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EVALUATION OF ROOT CANAL CONFIGURATION OF MAXILLARY PREMOLARS USING CONE BEAM COMPUTED TOMOGRAPHY

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Introduction. Knowledge of the anatomy and variations in the structure of the pulp-periodontal complex plays significant role in endodontic treatment planning. High-quality mechanical preparation, irrigation and obturation of the root canal system determines a positive treatment outcome. Anatomical variations of root canal system need to be considered in clinical and radiographic evaluations during endodontic treatment. Clinical management involving maxillary premolars with unpredictable root and canal morphology may pose some challenges. Missed canals, difficulties related to radiographically visualization the apical limit of the multi-rooted premolar can lead to failures of endodontic treatment. Maxillary premolars represents one of the most difficult teeth to be treated endodontically. A number of studies exhibited great variations in root anatomy and root canal morphology. The presence of two canals must be considered normal, but racial differences in the root canal morphology of maxillary first premolars have been established. Clinically, it is important to identify the root and canal morphology prevalent in a population to reduce errors during root canal treatment.

The aim is to assess the root canal anatomy and configuration of maxillary premolars among Belarusian population using cone beam computed tomography.

Materials and methods. In this study, 100 cone beam computed tomography images were obtained.

Results. The majority of maxillary premolars had two separate roots. Two root canal configuration had 70 % of first upper premolars and 20% of second upper premolars.

Conclusions. Recognition of root canal system anatomy is one of the most important factor for successful endodontic treatment. Preoperative CBCT examination allows to evaluate root canal anatomy.