The base of the authors’ vertical periodontal ligament distractor consists of:

- a) a Hyrax palatal expander
- b) two Beneplates welded together
- c) an acrylic palatal button
- d) a Forsus Fatigue Resistant Device

12. In the case shown, the distractor produced an extrusion rate of:

- a) .07mm per day
- b) 1mm per day
- c) 2.3mm per day
- d) 9mm per day

Article 4

Peng, S.; Liu, W.; Ouyang, Z.; Wu, J.; and Sang, T.: *Orthodontic Uprighting of a Horizontally Impacted Mandibular Second Molar with a Cantilever Spring* (pp. 121-131)

13. Impacted molars can cause any of the following except:

- a) occlusal dysfunction
- b) TMD
- c) periodontitis
- d) pericoronitis

14. In general, a second-molar impaction should be treated:

- a) between the ages of 15 and 18
- b) in the mixed dentition
- c) when the molar’s root is still developing
- d) after complete development of the adjacent third molar

15. The reciprocal force of the authors’ uprighting spring had a horizontal component that:

- a) pushed the second-molar crown distally
- b) extruded the first molar
- c) protracted the second molar into occlusion
- d) moved the first molar mesially

16. Minimizing unwanted movement of the anchor teeth requires the use of:

- a) temporary anchorage devices
- b) a lingual arch or transpalatal bar
- c) intermaxillary elastics
- d) a full-arch fixed appliance