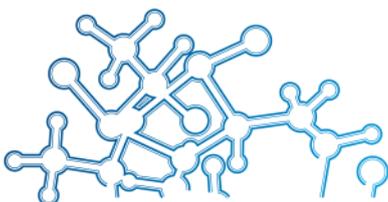


Syndesmosis Fixation Using ActivaScrew™s in Three Weber C -Type Ankle Fracture Cases

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1 Introduction

- We have successfully combined the use of conventional metallic AO-plates and -screws with the biodegradable syndesmosis screw (ActivaScrew™ 4.5 x 70 mm) to fix the ruptured syndesmosis after the Weber C -type ankle fractures.
- ActivaScrew™ is compatible with the standard AO instrumentation, easy to implant and does not break during the implantation.
- The syndesmosis screw can be implanted after the fracture have been fixed with AO-plates and -screws. ActivaScrew™ goes through standard screw hole in the AO-plates with ease.
- By using syndesmosis screw, the additional surgical procedure at 8-10 weeks after the primary surgery needed to remove the conventional metal syndesmosis screw, can thus be completely avoided.
- The orientation of the material (e.g. self-reinforcement) provides the screw enough strength to be used in biomechanically demanding situation.
- “One size fits all”. The screw is cut after the insertion to ideal length.

2 Case 1

2.1 Description

- 24-year old male
- Alcohol and Drug abuse
- Bimalleolar Weber C -type ankle fracture



Figure 1 Preoperative X-ray for Case 1.

2.2 Surgical Procedure

- Lateral malleolar fixation with AO-plate and -screws
- Two 4-cortical biodegradable ActivaScrew™s were used for syndesmosis fixation.
- Medial malleolar fracture fixation by two metallic AO-screws

