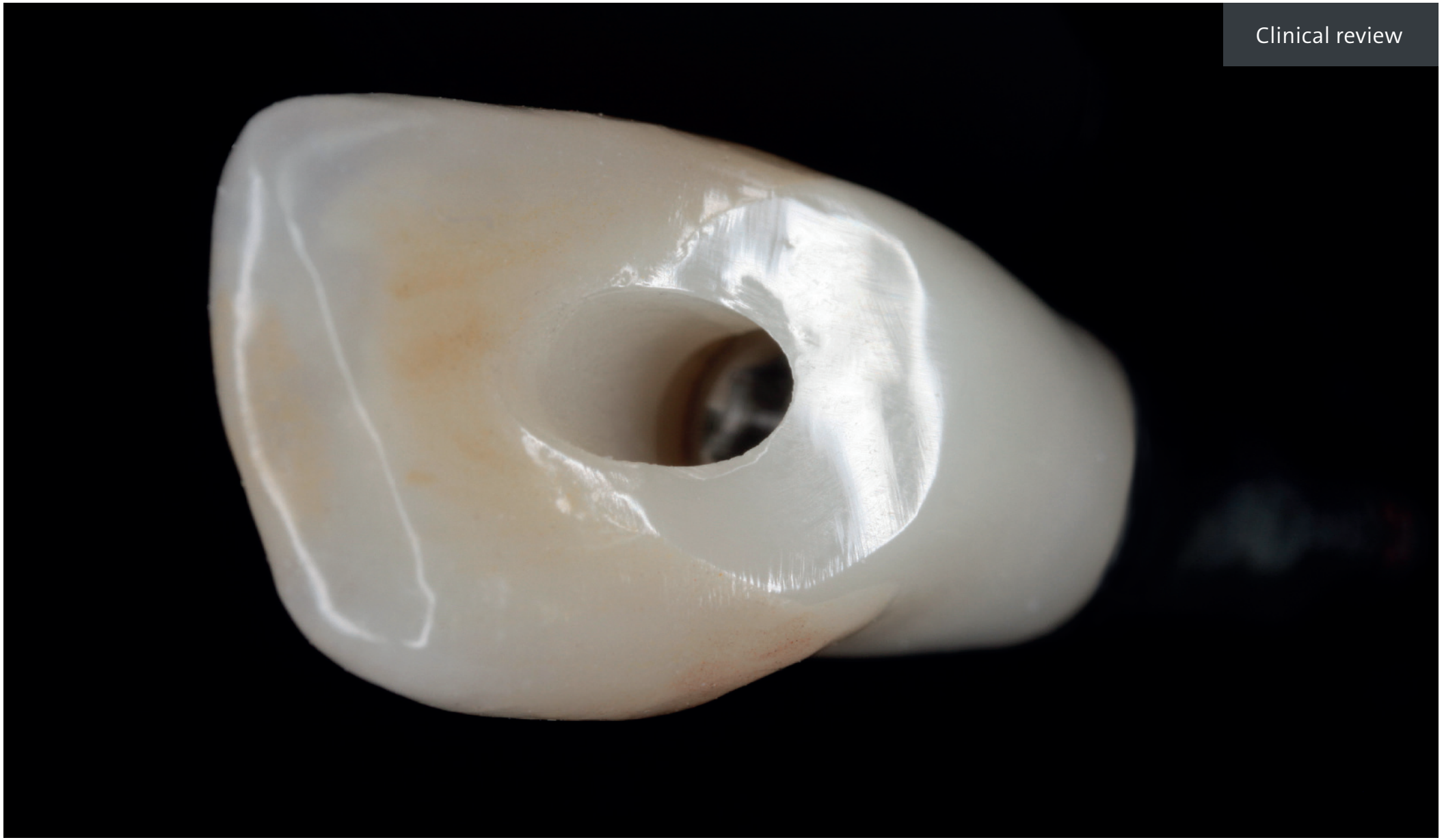


AxIN®

Anthogyr
A Straumann Group Brand

Innovation for surgical and prosthetic prognosis

Photo credits:

Anthogyr - Cover picture: Dr Egon EUWE, Dr Patrice MARGOSSIAN, page 20.

