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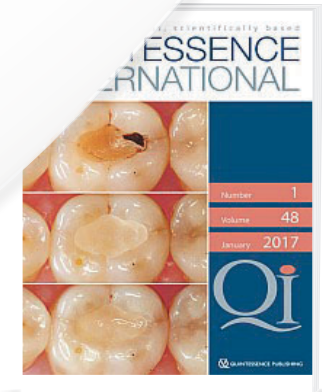
Clinical Accuracy of a Novel Open-Lattice-Frame Implant Positioning System: A Case Series”

J. Horwitz; Eli E. Machtei; H. Zigdon-Giladi.



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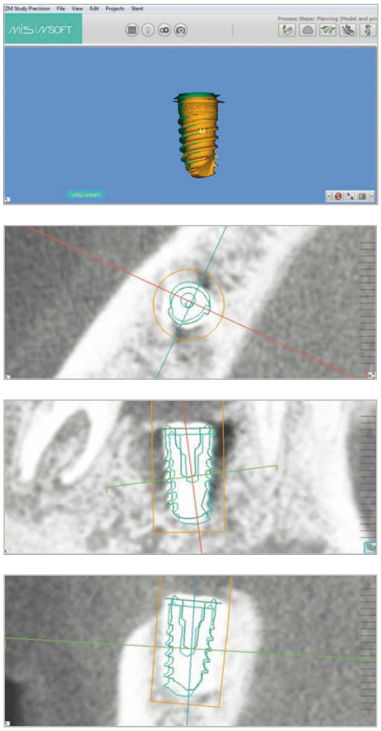

Figure 1. Planning vs actual outcome. Outline of planning superimposed on outline of actual implant position as viewed in the software in a 3D rendering, and in sagittal, coronal, and axial planes.

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SUMMARY.

Objectives

The purpose of this study was to assess the clinical accuracy of a novel open-lattice-frame implant positioning system (MGUIDE, MIS Implant Technologies Ltd.) by evaluating the deviation between planned and actual implant positions on pre- and postoperative cone beam computed tomography (CBCT) images of patients treated with dental implants. Secondary aims were to record surgical time from first incision to end of implant surgery and start of suturing, and to record patient and surgeon satisfaction from the implant surgical procedure.

Material and methods

Pre- and postoperative CBCT of 10 patients receiving 18 dental implants were used to generate implant angular deviations and implant shoulder and apex deviations. The combined file was used for diagnosis, planning of the implant(s), and fabrication of the 3D printed surgical guide (Fig.1).

Results

Mean angular deviation was 2.96±1.31 degrees (range 0.25 to 5.60 degrees). Mean shoulder and apex deviations were 1.07±0.49 mm (range 0.38 to 1.85mm) and 1.35±0.57mm (range 0.52 to 2.19 mm), respectively. Mean time from first incision to start of suturing was 24±7 minutes. Patient satisfaction ranged between 8 and 10, and surgeon satisfaction regarding the procedure ranged between 9 and 10, on a scale of 1 to 10.

Conclusions

The open-lattice-frame implant positioning system (MGUIDE, MIS Implant Technologies Ltd.), provided adequate accuracy, and may aid in improving patient-related outcomes by improving surgical accuracy and shortening surgical treatment duration.