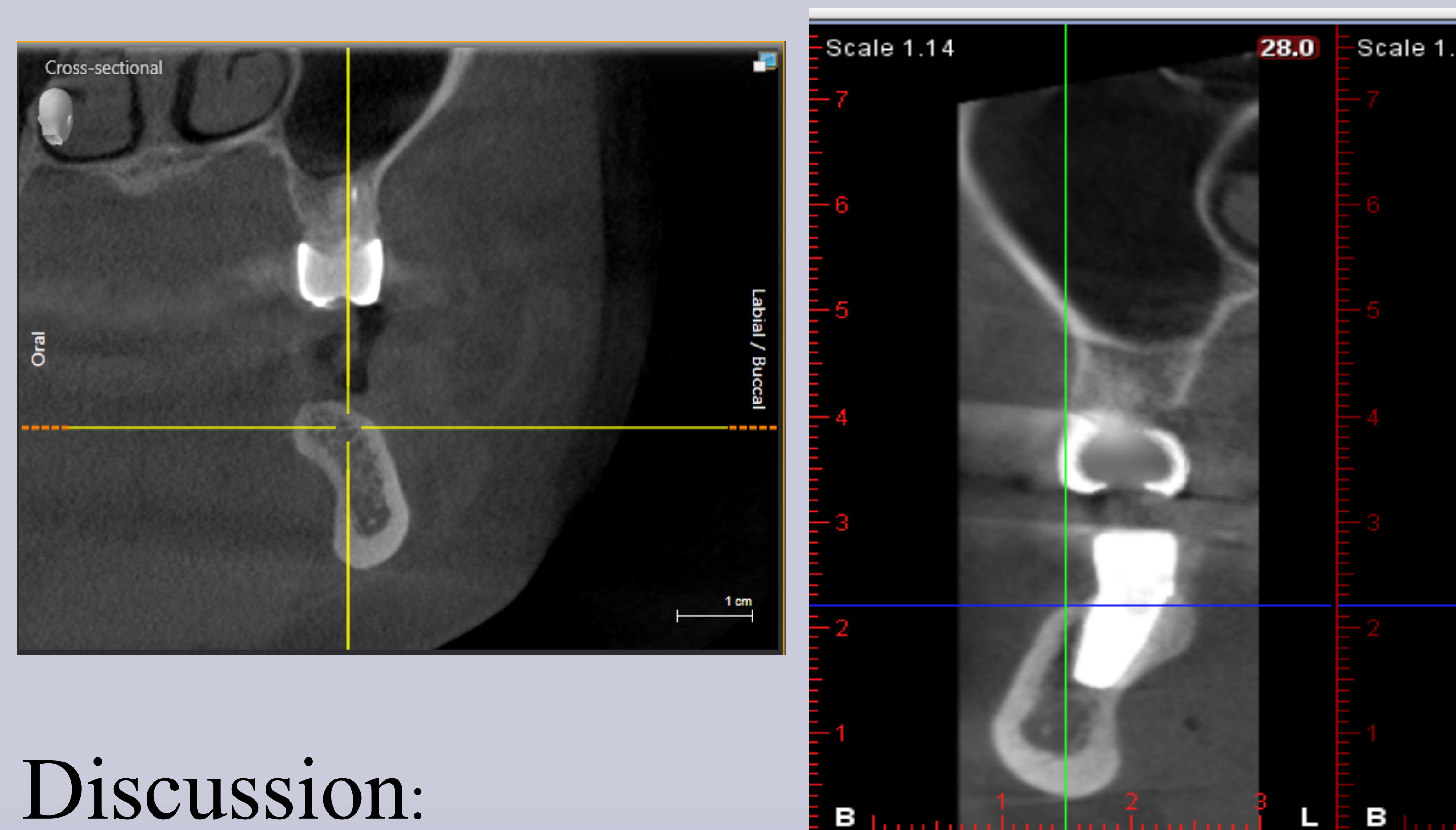


The Use of an Angle Corrected Implant in Order to Avoid Additional Ridge Augmentation Procedures in the Mandible: A Case Report

Katherine S. Hanser, D.M.D; Mohamed Tarek A. Omran, B.D.S, M.S; Robert L. Blackwell, D.D.S

Introduction:

Dental implants are often tilted off the long axis of the occlusal force in order to avoid natural anatomic structures, compromised anatomy, or additional need for bone grafting. Tilted implants often require an angled abutment or a cement-retained restoration to compensate for the poor prosthetic access. An edentulous mandible with buccal ridge resorption is a situation that has traditionally required ridge augmentation procedures in order to be able to place an implant in a favorable position. These procedures are additional surgical procedures for the patient, can often be unpredictable, and increase overall treatment time. The angle corrected implant is designed so that the off-axis correction is within the implant platform, allowing for a screw-retained restoration without the use of an angled abutment. This case study shows the use of a 24 degree angle corrected implant to replace a mandibular first molar, without the need for additional augmentation procedures.

