to measure the linear measurements in the following maxillary and mandibular teeth: canine, 1st premolar, 2nd premolar, 1st molar, and 2nd molar. Measurements were made between inter-root bi-cortical bones (between the anterior teeth cortical bone and posterior teeth cortical bone) at a distance of 3, 5, and 7mm from the Cementoenamel Junction (CEJ) mesiodistal surface to the root according to the method described by Lee KJ, et al. [12] (Figure 1). Mesiodistal distance was measured parallel to the mean arch forms connecting the mid root portion of each root, at each vertical level on the buccal side. e interroot distance was assessed only on side of the maxilla and mandible.

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Normal distribution of the measured data was con rmed by using

the mini screws in their daily practice.

However, the limitations of our study were following. First, our date is based on relatively few samples due to the large number of edentulous and malocclusion patients in our samples. Second, the measurement of maxillary and mandibular inter-root distance is not always done in the same person. Since all our measurements and analysis were achieved separately by maxilla and mandible, this limitation will not affect the quality of the study.

Conclusion

Maximum inter-root distance of Mongolian population was 1.89 mm between maxillary canine and I premolar teeth and 2.51 mm between mandibular I and II premolar, measured 7 mm away from CEJ in maxilla and mandible. For inter-root distance, the most suitable position of orthodontics mini-screws on maxillary and mandibular was 7mm far from CEJ.

Pre-treatment assessment of morphometry of maxillary and mandibular bone in Mongolians using CBCT is important to positively affect the outcome of further treatment. The use of the morphometric dimensions of the study as a reference dimension in the treatment of post orthodontics and orthodontics is important to improve treatment outcomes and to avoid errors during treatment.

References

1. Kyung HM, Park HS, Bae SM, Sung JH, Kim IB, et al. (2003) Development of orthodontic micro-implants for intraoral anchorage. J Clin Orthod 37: 321-328.

2. Chang HP, Tseng YC (2014) Miniscrew implant applications in contemporary orthodontics. Kaohsiung J Med Sci 30: 111-115.

3. Melsen B (2005) Mini-implants: Where are we?. J Clin Orthod 39: 539-547.

4. Montes CC, Pereira FA, Thomé G, Alves EDM, Acedo RV, et al. (2007) Failing factors associated with osseointegrated dental implant loss. Implant Dent 16: 404-412.

5. Bortoluzzi MC, Cella C, Haus SF (2017) Dentofacial deformity and quality of life: a case control study. RSBO 14: 24-29.

6. Papadopoulos MA, Papageorgiou SN, Zogakis IP (2011) Clinical effectiveness of orthodontic miniscrew implants: a meta-analysis. J Dent Res 90: 969-976.

7. Chaimanee P, Suzuki B, Suzuki EY (2011) "Safe zones" for miniscrew implant placement in different dentoskeletal patterns. Angle Orthod 81: 397-403.

8. Holmes PB, Wolf BJ, Zhou J (2015) A CBCT atlas of buccal cortical bone thickness in interradicular spaces. Angle Orthod 85: 911-919.

9. Arai Y, Tammisalo E, Iwai K, Hashimoto K, Shinoda K (1999) Development of a compact computed tomographic apparatus for dental use. Dentomaxillofac Radiol 28: 245-248.

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