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SCREW-RETAINED SURGICAL GUIDE FOR IMPLANT PLACEMENT

Tiago Marques[1*], Filipe Araújo[1], Bruno Valentim[1], Patrícia Fonseca[1], André Correia[1]

1 Universidade Católica Portuguesa, Faculty of Dental Medicine, Center for Interdisciplinary Research in Health, Portugal.

BACKGROUND

For patients with extended edentulous areas, with existing implants, and in need of additional implant placement, the use of the osseointegrated implants for guide fixation seems to be a logical alternative.
Surgical guides: supported by teeth, teeth and mucosa or retained by fixation pins. Involve inherent inaccuracies, particularly when supported by mucosa, or by failing teeth
Fabrication of surgical guides that are screw-retained at the implant or abutment level would probably reduce those inaccuracies by stabilizing the guide.[1]

The purpose of the present technical report is to illustrate a step-by-step digitally planned guided-implant placement protocol for terminal dentition patients with salvageable existing implants requiring implant.

CASE SERIES

- 5 patients received 8 implants using a screw-retained guide.
- None of the implants was immediate loaded.
- In 2 cases, single implants were placed using only one screw retention.
- Other 3 cases were full-arch, where several screw-retained implants were used.
- Implant planning with software COdiagnostix®Straumann.
- Design of screw-retained guides with software Exocad®GmbH.
- Guides 3D printing: Phrozen®Mini 8k printer & NextDent SG biocompatible resin.
- Success rate: 100% , follow-up 1y.
- Final implant position, compared to planning, within acceptable clinical deviations values reported in the literature.

CASE 1

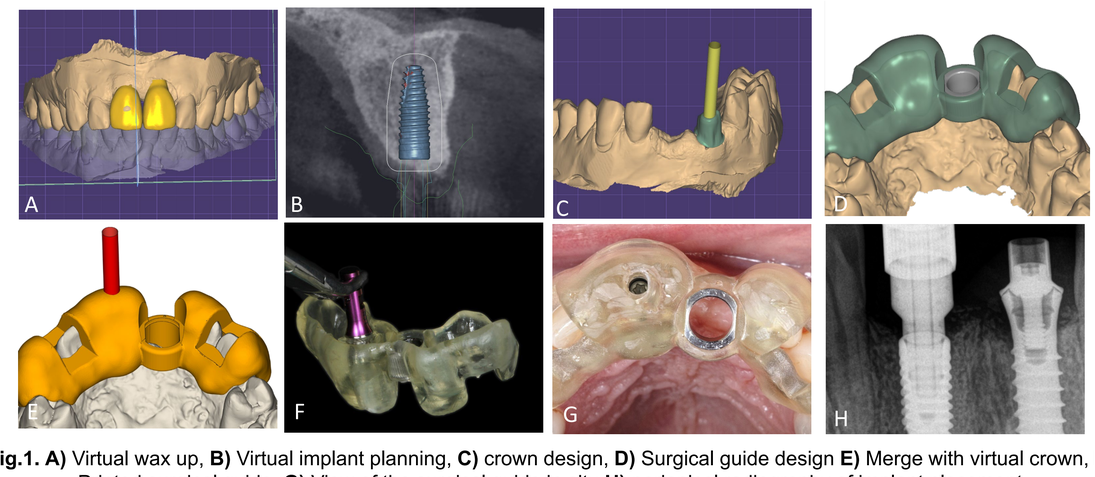

Fig.1. A) Virtual wax up, **B)** Virtual implant planning, **C)** crown design, **D)** Surgical guide design **E)** Merge with virtual crown, **F)** Printed surgical guide, **G)** View of the surgical guide in situ **H)** periapical radiography of implant placement