Clinical experiences

Single-unit restorations

1

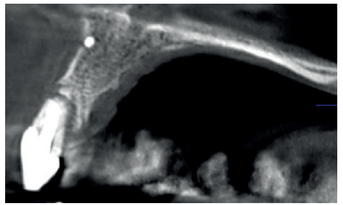
Extraction, implantation and immediate time-delay on central incisor AxIN® and the perfect positioning of the screw channel

Dr Claude AUTHELAIN, Mr Alain ARDIC

Case study

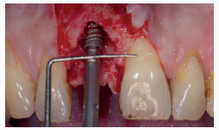
The patient comes in for a late consultation for a root fracture on tooth No. 11 (the trauma dates back to probably one month ago).

1. The clinical examination shows a great mobility of the tooth.



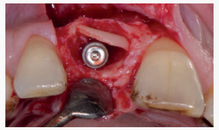
2. The CBCT shows a transversal fracture of the root with loss of vestibular cortexe.

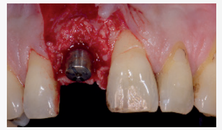
3. Clinical debridement confirms the large bone loss in the vestibular area.



4. Nevertheless, it is possible to place an Axiom® BL, Bone Level, PX 3.4 mm diameter implant, but we'll have to manage the dehiscence.

5 & **6.** A bone strip obtained from a small collection from the ramus bone is impacted in the alveolar site, previously mortised.

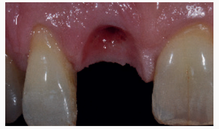




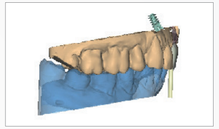
7. The space is filled with autogenous bone mash (ground).

8. A temporary screwed crown is placed before obturation. In the techniques of immediate extraction-implantation in the anterior sector, the implant axis emerges almost systematically in the vestibular area.

9. Healing at 1 month.



10. Soft tissues at 6 months.



11. CAD modelling of the Simeda® prosthesis.

12. Placement of the crown on a Sina ML zirconia frame on AxIN® base. The possibility of adjusting the axis allows to make the screwed prosthesis.

16. Final smile.

Conclusion

The logic today would have an orientation as much as possible toward the screwed implant prosthesis. The AxIN® system allows the adjustment of the axes to 25°, which increases the field of indications of the screwed prosthesis and falls within the current trend.

13. Screw tightening at 25 N.cm with AxIN® ball wrench.

14. The AxIN® system allows to "bring back" the screw channels on the palatal side, sufficiently at a distance of the free edge to avoid any risk of its weakening.

15. Crown in place. Perfect aesthetic integration of the restoration.

Rehabilitation of a central incisor in the maxillary with an AxIN® screw-retained single-unit tooth on Axiom® TL, Tissue Level implant

Dr Jonatan BELEY, Mr Jean-Marc ETIENNE

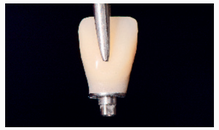
Case study

A 65-year-old patient comes in for a consultation for significant mobility of the left maxillary incisor.
Diagnosis of the endoperiodontal of tooth 21 with an occlusal trauma that caused a vestibuloversion and a major extrusion that bothers him when chewing and affects his quality of life.

1. Pre-operative smile.

2. Occlusal view before orthodontic treatment.

3. Occlusal view after orthodontic treatment, extraction of tooth 21 and application of a cosmetic transition veneer.



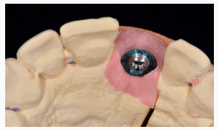
4. The soft tissues are shaped for the placement of a temporary screw-retained crown with straight channel. The emergence profile offered by the Axiom® TL, Tissue Level, R platform for a central incisor is interesting.

5. Intraoral view of the temporary crown.

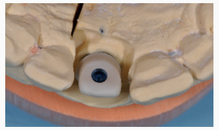
6. Axiom® TL, Tissue Level, implant in intraoral view.

7. Impression of position by indexed pop-in. The vestibular contour is finally satisfactory after subsequent grafts of hard and soft tissues.

