Axiom 2.8 by Anthogyr – France

A truly narrow Implant for restricted Mesiodistal space

By Dr Paul Renner

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The introduction of the Axiom 2.8 implant (made by Anthogyr – France) has provided a solution to restore certain edentulous spaces with implant supported crowns where bone width is limited. The implants are recommended for replacement of lower incisors and upper lateral incisors only. These implants use a true Morse Taper connection where the abutment is tapped into place using a special tool rather than screwed into place like most implant systems.

While the placement of the 2.8 implants is similar to the placement of most other systems the restoration of the implant requires different techniques than for systems with screw retained abutments. The main difference is that the 2.8 abutments do not have a locating key so placement of the abutment in most cases requires a locating jig to maintain the correct alignment.

The usual technique for restoring these Axiom 2.8 implants is to take an implant level impression using the pop-in transfer coping. This impression is sent to the technician who will select the most suitable abutment, construct the crown and return the abutment and crown with a locating jig (usually made of pattern resin). At the delivery appointment the jig is used to correctly align the abutment which is then tapped into place using the Safe Lock instrument and the crown is cemented in place.

For this technique an implant level impression is recorded using the pop-in impression coping. The technician selects the abutment and constructs porcelain fused to zirconium crown to fit the abutment. (In almost all cases we use the 2.5mm height abutments to allow the technician more length to develop an emergence profile and to keep the crown abutment join well below the gingival height to minimize the chance of the metal of the abutment being exposed if any gingival loss occurs aver the life of the implant.) This crown is then bonded to the abutment using Hot Bond®. The technician then constructs an acrylic jig which is used to locate the crown/abutment in the mouth. I prefer to have my technician construct the jig to cover the whole incisor of the crown/abutment and after initial location I will modify it to allow room for the V shaped tip of the Safe Lock instrument to fit onto the crown to tap it into place.

Case 1: Axiom 2.8 for Lower Anterior

The patient a 45 year old male presented for examination and a defect in the root of the 31 at gingival level was detected. Further examination of the defect revealed it to be root resorption which extended approximately 8mm subgingivaly. The tooth was deemed unrestorable and after discussion of the treatment alternatives it was decided to extract the tooth and replace it with an implant supported crown. The preoperative PA x-ray indicated that a degree of bone loss had occurred associated with the restorative lesion so it was deemed unlikely that the implant would be placed at the time of extraction and it was likely that bone augmentation would be necessary.

At the extraction appointment a flap was raised and the extent of the resorbtion was confirmed as was the loss of lingual bone in the vicinity of the lesion. The tooth was extracted and the defect filled with Biooss® and covered with a Bioguide® membrane and the site closed. During the surgery it was noted that the bucco-lingual width of the ridge was approximately 4.5mm and so it was planned to place an Axiom 2.8 implant.

After a period of 16 weeks healing the site was reviewed and a PA revealed that a degree of vertical bone loss had occurred and the bucco-lingual width of bone was limited but it was still possible to place a 2.8mm implant.

At the time of surgery a midline incision with a mesial relieving flap was performed and a buccal and lingual flap raised to expose the grafted site. The bucco-lingual width of bone was approximately 5mm. An osteotomy was performed and a 2.8 x 10mm Axiom inserted to 0.5mm below the level of the ridge crest. Due to the position of the available bone post grafting it was necessary to place the implant with the tip of the implant angled slightly to the buccal. The supplied healing abutment was attached and the incision closed around the abutment with 6O nyleen sutures. A temporary bonded composite bridge was constructed.

16 weeks later the surgical site had healed well and an implant level PVS impression was recorded using a pop in abutment and the composite resin bridge remade.

Due to the angle of the implant it was necessary to use a 15 degree angled abutment to bring the angle of

Case 1 Fig A: preop xray

Case 1 Fig B: implant insert

Case 1 Fig C: Healing, 4 weeks

Case 1 Fig D: implant coping

Case 1 Fig E: crown

Case 1 Fig F: inserting

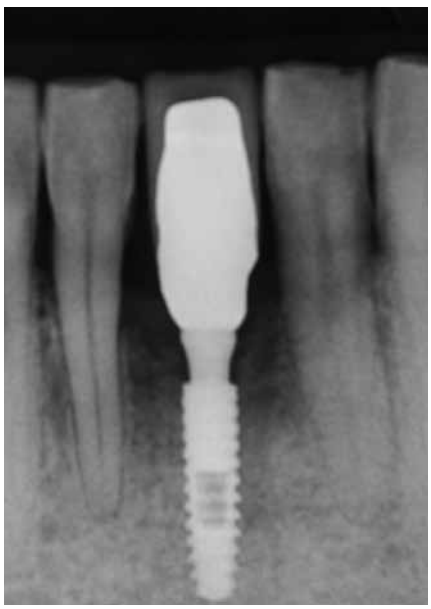
the abutment parallel to the adjacent teeth.

A zirconium crown with a buccal porcelain facing was constructed and bonded to the abutment with HotBond®. An acrylic locating jig was constructed to facilitate correct alignment on the implant during insertion.

At the insertion appointment the abutment/crown was positioned using the acrylic jig and pressed firmly into the implant. The jig was then modified to allow the V shaped tip of the Safe Lock instrument to contact the crown and the crown/abutment was tapped into place.

Due to the diameter of the neck of the crown being larger than the healing abutment considerable blanching of the surrounding tissues occurred, however these tissues adapted to the crowns contour and at the 2 week review the tissues were healthy with good colour and contour.

Case 1 Fig G



Case 1 Fig H: post op xray

Case 2 Fig A:

Case 2 Fig B: Impression

Case 2 Fig C: Abutment crown

Case 2 Fig D: Insertion

Case 2 Fig E: 14 day review

Case 2 Fig F: Review xray

Case 2 : Axiom 2.8 for Upper Lateral

The patient a 72 year old female who has been slowly transitioning from a cast metal partial denture to implant supported crowns and bridges was scheduled to have her last remaing edentulas space restored 22 with an implant and her 21 restored with a porcelain fused to zirconium crown.

A cone beam scan of the patient did not give a clear picture of the bone in the 22 area due to scatted from the postcore crown on the 23 however it was evident that the bone was thin in the bucco-lingual dimension. Surgery was planned with the option of either placing a 2.8mm implant or expanding the ridge to accommodate an implant at a later stage.

At the time of surgery a flap was raised and the bucco-lingual width of bone was found to 5mm at the thinest point, however the ridge was thin for the whole length of the 21 root which left little leeway in the angulation of the implant. It was decided to place an Axiom® 2.8 x 10mm implant at this time.

The implant was place and the supplied healing abutment attached and the site sutured closed. The patient continued to use her removable partial denture as a temporary.

After a period of 9 weeks a crown preparation was done on the 21 and a PVS impression was recorded of the 21 preparation along with an implant level impression of the implant in the 22 position.

The technician constructed porcelain fused to zirconium crowns for both the 21and 22, bonding the 22 crown to a 7 degree angle abutment with HotBond®. An acrylic jig was constructed to align the 22 crown/abutment to the 21 and 23 to facilitate correct alignment.

At the insert appointment the 21 crown was cemented and excess cement cleaned and the occlusion checked. Then the jig was used to position the 22 crown/abutment on the implant at it was tapped into place. ◆

For more information on the Axiom range of implants contact Gulmohar Dental on (03) 9544 6980
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Dr Paul Renner graduated with a BDSc from University of Queensland in 1981. For the last 20 years he has been placing and restoring implants. Paul also works part time as a clinical demonstrator at the University of Queensland Dental School.