

Introduction:

Long-term success in dental implantation depends significantly on precise planning and the ability to transfer this planning accurately to the implant's surgical site. Hence, an evaluation of implant placement accuracy compared to the planned position on cone-beam computed tomography (CBCT) images was conducted.

Methods:

Starting from the implant location, horizontal measurements were taken from the implant platform to the distal point of tooth 3.5 and the mesial point of 3.7. The distance was also measured from the implant platform to the most distal coronal point of tooth 3.5 and the most mesial coronal point of tooth 3.7. Additionally, the distance from the implant platform to the vestibular and lingual cortical bone was determined. These measurements were taken from the CBCT used in the surgical guide planning in the software and from the CBCT taken three weeks after implant placement.

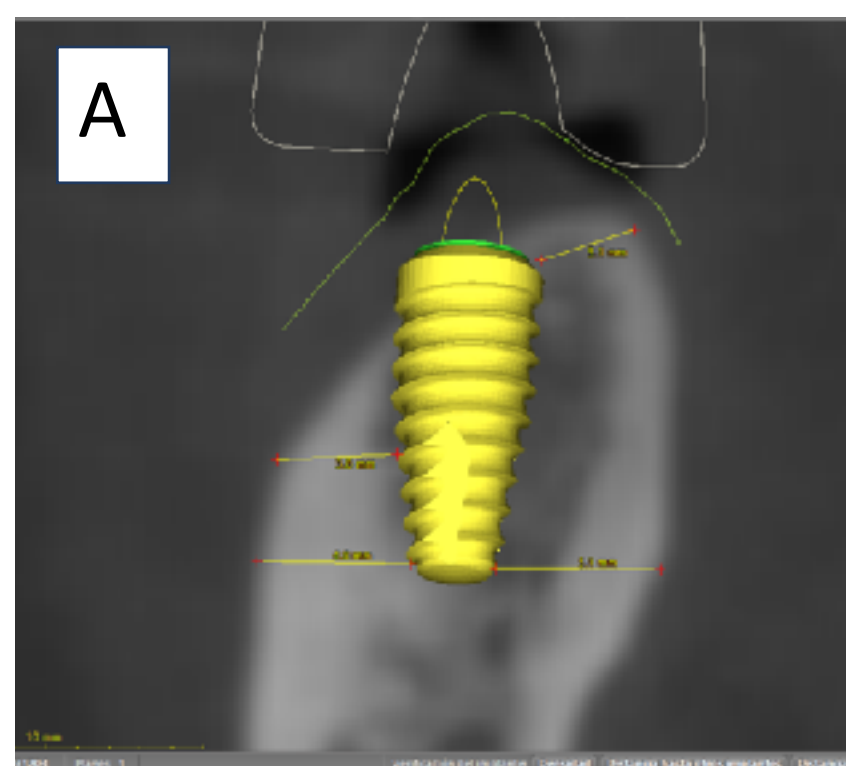
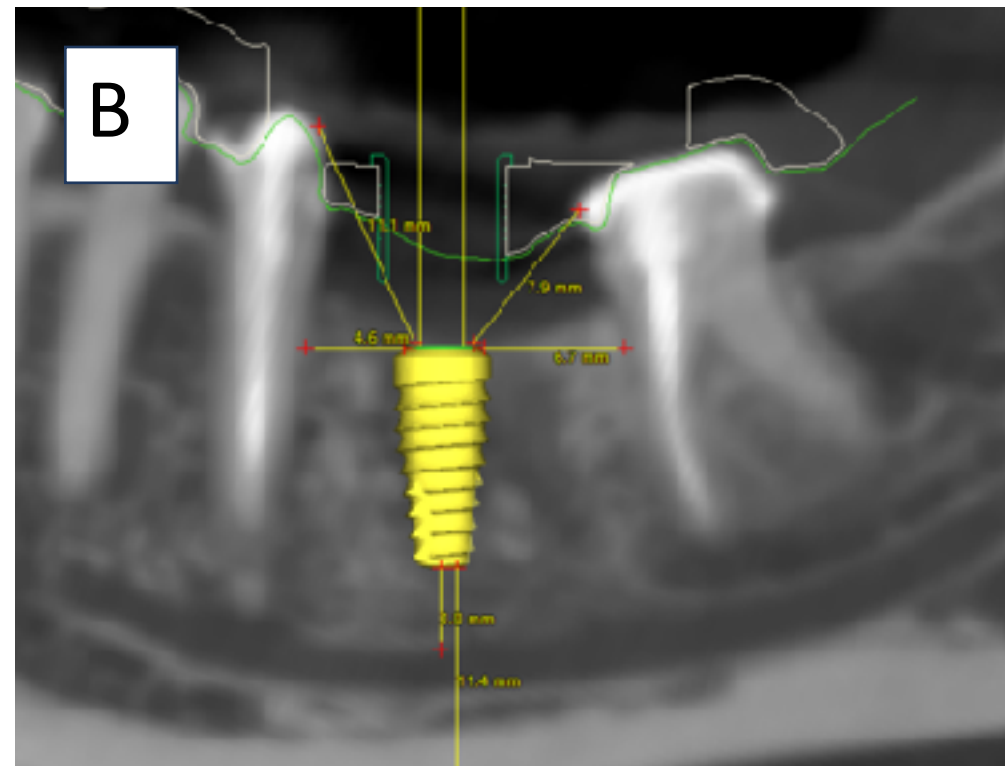
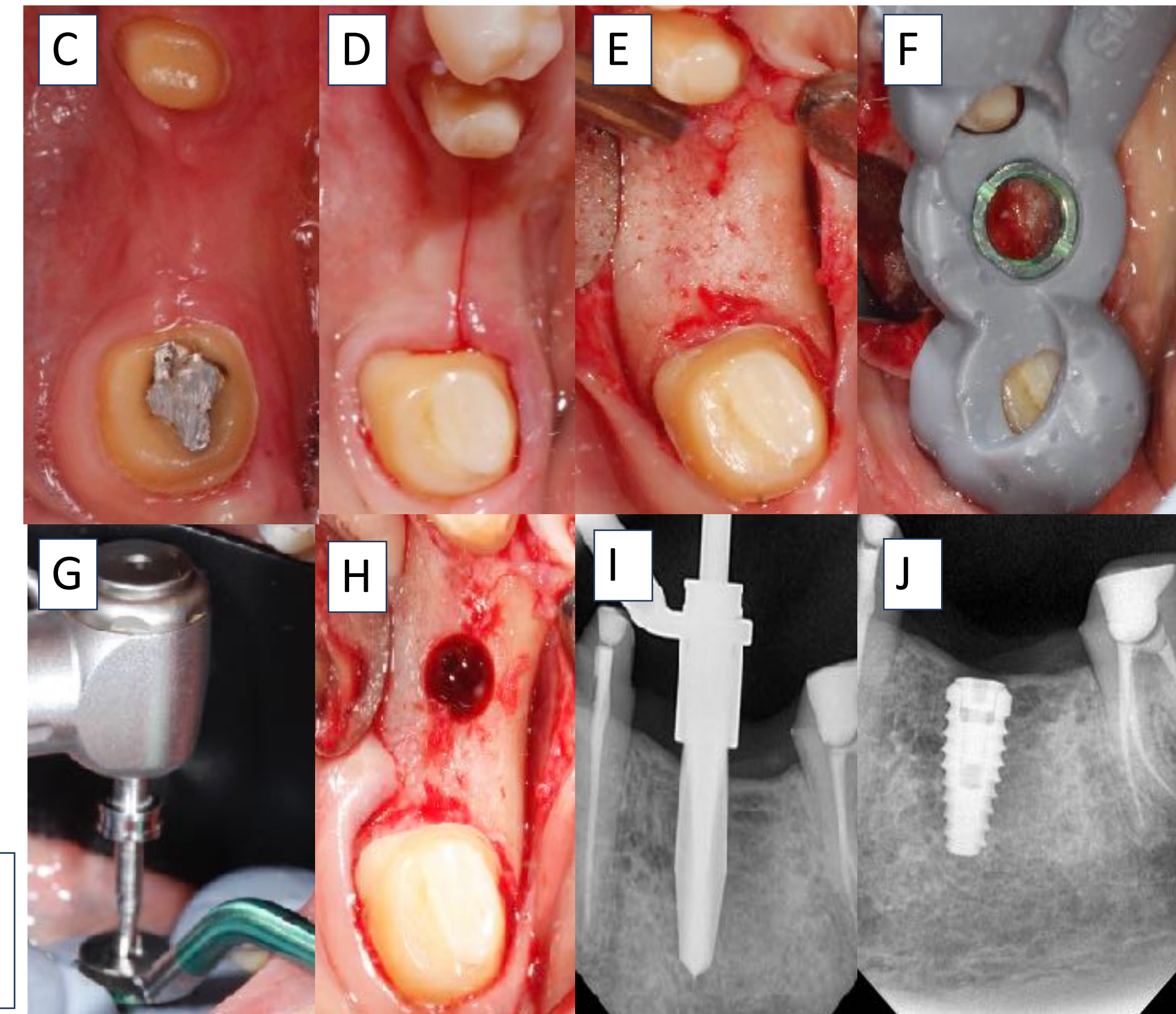