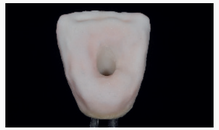
8. Impression of emergence profile created by the temporary crown.



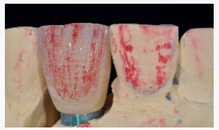
9. Master model and analogue.



10. Tooth machined on the model, in Sina Z zirconia.

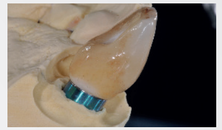


11. Crown stratification.

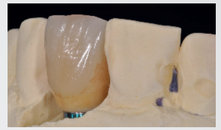


12. Crown stratification on laboratory base.

13. Ceramic coated tooth on laboratory base.



14. Tooth customisation.



15. Tooth customisation.

16. Tooth assembly on the permanent base.

17. Profile view of the AxIN® screw-retained tooth with zirconia base.

18. Front view of the prosthesis.

19. Occlusal view of the prosthesis. The reduction of the access channels reduces the quantity of composite resin required for the filling.

20. Final smile.

Conclusion

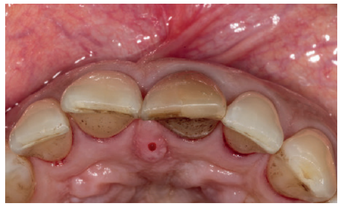
The choice of Axiom® TL, Tissue Level implant in this case has allowed the implant abutment interface to be moved more towards the crown, which is reassuring for patients with a history of periodontal disease. Additionally, the emergence profile of the R platform allows a natural transition. The innovation of the AxIN® base will have, for its part, allowed to reduce the diameter of the access channels to the screw, to place it in an optimal manner at the center of the palatal side and eliminates the presence of irritants (adhesive, cement) near the epithelium of the peri-implant junction.

Rehabilitation of an upper central incisor with an AxIN® screw-retained tooth

Dr Philippe COLIN, Mr Fabio LEVRATTO

Case study

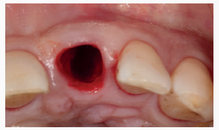
A 56-year-old female patient comes in for a consultation to have her upper left central incisor replaced with an implant. She no longer wants to keep her tooth, which is sensitive and has made her life difficult for a long time. The patient is in good health, a smoker of 15 cigarettes/day, with no acknowledged parafunctional signs. Treatment suggestion: immediate implant on 21 with immediate use except for occlusal load, final screw-retained crown with one veneer on 11 to realign this tooth and close the embrasures.



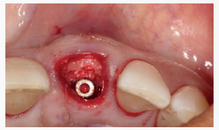
1 & **2**. Chronic periodontitis of medium intensity, with loss of attachment, without probing depth, average periodontal biotype, loss of taste buds, movement of 11 following a contact in propulsion with 42, sensitivity to percussion on 21, smile intentionally low and difficult to analyse due to the patient's reluctance.

3. Pre-operative X-ray.

4. Atraumatic extraction of 21.



5. Curettage of the alveolus (curette and round bur at slow speed under irrigation), drilling in palatal direction after probing the incisor canal.



6. The area is thickened with connective tissue collected at the tuberosity, particles of Bio-Oss® in the vestibular hiatus between the crest and the Axiom® BL, Bone Level PX implant 4 x 12 mm.

7. A temporary abutment measuring 5 mm in diameter with straight channel, height 2.5 mm is positioned on the implant, retouched in the mouth under spray and processing of the temporary using a silicone wrench.

8. Much attention is given the adjustment of the static and particularly the dynamic occlusion to avoid any propulsive contact and also to clean the abutment.

9. End of session X-ray.

10. Healing at 1 month. The concave, sufficiently high temporary abutment has allowed good stabilisation of the soft tissues.

11. Situation 3 ½ months after placement. Tissue stabilisation is complete. The 11 – 12 gap is visible as is the receding gum of 21.

12. The preparation of 11 is conducted under the indications of a previously created mock-up: nearly inexistent in mesial and letting a range of dentine appear in distal, with penetration in the embrasures.