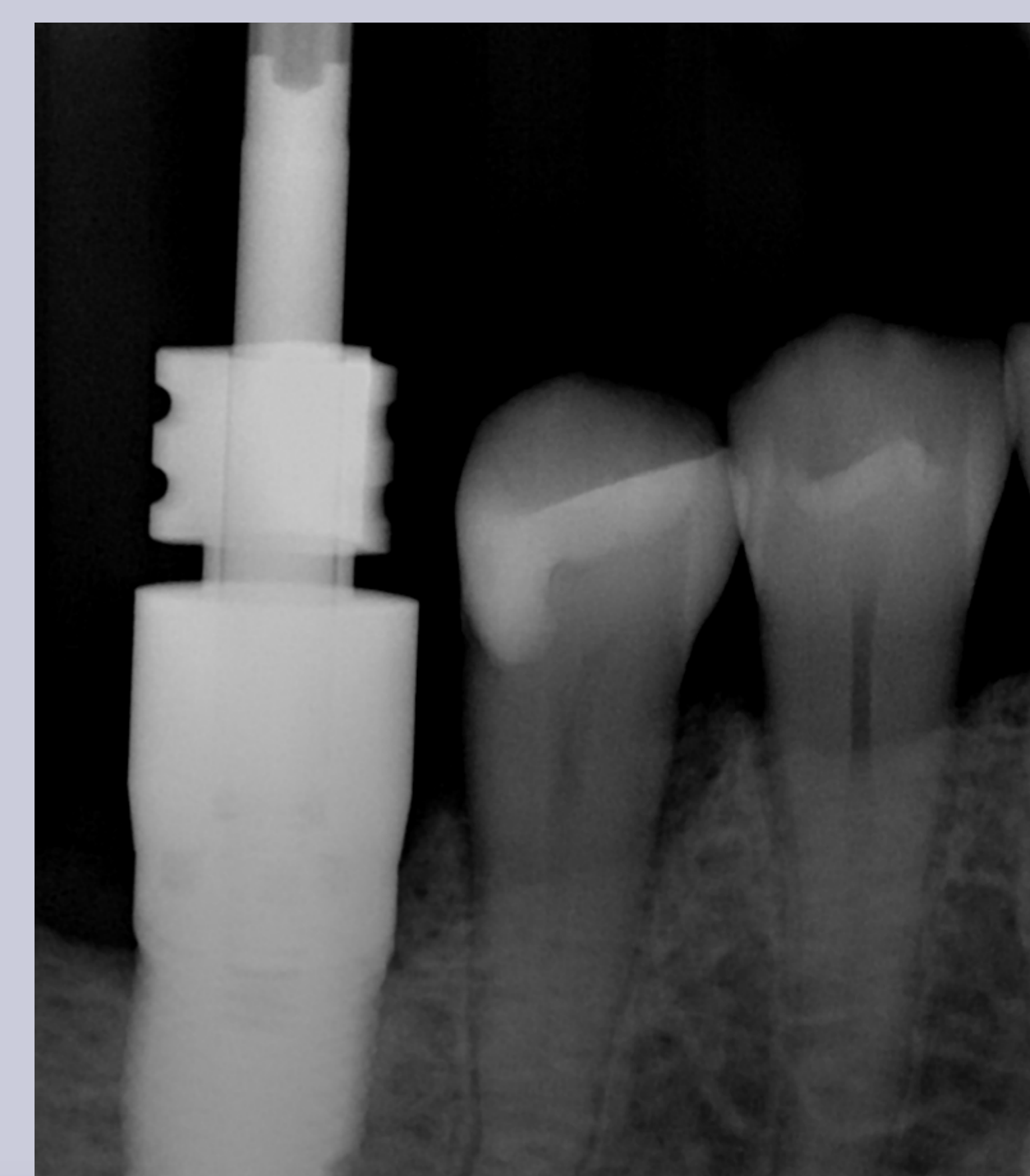


Discussion:

Tilted implants are often restored with either angled abutments and cement retained restorations. Both options can lead to mechanical or biological failure if not executed properly. The angle corrected implant is designed so that the off-axis correction is within the implant platform, allowing for a screw-retained restoration without the use of an angled abutment. Studies have shown that the sub-crestal angular correction not only decreases the occlusal stress on the fixture but also places the stresses at a more favorable position on the implant. This case report demonstrates using the angled correct implant as another option when treating the resorbed edentulous mandible.

Surgical Treatment:

A 50 year old woman presented with a missing #30 and sought to replace the edentulous space. The osteotomy was sized to receive a 10.0 mm long and 6.0 mm in diameter. The implant had a 24 degree correction in the internal aspect of the implant allowing for an optimal prosthetic access to the abutment screw. The co-axial design of the implant allowed for the surgeon to make the osteotomy in the long access of the mandible ensuring maximum thickness of bone circumferentially around the implant without perforating the lingual plate. Due to the dense bone quality (D2), the osteotomy was prepped to the 6.0 mm in diameter and insertion torque value of 80 Ncm was achieved at placement. A healing abutment was placed, and the soft tissue closure achieved by single interrupted sutures using 3-0 chromic gut



Prosthetic Treatment:

The implant was allowed to heal for a full 3 months before first removal of the healing abutment and the making of the final impression. A metal-ceramic screw-retained implant crown was fabricated using an UCLA abutment and delivered one month after final impression. The screw access of the restoration was centered on the occlusal table. Occlusion was designed to have 36 microns of occlusal space to compensate for the lack of a periodontal ligament as outlined by the timed implant occlusal concept. All excursions were removed from the restoration. The shade (B1) matches her maxillary restorations in anticipation for additional dental work on the mandibular arch including extraction of #31.



Conclusion:

A 24-degree off-axis corrected implant replacing a mandibular first molar was successfully restored with a screw-retained restoration without the need for additional ridge augmentation procedures. The correction within the internal aspect of the implant allowed for the surgeon to place an implant with an optimal prosthetic access to the abutment screw. This resulted in less surgery, time, and expense for the patient.