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
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
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
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
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

![Preoperative X-ray for Case 3.](image)

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
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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