Image A and B
Planning for the
placement of a 4.5x10mm
implant in zone of 3.6

Image C-J
Surgical sequence





Static implant surgery in the posterior sector. Case report

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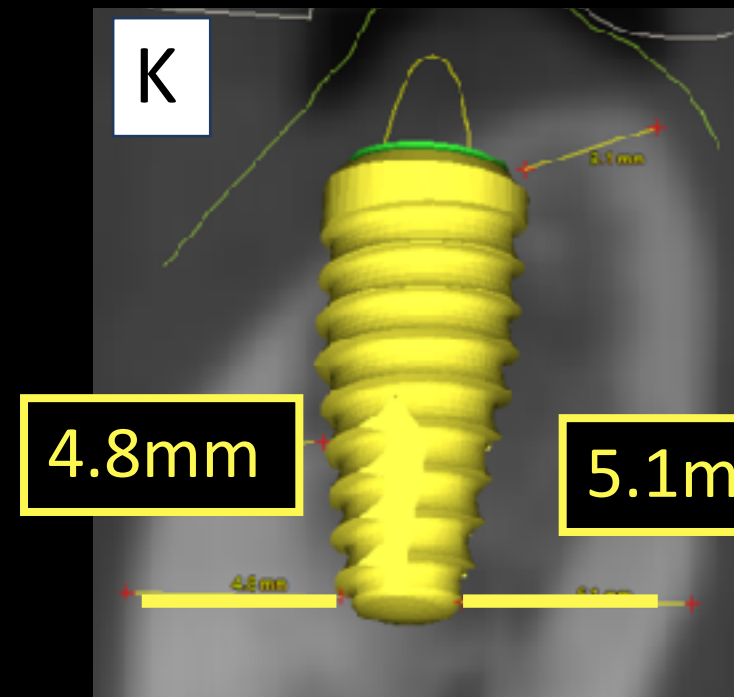
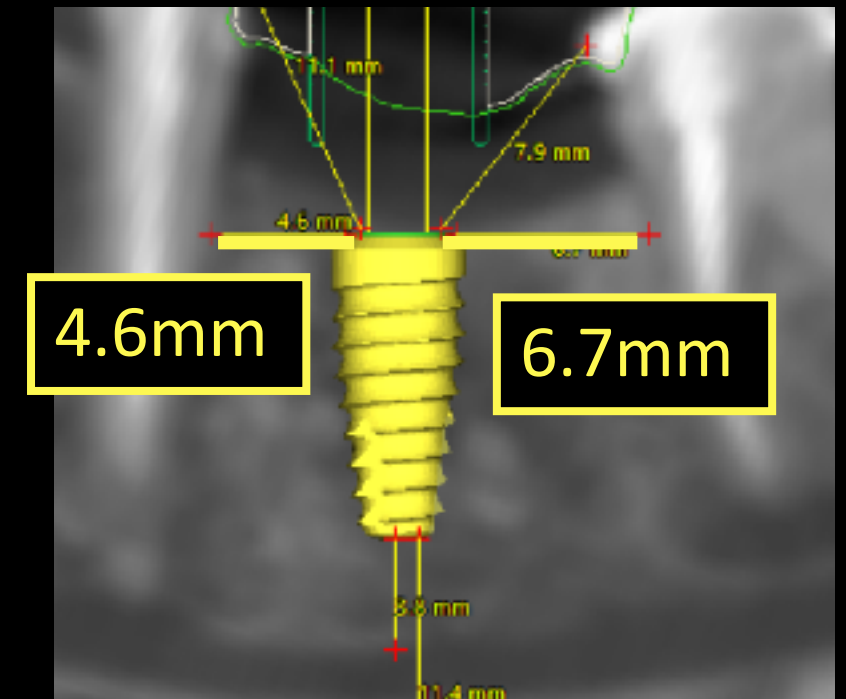
RESULTS

