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How useful is it to digitally edit a conventional panoramic radiograph?

Language: English

Authors:
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Objectives

This study deals with the question whether it is possible to gain additional information with a therapeutically benefit when digitally editing conventional panoramic radiographs.

Material and Methods

300 conventional panoramic radiographs of one dental practice were randomly chosen. A Kodak film TMatG was used in the Orthophos from Sirona (64 kV / 15 mA) and developed in the XR 24 from Dürr Dental. The display of the mental foramen - on both sides - was chosen as reference region. This region was examined with magnifying glasses on the image viewer. All images that did not show the mental foramen bilaterally equal, was taken with a digital camera (Lumix LS2, Panasonic) fixed on a tripod. Afterwards, the images were loaded into a 2D diagnostics and planning software (copgiX®, IVS Solutions AG) and edited. First, the program's zoom function was used to improve the display. Next, different filters integrated in the software (contrast, black/white, sharpen, invert, colour) were used on the loaded panoramic radiographs.

Results

see figures:

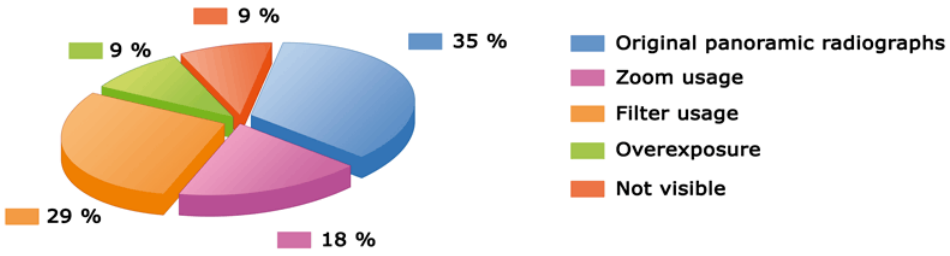


Fig.1: Visibility of the mental foramen of original panoramic radiographs and after editing

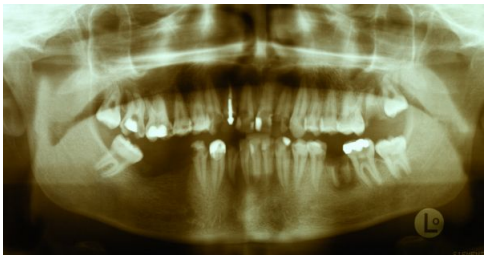


Fig. 2a: Panoramic radiograph with brown coloration before digital image

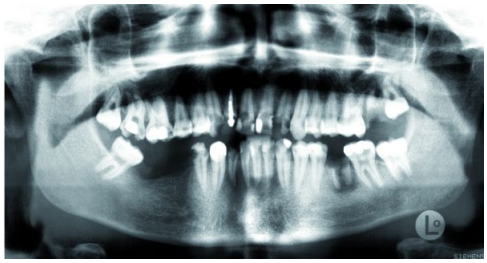
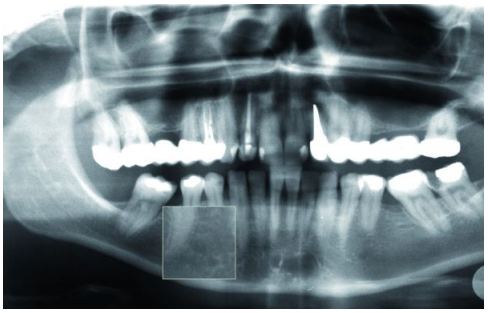


Fig. 2b: Panoramic radiograph with brown coloration after digital image



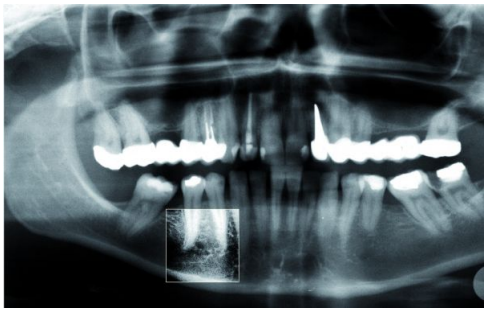


Fig. 3a: Panoramic radiograph with zoom before using the contrast filter

Fig. 3b: Panoramic radiograph with zoom after using the contrast filter

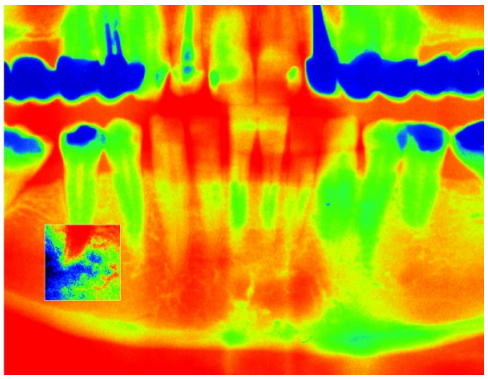


Fig. 4: Rainbow filter

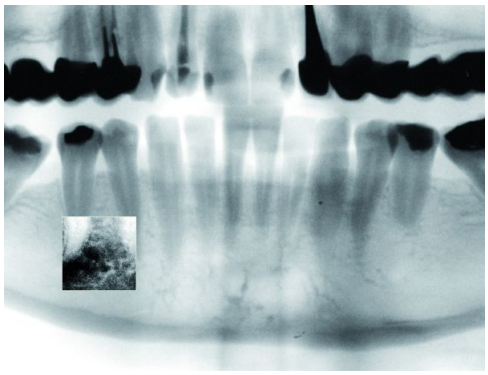


Fig. 5: Invert filter

Conclusions

Especially with the underexposed panoramic radiographs, panoramic radiographs with brown coloration and panoramic radiographs with a minor blur, the display has been improved considerably. The graphic above shows that it is always recommended to digitally edit conventional panoramic radiographs before taking new images or initiating further imaging diagnostics.

Literature

- Hopp,M.; Biffar, R.: Einsatz zweidimensionaler Planungssoftware Implantologie Journal 2005; 7: 26-34

This Poster was submitted by Dipl.-Stom. Michael Kirsch.

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Poster Faksimile:

How useful is it to digitally edit a conventional panoramic radiograph?

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Result

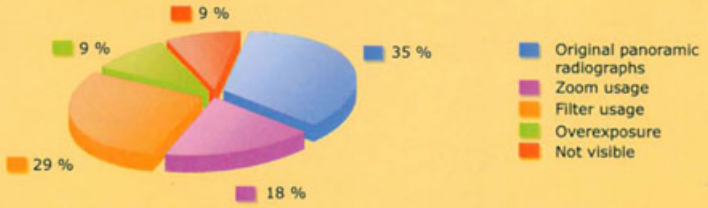

Fig. 1: Visibility of the mentale foramen of original panoramic radiographs and after editing

Conclusion

Especially with underexposed panoramic radiographs, panoramic radiographs with a brown coloration and panoramic radiographs with a minor blur, the display has been improved considerably. The graphic above shows that it is always recommended to digitally edit conventional panoramic radiographs before taking new images or initiating further imaging diagnostics.

Literature

Hopp, M.; Biffar, R.: Einsatz zweidimensionaler Planungssoftware. Implantologie Journal 2005; 7: 26-34

Fig. 2a, 2b: Panoramic radiographs with brown coloration before and after digital image editing

Fig. 3a, 3b: Panoramic radiographs with zoom before and after using the contrast filter

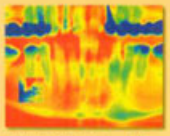

Abb. 4: Rainbow filter

Abb. 5: Invert filter

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