

Abstract-Title:

COMPARISON OF 2 AND 3-DIMENSIONAL IMAGING FOR THE DIAGNOSIS OF THE ALVEOLAR NERVE POSITION FOR THE OSTEOTOMY OF THIRD MOLAR
VERGLEICH DER DIAGNOSTIK MITTELS DREIDIMENSIONALER UND KONVENTIONELLER RÖNTGENTECHNIK BEI DER OSTEOTOMIE RETINIERTER WEISHEITZÄHNE

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Abstract-Text:

1. Purpose

The treatment plan for the osteotomy of impacted third molars is determined in the lower jaw by the position of the root tips and the mandibular nerve. Conventional radiological diagnosis is performed by a panoramic radiograph. In difficult indication with a direct correlation of root and nerve a second plain is necessary. The clinical benefit for the diagnosis of impacted third molars with the Cone Beam (CB) imaging in comparison to the conventional technique is not reported yet(1). The aim of this study was to evaluate the quality of the diagnosis for impacted third molars with both techniques.

2. Methods

Six clinically experienced observers retrospectively evaluated 30 CB scans and 30 panoramic and 30 skull pa radiographs. In each group 48 third molars were evaluated. The imaging quality was scaled between 1 to 5 (very good, good, satisfactory, dissatisfied and not acceptable) for the horizontal and vertical information. The correlation of the mandibular nerve in relation to the root tip was determined vertically and horizontally. A new CB scanner (Galileos, Sirona, Bensheim, Germany) was used, producing a three-dimensional volume of 153 cm³ in size with an isotropic resolution of 0.3 mm and dedicated panoramic view. Scanning time was 14 sec while patients were fixed with a bite block firmly attached to the scanner. Scanning parameters were 90 kV and 28mAs constantly for all patients.

3. Results

No difference in both groups could be found for the variation of position of root tips in vertical dimension. The diagnostic information in the vertical dimension was determined with median 2 and variance of 0,75 for the CB scans and median 2 and variance of 0,79 for OPG, for the horizontal dimension for CB scans median was 2 with variance of 0,92 and significantly shoddier for OPG&PA with median 3 and variance 1,27 A highly significant correlation could be found for the horizontal data with an advantage for the CB scans. (p=0.000). The evaluation for the vertical position of the root tip of the third molars to the mandibular nerve showed no significant difference for sub-groups. By the cone beam a higher number of lingual and at level positions could be found (p=0,000). No

differences could be found for the various investigators. A higher number of additional findings could be found in the group of CB in comparison to OPG.

4. Conclusion

Findings of this study indicate that the used cone beam technology has a significant improvement for the preoperative diagnosis for impacted third molars. Especially in the indication for difficult anatomic situation with the risk to harm the patient by a routine procedure the investigated technology show a reduction of risk parameters.