

Localization of impacted maxillary canines and root resorption of neighbouring teeth: a study assessing the diagnostic value of panoramic radiographs in two groups of observers

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OBJECTIVES: to assess the diagnostic value of panoramic views (2D) of patients with impacted maxillary canines by a group of trained orthodontists and oral surgeons, and to quantify the subjective need and reasons for further three-dimensional (3D) imaging.

MATERIALS AND METHODS: the study comprises 60 patients with panoramic radiographs (2D) and cone beam computed tomography (CBCT) scans (3D), and a total of 72 impacted canines. Data from a standardized questionnaire were compared within (intragroup) and between (intergroup) a group of orthodontists and oral surgeons to assess possible correlations and differences. Furthermore, the questionnaire data were compared with the findings from the CBCT scans to estimate the correlation within and between the two specialties. Finally, the need and reasons for further 3D imaging was analysed for both groups.

RESULTS: When comparing questionnaire data with the analysis of the respective CBCT scans, orthodontists showed probability (Pr) values ranging from 0.443 to 0.943. Oral surgeons exhibited Pr values from 0.191 to 0.946. Statistically significant differences were found for the labiopalatal location of the impacted maxillary canine ($P = 0.04$), indicating a higher correlation in the orthodontist group. The most frequent reason mentioned for the further need of 3D analysis was the labiopalatal location of the impacted canines. Oral surgeons were more in favour of performing further 3D imaging ($P = 0.04$).

CONCLUSIONS: Orthodontists were more likely to diagnose the exact labiopalatal position of impacted maxillary canines when using panoramic views only. Generally, oral surgeons more often indicated the need for further 3D imaging.