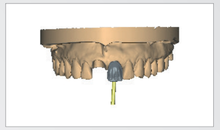
22. 2 months after the insertion. The patient accepts the result by rightly pointing out the slightly brighter appearance of the crown on 21. To correct this, the removal is simple, and the absence of adhesive cement between the AxIN® abutment and the crown facilitates the laboratory procedure. However, this would involve taking the crown off once again, which would disturb the adhesion of the soft tissues.

Conclusion

Although a screw-retained crown on an AxIN® base allows the angulation of the access channels to the abutment screw of 25°, it often happens that a few degrees of lingual angulation are necessary to avoid too close proximity with the free edge of an anterior single-unit crown. This solution lets us avoid the traditional cemented crown on abutment and generally increases the possibilities offered by the prosthesis screwed on implant that becomes the solution of choice when connecting a fixed prosthesis on an implant.

13. The shape of the outline of 21 is saved to personalise the impression coping, and the impression is taken with Impregum.

14. Working model.



15. Simeda® CAD modelling.

16. Base analogue + laboratory screw on the model.

17. Appearance of peri-implant soft tissue after 3 ½ months of use, during the second unscrewing of the crown on the implant, and glueing of the veneer.

18. It's in full Sina ML zirconia and supplied with a Ø 4 mm and H 1.5 mm AxIN® base. The tooth is screwed at 25 N.cm. The occlusal conditions have led to reduce the distal angle of the veneer.

19. The Angulated Access has allowed an ideal emergence on the cingulum without overcontour and with an access orifice to the screw maintained at 2 mm.

20. View 2 months. The base has been selected to rise up the vestibular contour in order to increase the compression of soft tissues, but also to leave sufficient room for the vestibular stratification.

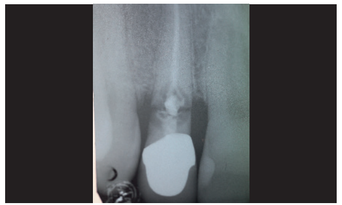
21. Final X-ray.

AxIN® case on an Axiom® BL, Bone Level PX implant placed immediately after extraction

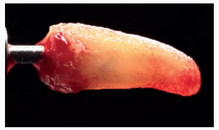
Dr Egon Euwe, Mr Pasquale Palmieri

Case study

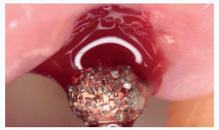
A 48-year-old man.



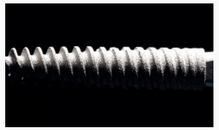
1 & **2**. Situation before the extraction of the patient's tooth.



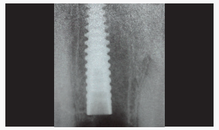
3. Atraumatic extraction.



4. De-epithelialisation of the alveolar margins.

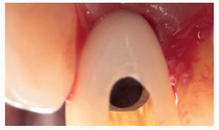


5. Axiom® BL, Bone Level, PX 16 x 3.4 mm.



6. Good vertical positioning.

7. Bio-Oss® in the oral space.

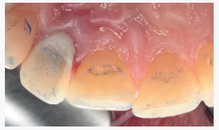


8.a. Preparation of the temporary prosthesis.

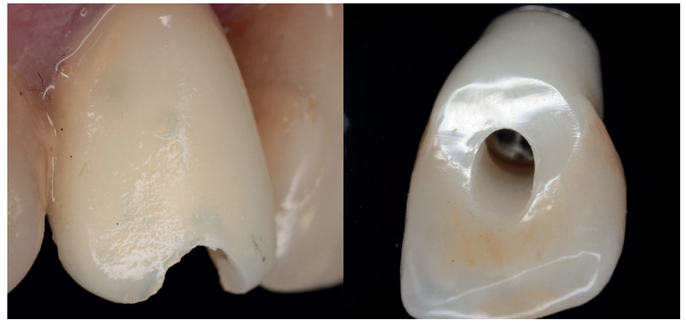
8.b. The screw channel of the temporary prosthesis falls into the free edge.

9. Occlusal view initial healing. Falls into the free edge.

10. Front view of initial healing.



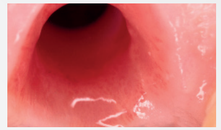
11. Occlusion check.