CASE 2

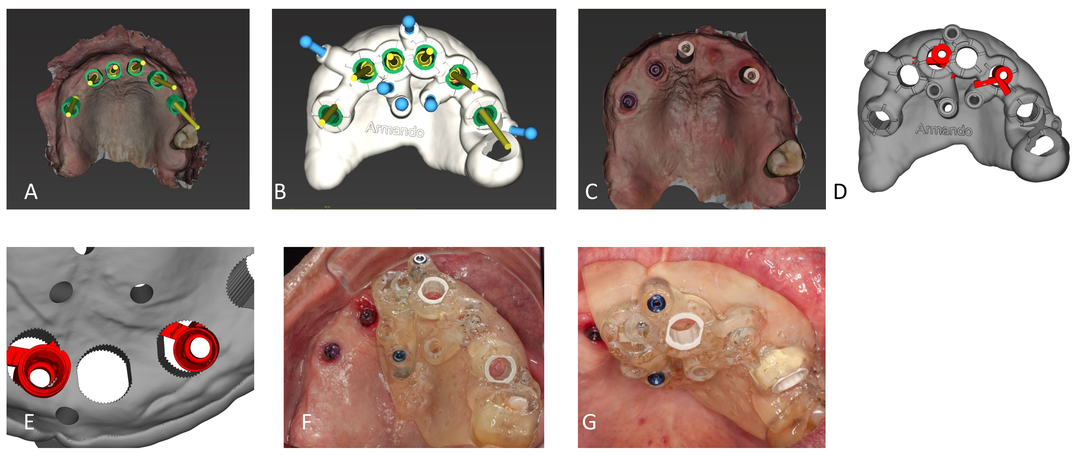

Fig.2. A) Virtual implant planning, **B)** Surgical guide design, **C)** IOS after failed implants, **D)** new printed surgical guide **E)** details of the screw retention, **F) G)** Intra oral views of screw retained guide for implant placement

CASE 3

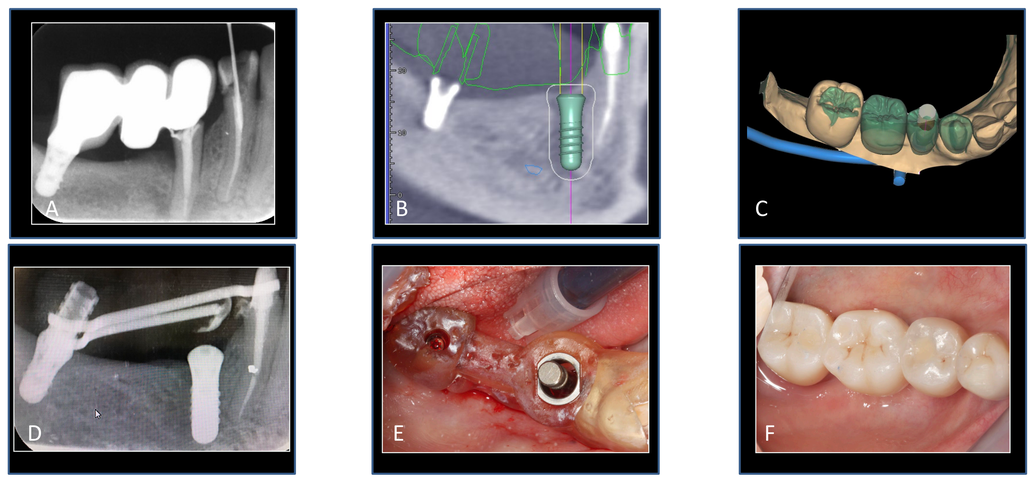

Fig.3. A) Failing tooth implant bridge, **B)** Virtual implant planning, **C)** Wax-up, **D)** Periapical radiography after implant placement, **E)** Intra-oral views of screw retained guide for implant placement, F) final implant bridge work