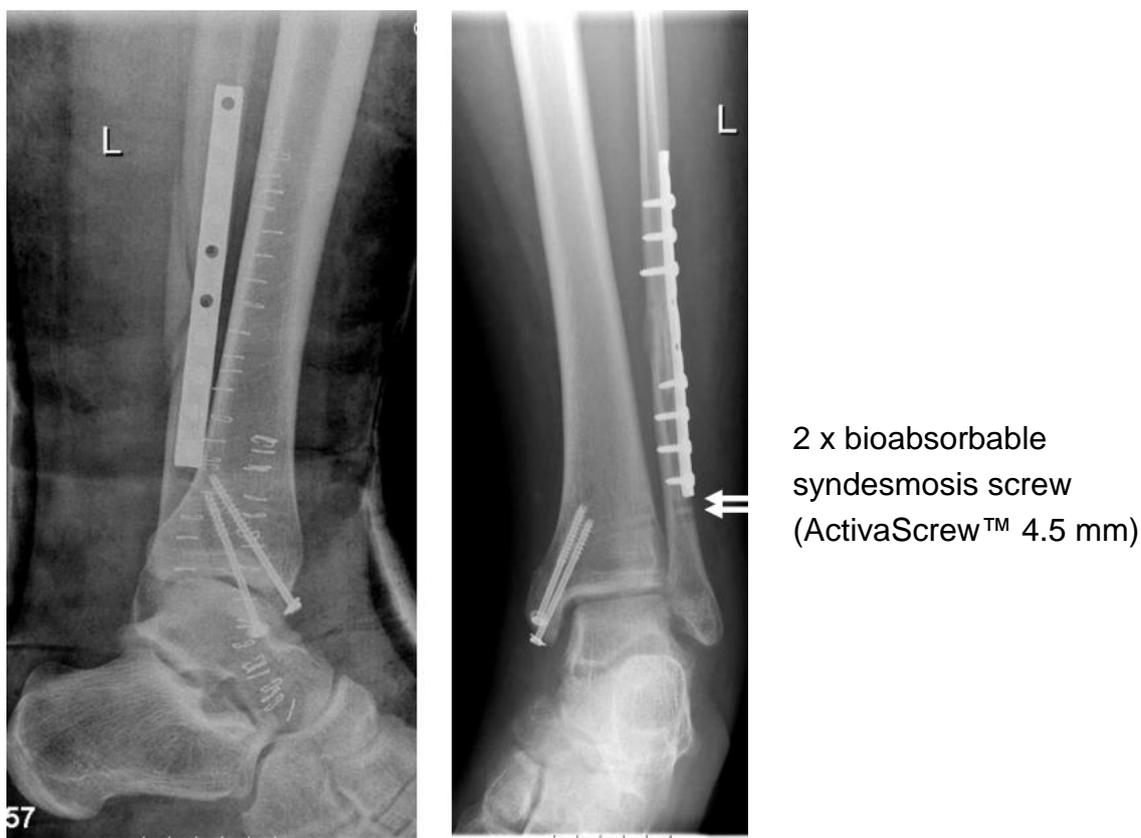


Figure 2 Postoperative X-ray for Case 1.

2.3 Results

Post-operative protocol and follow-up:

- Short cast for 6 weeks (skin suture removal on day 14)
- Weight-bearing protocol:
 - 3 weeks no weight-bearing
 - 2 weeks partial (half) weight bearing
 - 1 week of full weight-bearing with the cast
 - At 6 weeks: Cast removal, X-rays and clinical examination
- X-rays at 6 weeks: No widening of the syndesmosis
- Follow-up: the patient encouraged to contact either operating surgeon or the department if any symptoms persisted; no contacts (2009 - 2012)

3 Case 2

3.1 Description

- 52-year old male
- Slipped on icy surface during a snow-storm
- Trimalleolar Weber C -type ankle fracture



Figure 3 Preoperative X-ray for Case 2.

3.2 Surgical Procedure

- Lateral malleolar fixation with AO-plate and -screws
- One 4-cortical biodegradable ActivaScrew™ for syndesmosis fixation
- Medial malleolar fracture fixation by two AO-screws
- Post. Tibial fracture fixed with two AO-screws inserted from anterior to posterior-direction



Figure 4 Postoperative X-ray for Case 2.

3.3 Results

Post-operative protocol and follow-up:

- Short cast for 6 weeks (skin suture removal on day 14)
- Weight-bearing protocol:
 - 3 weeks no weight-bearing
 - 2 weeks partial (half) weight bearing
 - 1 week of full weight-bearing with the cast
 - At 6 weeks: Cast removal, X-rays and clinical examination
- X-rays at 6 weeks: No widening of the syndesmosis
- Follow-up: the patient encouraged to contact either operating surgeon or the department if any symptoms persisted; no contacts (2009 - 2012)

4 Case 3

4.1 Description

- 47-year old female
- Horse riding accident
- Bimalleolar Weber C -type ankle fracture



Figure 5 Preoperative X-ray for Case 3.

4.2 Surgical Procedure

- Lateral malleolar fixation with AO-plate and -screws
- One 4-cortical biodegradable ActivaScrew™s were used for syndesmosis fixation
- Medial malleolar fracture fixation by two metallic AO-screws



Figure 6 Postoperative X-ray for Case 3.

4.3 Results

Post-operative protocol and follow-up:

- Short cast for 6 weeks (skin suture removal on day 14)
- Weight-bearing protocol:
 - 3 weeks no weight-bearing
 - 2 weeks partial (half) weight bearing
 - 1 week of full weight-bearing with the cast
 - At 6 weeks: Cast removal, X-rays and clinical examination
- X-rays at 6 weeks: No widening of the syndesmosis

- Follow-up: the patient encouraged to contact either operating surgeon or the department if any symptoms persisted; no contacts (2009 - 2012)

5 Conclusion

- Bioretec's biodegradable syndesmosis screw (ActivaScrew™) is easy to use in the operating theatre and compatible with the standard AO-instrumentation.
- Bioretec's biodegradable screw (ActivaScrew™) does not break during the surgical procedure and can be inserted through normal AO-plate with ease.
- The biodegradable syndesmosis screw has the benefit over the conventional syndesmosis screws that there is no need to remove it.
- Neither complications nor syndesmosis widening encountered with the Bioretec's biodegradable syndesmosis screw (ActivaScrew™) during clinical follow-up.
- "One size fits all". Custom screw length obtained for all patients by hot-loop cautery that cuts the screw to ideal length after the insertion.

6 Contact Information Concerning the Cases

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