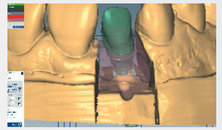
21. Temporary access with a straight channel versus access with AxIN® base.

Conclusion

This case shows a temporary prosthesis with a straight channel leading to an unfavourable access (in the free edge), which is effectively repositioned in a sturdier part of the restoration and with a very small hole thanks to the AxIN® permanent prosthesis. This is essential for relatively small teeth and with an overocclusion.



12. After connective tissue graft in the mouth (bag technique) and tissue stabilisation for 4 months.



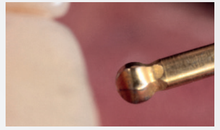
13. CAD design.

14. Sina T zirconia machined tooth, on AxIN® base.

15. Ceramic tooth on AxIN® base.

16. Prosthesis on the model.

17. Screwing of the permanent prosthesis at 25 N.cm torque.



18. The prosthesis is removed at the end of 2 weeks by routine temporary placement.

19. Occlusal joint.

20. Final result with 25 N.cm screwing torque.

Anterior aesthetic rehabilitation: the intake of AxIN®

Dr Christophe FORESTI, Mr Cyrille FERREIRA

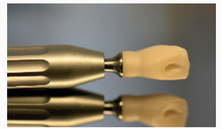
Case study

Mr B., aged 81, comes in following the fracture of his left maxillary central incisor, abutment of the mixed bridge dental implant fitted 21.(22).23.24.25.(26).27 made by his previous dentist about ten years ago. Taking into account the good condition of this prosthetic rehabilitation and the age of our patient, it is decided to leave 22 in extension and prepare a single-unit implant in place of his incisor. Following the extraction and filling of the infected site, a removable temporary prosthesis is fitted in the meantime to allow the area to heal.

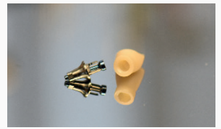
1. Sagittal view of the implant-prosthetic angulation.

2. Front view of transfer coping with impression ring.

3. Sina T zirconia machined tooth.

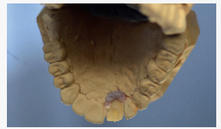


4. Tooth and AxIN® base assembly on manipulation wrench.



5. Laboratory base and machined tooth.

6. Homothetic machining of the infrastructure.



7. Compact design palatal screw channels.

8. Occlusal check in the laboratory.

9. Vestibular emergence profile.

10. Verification of ceramic transition angles palatal side on laboratory base.

11. Finished tooth, assembled on permanent base.

12. Slightly subgingival position of the healing screw.

13. Emergence profile allowing a slight deformation of the soft tissues.

14. Vestibular over-compression.

15. Palatal emergence.

16. Vestibular emergence.

17. Optimal tissue behaviour.

Conclusion

If the choice of a totally ceramic prosthesis is recommended within a previous rehabilitation in order to extend the aesthetic result, the use of the AxIN® screw-retained tooth also allows:

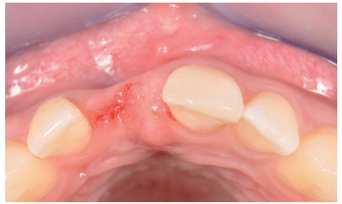
- to optimise the placement and the size of the screw channels
- to adopt perfectly compatible prosthetic components
- to be easily disassembled, which lets us obtain one of the most aesthetic results and, most importantly, completely scalable

Features of a central incisor: hard tissues, soft tissues, prosthesis
AxIN®, the appearance of a natural tooth

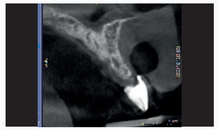
Dr Patrice MARGOSSIAN, Mr Stevie PASQUIER
Mr Gilles PHILIP

Case study

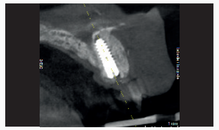
A 24-year-old patient, with absence of 11 following a traumatic avulsion in childhood.