points of reference	planning	3 weeks later
Implant platform distal to tooth. 3.5	4.6mm	4.31mm
Implant platform to mesial of the tooth. 3.7	6.7mm	6.40mm
Implant platform to the most distal point coronal of the tooth. 3.5	11.1mm	11.61mm
Implant platform to the most mesial coronal point of the tooth. 3.7	7.9mm	7.76mm
Implant apical to the vestibular cortical	4.8mm	7.97mm
Implant apical to lingual cortical	5.1mm	2.81mm

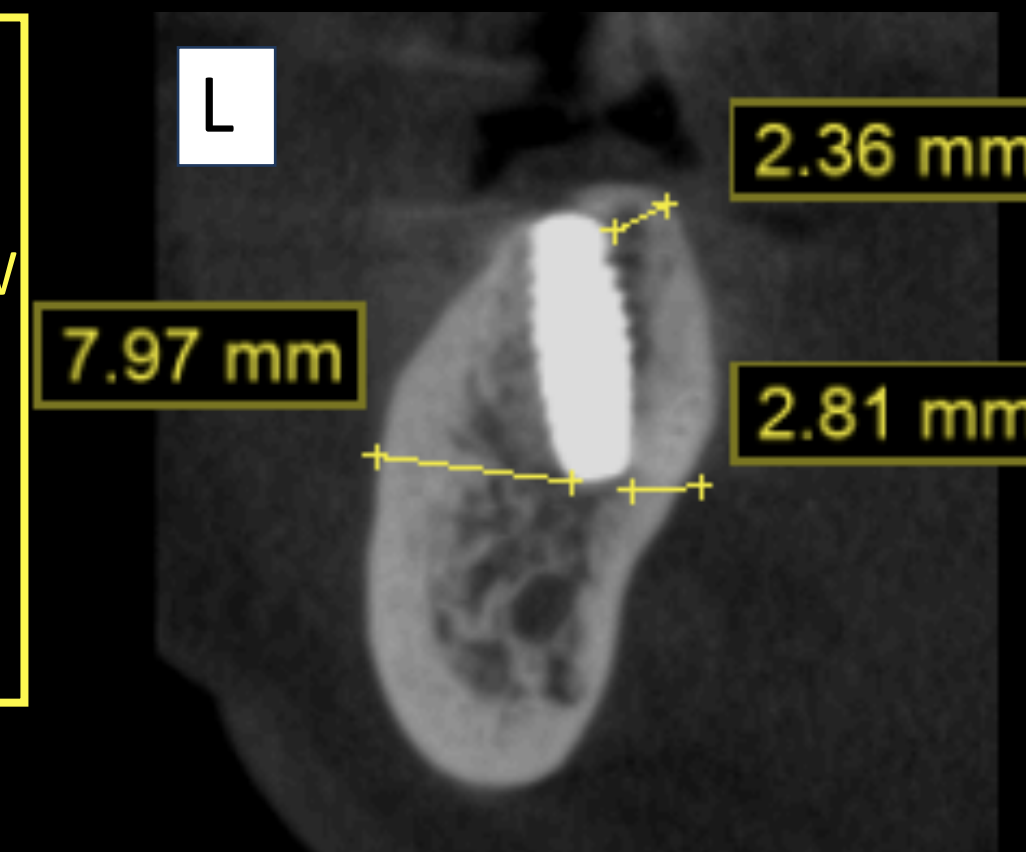
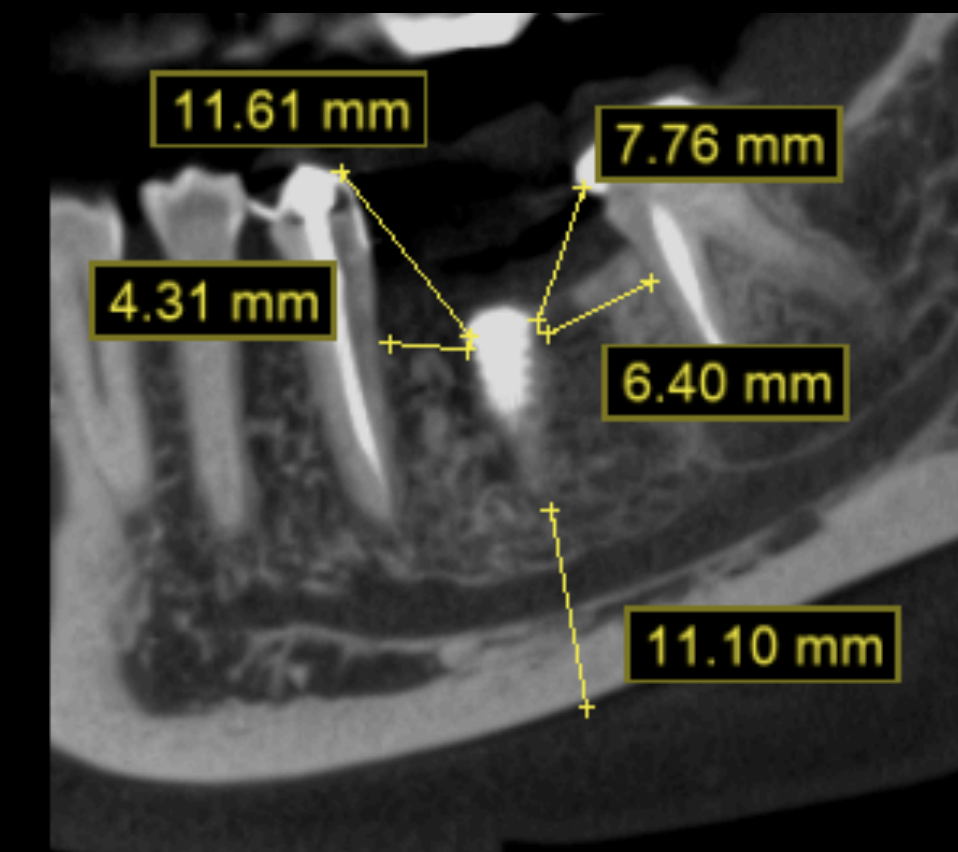
Conclusion:

Comparing the results between the two CBCT scans, a slight discrepancy from 0.51 mm to 0.14 mm was observed in the most distal coronal point of tooth 3.5 and in the the most mesial coronal point of tooth 3.7 respectively. Nevertheless, this discrepancy does not pose a significant issue due to the amount of remaining bone in the alveolar ridge. Despite this difference, the literature still favors the use of digital surgical guides due to their high predictability, especially in cases involving adjacent structures.

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Bibliography

