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Learning Objectives

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

1. Review the biomechanical principles of Invisalign treatment planning and clinical management in cases of dental crowding.
2. Discuss a nonsurgical approach that uses skeletal anchorage for treatment of high-angle patients with gummy smiles and open bites.
3. Describe current protocols for the installation and application of orthodontic miniplates.
4. Differentiate among subtypes of acromesomelic dysplasia (AMD).

Article 1

Glaser, B.: *Practical Invisalign Mechanics: Crowding* (pp. 485-492)

1. To manage dental crowding with Invisalign aligners, the clinician should choose any of the following ClinCheck options except:
 - a) posterior expansion
 - b) anterior proclination
 - c) lower-arch leveling
 - d) extraction
2. In crowding cases, the goal of the first series of aligners is to:
 - a) achieve optimal alignment
 - b) begin the process of space opening
 - c) procline the upper anterior teeth
 - d) both b and c
3. To manage a deep bite by means of relative intrusion, the ClinCheck instructions should specify:
 - a) overcorrection to a 0mm overbite

b) interproximal reduction during the initial phase of aligner treatment

- c) posterior expansion
 - d) addition of rectangular attachments on the premolars
4. Precision bite ramps on the upper anterior teeth are recommended in teenage patients with deep overbites because they:
 - a) reduce bite forces that can interfere with the planned anterior proclination
 - b) help keep the aligners seated
 - c) may provide additional intrusive force
 - d) all of the above

Article 2

Braga, C. and Bocchieri, A.: *Skeletally Supported Upper-Arch Intrusion for Nonsurgical Treatment of Open Bite and Gummy Smile in High-Angle Patients* (pp. 493-507)

5. Patients with high-angle facial patterns often present with gummy smiles caused by:
 - a) overeruption of the maxillary teeth
 - b) posterior intrusion
 - c) excessive anterior facial height
 - d) counterclockwise rotation of the mandible
6. In these cases, leveling the lower arch prior to intrusion can prevent:
 - a) lingual inclination of the upper anterior teeth
 - b) undesirable anterior occlusal contacts
 - c) development of a gummy smile
 - d) eversion of the lower lip
7. The authors' palatal appliance is anchored by:
 - a) a transpalatal bar

- b) a palatal miniplate
 - c) two paramedian miniscrews
 - d) two retromolar miniscrews
8. The extent of posterior intrusion is determined by the:
- a) need for lower-arch leveling
 - b) desired amount of mandibular counterclockwise rotation
 - c) degree of open bite
 - d) all of the above

Article 3

Juliasse, L.E.R.; Gaião, L.; Vêras Filho, R.D.O.; and Sousa, R.L.D.S.: *Surgical Protocol for Orthodontic Miniplate Installation: Technical Guidelines and Clinical Applications* (pp. 508-517)

9. Common orthodontic applications of miniplates include all of the following except:
- a) distalization
 - b) intrusion
 - c) airway expansion
 - d) occlusal plane adjustments
10. In the authors' protocol, miniplate positioning and customization are planned using a:
- a) digital surgical guide
 - b) rapid-prototyping biomodel
 - c) laser-sintered cast
 - d) dental articulator
11. When expansion is planned, the vertical stem of a T-shaped miniplate should be:
- a) positioned as far as possible from the alveolar ridge
 - b) replaced by one with multiple links to reduce the risk of fracture
 - c) shortened with cutting pliers
 - d) angled distally

12. The most frequent complication of surgical miniplate installation is:

- a) loosening of the screws
- b) perforation of the maxillary sinus
- c) soft-tissue infection
- d) soft-tissue inflammation

Article 4

Chang, J.; Azami, N.; Chen, P.J.; and Yadav, S.: *Management of a Geminated Tooth and Supernumeraries in a Patient with Acromesomelic Dysplasia, Maroteaux Type* (pp. 518-526)

13. Clinical manifestations of AMD include any of the following except:

- a) short-limb dwarfism
- b) a relatively large head with a dolichocephalic skull shape
- c) excessive lower anterior facial height
- d) midface hypoplasia

14. The Maroteaux type of AMD is caused by mutations in the:

- a) natriuretic peptide receptor 2 gene
- b) growth differentiation factor 5 gene
- c) cartilage-derived morphogenetic protein 1
- d) C-type natriuretic peptide

15. The most common treatment approach for a geminated central incisor involves:

- a) hemisection
- b) restoration
- c) extraction
- d) no treatment

16. In the present case, the geminated central incisor was replaced by:

- a) a supernumerary tooth
- b) the adjacent lateral incisor
- c) a retained deciduous incisor
- d) the contralateral central incisor