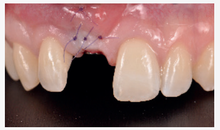
1, 2 & 3. **Initial situation:** the photographic and scanner analysis shows a tissue flaw essentially horizontal, with a very marked concavity of the vestibular cortex.



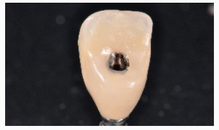
3.

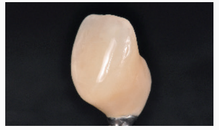


4 & **5. Implant phase:** an approach in 2 surgical steps was selected to ensure the vestibular bone reconstruction. A cone shaped implant was stabilised at 40 N.cm. The vestibular concavity has naturally exposed a few spires of the implant body. A Guided Bone Regeneration associating a mixture of autogenous bone collected in the nasal spine and a xenograft was stabilised thanks to a pinned resorbable membrane. The time-delay is ensured by a commercial tooth simply glued to the adjacent teeth.



6 & **7. Tissue development:** the implant (Axiom® BL, Bone Level, PX) is activated at the end of 6 months. A connective graft collected at the tuberosity is tunnelled in vestibular in a bag made with a spoon blade (MJK).





8, 9 & **10. Time-delay and shaping of the tissues:** the role of immediate time-delay is essential in shaping the tissues. The temporary restoration is therefore made directly by the solidification of a commercial tooth on a temporary straight titanium abutment which is screw retained on the implant.

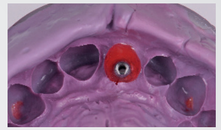
11 & **12**. The shapes of the contour adapted (concave in vestibular and convex in proximal) will allow to model the gingival cavity closest to the natural appearance by taking full advantage of tissue healing dynamics.

21. Final smile.

Conclusion

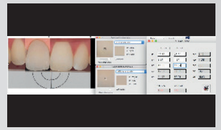
The making of a single-unit implant rehabilitation is always a challenge both from a surgical and a prosthetic standpoint. The goal is to restore a dento-gingival composition that is totally harmonious and with a natural appearance.

13 & **14**. Preparing the impression: the objective is to transfer to the laboratory the position of the implant and that of the peripheral soft tissues. The first step consists in preparing a customised coping that takes the shapes of the outline of the temporary restoration.

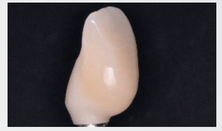


15. The impression is taken with an open tray technique with a polyether.

16. The aesthetic reference axes are directly marked on the model thanks to the Ditramax system and will serve as a guide for the vestibular shape.



17. The shade is taken with a digital approach (elab) with a virtual digital fitting.



18 à **20**. The final prosthesis is made with a new AxIN® screw-retained device. The aim is to screw-retain a single-unit Sina Z zirconia cap, taking advantage of the adjustment of an axis that is orientable to 25°. This allows a different approach vs the existing systems on the market because here the screw is inserted before clipping the cap on the lock of the titanium base. This results in saving material inside the access channels of the screw, thus offering the possibility of a more palatal positioning of the zirconia frame. The stratification of vestibular cosmetic ceramic thus ends up having more room, improving the aesthetic result.

AxIN® Angulated Temporary solution

Dr Patrice MARGOSSIAN, Mr Stevie PASQUIER
Mr Gilles PHILIP

Case study

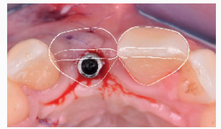
A 32-year-old female patient lost her central incisor in an accident. A bone reconstruction has been made with a GBR at the same time as the placement of the implant. Here, we illustrate the gingival development and the preparation of a temporary screw-retained prosthesis on the day of the surgical phase 2.

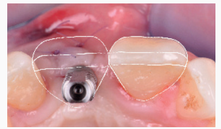
1. Gingival situation on the day of implant phase 2.

2. Implant activation with a minimally invasive approach. A palatal connective graft is tunnelled to provide again a vestibular volume and thus increase the tissue thickness around the neck of the implant.

p.16

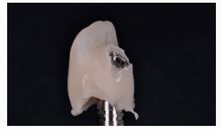
3. Choice of the temporary angulated component. 2 base diameters and 2 neck heights are available in order to best adapt to the anatomy of the tooth to replace and the penetration of the implant. 4 angulations are possible.



