18. Abu-Hammad O, Khraisat A, Dar-Odeh N, Jagger DC, Hammerle CH. The staggered installation of dental implants and its effect on bone stresses. Clin Implant Dent Relat Res 2007;9:121-7.
19. Kero T, Söderberg R, Andersson M, Lindkvist L. Process optimization regarding geometrical variation and sensitivity involving dental drill- and implant-guided surgeries. Int J Biol Life Sci 2006;2:237-43.
20. Pettersson A, Kero T, Gillot L, Cannas B, Fäldt J, Söderberg R, et al. Accuracy of CAD/CAM-guided surgical template implant surgery on human cadavers: Part I. J Prosthet Dent 2010;

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Noteworthy Abstracts of the Current Literature

Comparison of cone-beam imaging with orthopantomography and computerized tomography for assessment in presurgical implant dentistry

Dreiseidler T, Mischkowski RA, Neugebauer J, Ritter L, Zoller JE.
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Purpose: To establish a basis for weighing the potential diagnostic and therapeutic benefits of three-dimensional cone-beam (CB) data sets in contrast to digital orthopantomography (OPG) and computerized tomography (CT) in implant dentistry.

Materials and Methods: Twenty-seven patients requiring implant surgery received a single presurgical CB scan. A follow-up digital OPG was taken within a maximal postsurgical period of 2 weeks. For comparison purposes, a control group of 29 patients receiving CT as well as CB diagnosis was analyzed. Image quality of the different modalities was ranked retrospectively by five experienced examiners (from excellent to insufficient) for up to 10 defined criteria, including general image quality and several specific structures. The results were analyzed statistically, and interobserver agreement was calculated using intraclass correlation coefficients (ICCs).

Results: The median rating for all investigated criteria was good for CB imaging and between good and insufficient for OPG in the dental implant group. Except for general image quality, statistical analysis showed that CB imaging was significantly superior to OPG imaging for all investigated anatomic structures. With a few exceptions, all investigated anatomic structures in CT and CB imaging were rated excellent in the control group. No significant difference between CT and CB imaging was detected in the control group for all investigated criteria. With a few exceptions, ICCs were higher for CB images than for OPG. In the control group, ICCs for CT and CB images were similar, with a few exceptions.

Conclusion: The results of the present study confirm superior radiographic visualization for all important high-contrast structures in presurgical implant dentistry assessment for CB imaging in contrast to OPG and a CT-like degree of information for high-contrast structures in CB data sets. Clinically, however, the elevated radiation dosages transmitted by CB imaging must be taken into account.