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Learning Objectives

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

1. Discuss the advantages gained by early extraction of first permanent molars affected with molar-incisor hypomineralization (MIH).
2. Describe the use of a “mousetrap” loop to erupt a labially impacted canine.
3. Follow a digital workflow for indirect bonding with 3D-printed models.
4. Summarize a protocol for guided insertion of infrazygomatic temporary anchorage devices (TADs).

Article 1

Retrouvey, J.M.; Tandale, M.M.; Vu, D.D.; and Chamberland, S.: *Extraction of First Permanent Molars in Cases of Molar-Incisor Hypomineralization* (pp. 157-168)

1. The etiology of MIH may involve any of the following except:
 - a) a genetic component
 - b) postnatal respiratory tract infections
 - c) fluorosis at an early age
 - d) low birth weight associated with hypoxia
2. MIH-affected first permanent molars should ideally be extracted:
 - a) by age 7
 - b) during the early mixed dentition
 - c) as soon as the second permanent molars have erupted
 - d) when the patient is ready for comprehensive orthodontic treatment
3. After extraction of an MIH-affected first per-

manent molar, the authors prefer to achieve space closure through:

- a) intrabony mesial migration of the second permanent molars
 - b) mesial tipping of the second molars
 - c) eruption of the third molars
 - d) orthodontic alignment in adulthood
4. An important contraindication to extraction of the first permanent molars is:
 - a) the presence of posterior crossbite
 - b) premature loss of the deciduous canines
 - c) a Class II, division 2 malocclusion
 - d) a Class III malocclusion

Article 2

Lombardo, L.; Pellitteri, F.; Carlucci, A.; and Palone, M.: *Open-Coil Mousetrap for Labially Impacted Canine Recovery* (pp. 169-180)

5. Maxillary canine impaction has been identified as a risk factor for:
 - a) cyst development
 - b) ankylosis of the canine
 - c) root resorption of adjacent teeth
 - d) all of the above
6. Labial canine impaction is particularly difficult to manage because:
 - a) it is generally associated with arch restriction
 - b) the labial alveolar bone is often insufficient for the required tooth movement
 - c) the underlying alveolar plate is sometimes too thick
 - d) all of the above
7. To gain space for the impacted canine in this case, a “mousetrap” loop was augmented with:

- a) elastomeric ligatures
 - b) metallic buttons
 - c) open coils
 - d) an archwire inset and 3rd-order bends
8. To erupt a canine that is deeply embedded in the alveolar bone, the authors recommend:
- a) a closed-eruption technique
 - b) gingivectomy
 - c) an apically positioned flap
 - d) spontaneous eruption

Article 3

Kalange, J.T.: *Flexible, Translucent 3D-Printed Models for Indirect Bonding* (pp. 190-195)

9. The resin commonly used for three-dimensionally printed working models is ineffective for indirect bonding because:
- a) it can delaminate when subjected to the time and temperature of light curing
 - b) standard separating agents tend to bead up on the surface of the printed models
 - c) the bis-GMA bracket adhesive will adhere to the acrylate-based resin
 - d) all of the above
10. Instead, the author uses a custom-formulated mixture of BioMed Flex 80A resin with:
- a) BioMed White tint material
 - b) Form Cure
 - c) a polyvinyl alcohol mold-release agent
 - d) Exaflex VHV putty
11. Instead of the standard separating agent, the author uses:
- a) BioMed White tint material
 - b) Form Cure
 - c) a polyvinyl alcohol mold-release agent
 - d) Exaflex VHV putty

12. The use of nontransparent polyvinyl siloxane transfer trays means the:
- a) bonding material must be light-cured
 - b) bonding material must be chemically cured
 - c) trays must be removed with a scalpel
 - d) brackets must be microetched before bonding

Article 4

Manzo, P.; Paoletto, E.; ElShahawy, M.; Albertini, P.; and Lombardo, L.: *A New Method for Insertion of Digitally Planned and Guided Infrazygomatic Temporary Anchorage Devices* (pp. 196-200)

13. Factors that may negatively affect the stability of infrazygomatic TADs include all of the following except:
- a) penetration of the maxillary sinus
 - b) insufficient bone depth and thickness
 - c) a vertical direction of insertion
 - d) a juxtadicular screw position
14. Digital planning for the authors' InfraBSteer method requires:
- a) an intraoral scan
 - b) a cone-beam computed tomography scan
 - c) a cephalometric radiograph
 - d) both a and b
15. The software used for digital identification of the insertion site is:
- a) Invivo
 - b) Rhinoceros
 - c) OrthoCAD
 - d) Diagnocat
16. A 3D printer is used to produce a:
- a) surgical guide covering half of the upper arch
 - b) surgical guide covering the full upper arch
 - c) mushroom-shaped window for screw insertion
 - d) working model for indirect bonding