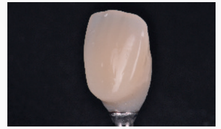


4 & **5.** Clinical comparison in occlusal view of a temporary component with angulation 0° and 10°. The position of the implant respects the natural anatomy by passing through the free edge of the tooth. The cingulate exit is ensured by the new AxIN® temporary prosthetic options. A 2.5 mm high and 4 mm wide base has been selected here.

6 & **7.** Reduction of the height of the component according to the patient's occlusal height available.



8 & **9.** The intraoral solidification only involves the supra-gingival portion by means of PMMA resin. The rest of the modelling is made extra-orally to avoid any chemical damage of the mucosal collar.



10, **11** & **12.** The transgingival contour shape is finished and polished to optimise the vestibular and proximal mucous response.

13. Clinical situation on the day of phase 2.

14. Clinical situation 15 days post-surgery.

Conclusion

The temporary angulated AxIN® component represents an extraordinary advancement in the field of cosmetic implantology. It allows a change of paradigm in the anterior tridimensional implant positioning. By being included in the general volume of the tooth it replaces, AxIN® has a true anatomical rationale. These new possibilities help ensure access to the screw is not visible in the palatal, while at the same time optimising the amount of stratification in vestibular and therefore the aesthetic result.

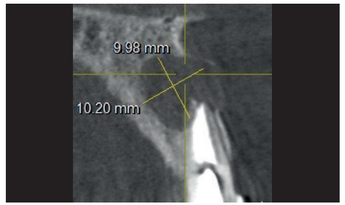
p. 17

Implant Axiom® BL, Bone Level, after avulsion of tooth 11 and cyst enucleation

Dr Nicolas RENOU, Dr Jean-Baptiste VERDINO
Mr Gilles GIORDANENGO

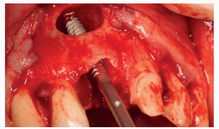
Case study

A 40-year-old male patient presenting with a large periapical cyst on 11 with vestibular invasion. The tooth avulsion, cyst enucleation, placement of an Axiom® BL, Bone Level, implant and bone filling were all performed in the same session. After 6 months' healing time, the AxIN® angulated screw-retained temporary prosthesis has been a solution of choice for the use and aesthetics of this implant.

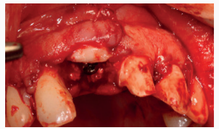


1. Crown cut of 11 showing a sizeable cyst measuring 10 mm in diameter with vestibular bone invasion.

2. Initial situation.



3. Placement of an Axiom® BL, Bone Level, implant after tooth avulsion and thorough site cleaning.



4. A bone filling and the placement of a vestibular connective graft have been performed.

5. Situation of healed implant after removal of the temporary tooth-supported tooth.

6. Profile view showing the vestibular axis of the implant.

7. Preparation of the gingival development.

8. Base + temporary angulated AxIN® cap set on the model.

9. Temporary prosthesis on the model.

10. Occlusal view of the temporary screw-retained AxIN® prosthesis.

11. Temporary AxIN® prosthesis with the base, screw and machined prosthesis.

12. Screw tightening at 25 N.cm of the prosthesis with the Anthogyr ball screwdriver.

13. Retro-alveolar X-ray, check of good adjustment of the prosthesis.

14. Intraoral view of the temporary prosthesis.

15. Prosthesis ceramisation.

16. Prosthesis ceramisation.

17. Permanent Sina ML Zirconia prosthesis on the model.

18. Permanent Sina ML zirconia prosthesis on the model.

19. Permanent prosthesis in the mouth, frontal view.

20. Final smile.

Conclusion

The use of this new AxIN® screw-retained temporary prosthesis can be a solution of choice with many advantages:

- Making a screw-retained single-unit temporary prosthesis that allows angulated tightening up to 25°
- Absence of glue that can contaminate the implant environment
- Accurate adjustment of prosthetic pieces and ease of use in the mouth bringing real comfort and a certain durability during the time-delay phase

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