CASE 4

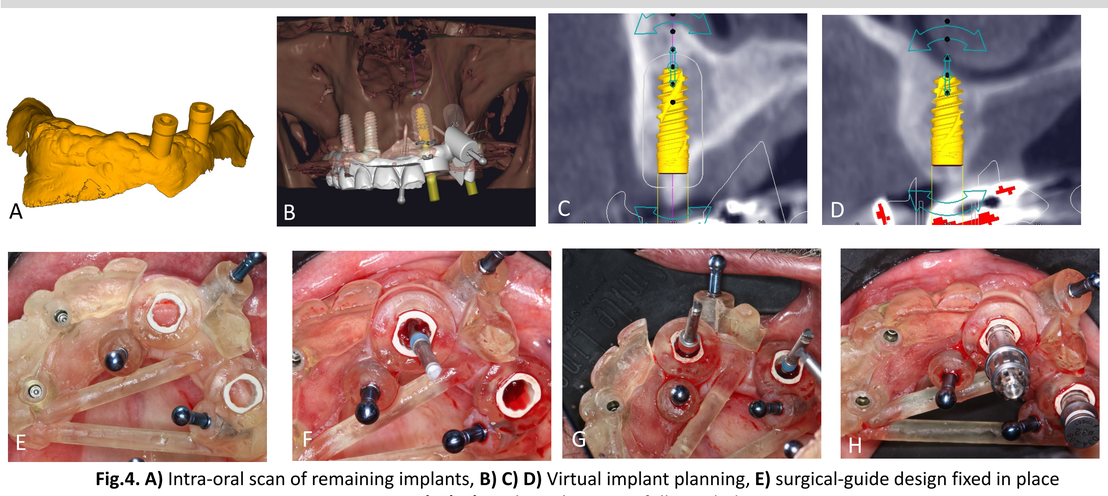

Fig.4. A) Intra-oral scan of remaining implants, **B) C) D)** Virtual implant planning, **E)** surgical-guide design fixed in place **F) G) H)** implant placement fully guided

CASE 5

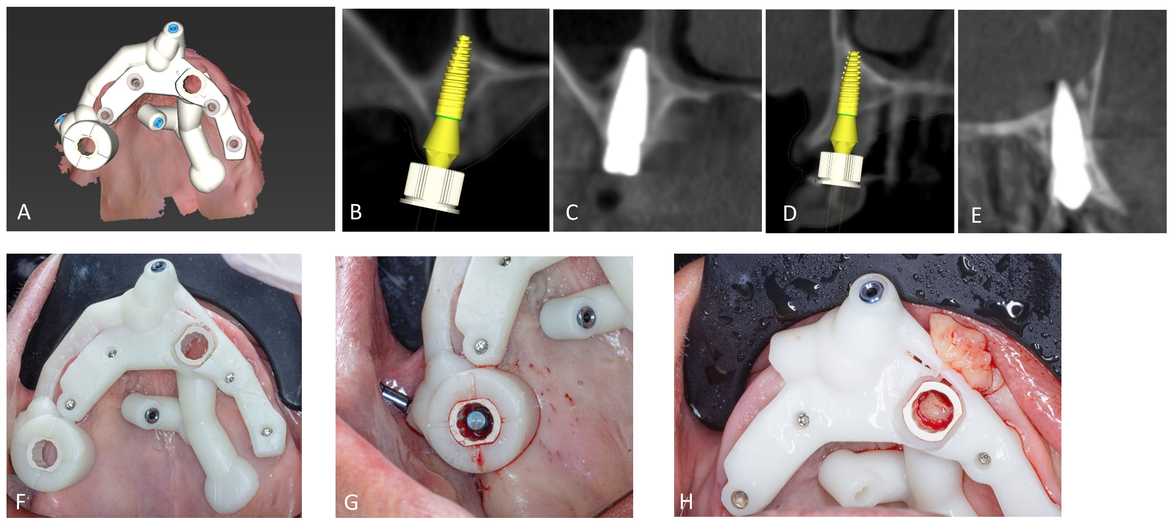

Fig.5. A) Screw retained surgical guide, **B)** Virtual implant planning, **C)** CBCT after placement, **D)** Virtual implant planning, **E)** CBCT after placement, **F)** surgical-guide design fixed in place, **G)** implant placement fully-guided, **H)** Detail of flap management for fully-guided implant placement

CONCLUSION

The purposed protocol seems to enhance the accuracy of guided implant placement with screw-retention, simplifying the transition from failing teeth to implants, and reducing chairside time. However, further studies are needed to corroborate the findings of this case series.

REFERENCES

1.Papaspyridakos P, De Souza A, Kudara Y, Basha V, Bokhary A, Sinada N, et al. Screw-retained surgical guide for implant placement in terminal dentition patients with existing implants. J Prosthodont. 2022 Aug 14;31(7):639–43.

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SCAN ME

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