First Metatarsophalangeal Arthrodesis Using ActivaScrew™ Cannulated LAG

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Summary Table

Bioretec Case Report Form
(ActiveScrew, Activa Screw Cannulated, CiproScrew, ActivaPin, ActiveNail Conical)

Demographics

Patient number: P01 Patient Initials: KMM
Smoking: No Sex: Female
Use of alcohol: Normal Age: 67 Years
Systemic disease: Yes Height: 155 cm
Cont. Medication: Yes Weight: 55 kg

Note:
Continuous medication on high blood pressure (nilvadipine, losartan potassium and metoprolol succinate) and on autoimmune hepatitis (azathioprine and ursodeoxycholic acid).

Case description

Injury date: Slowly developed Diagnosis number: M20.1
Diagnosis: Hallux valgus ldx.
Cause of injury: Slowly developed hallux valgus. Patient thought that it might be related to trauma in the childhood.

Operation

Operator: Dr. Heikki Mäenpää Operation date: 18.6.2015
Operation description: NHGB80 Arthrodesis MTP I pedis ldx.
Operation time: 0 h 48 min Immobilisation method: Immobilization shoe
Hospital stay: 1/2 Days No weight bearing: 0 Weeks
Sick leave: 42 Days Partial weight bearing: 0 - 6 Weeks
Bloodless field during operation: Yes
Prophylactic antibiotics: Yes If Yes, Name of Antibiotic:

Implant 1: ActiveScrew Cannulated LAG Size: 3.5 x 40 LOT: S 15016
Comments on implantation: -

Implant 2: ActiveScrew Cannulated LAG Size: 3.5 x 45 LOT: S 14072
Comments on implantation: Challenge to find correct position for the k-wire.

Follow up

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1 Case Description

67 years old female patient with severe hallux valgus in the right foot causing pain and severe limitation of physical activity. First hallux valgus angle (HVA) of 50° and the age of the patient suggest MTP I arthrodesis. The operation was decided to be carried out with bioabsorbable devices to avoid possible long term complications and removal operation of the implants. Figure 1 below shows the preoperative radiological and visual view of the foot.

![Image](image1.jpg)

*Figure 1 Preoperative X-ray and visual view of the foot.*

2 Surgical Procedure

MTP I arthrodesis was carried out using one 3.5 x 40 and one 3.5 x 45 mm ActivaScrew™ Cannulated LAG. The dorsal incision was made over the whole length of the MTP I joint, as shown in Figure 2.
Figure 2  Incision over the MTP I joint and joint capsule release.

The joint capsule was opened and the joint surfaces were prepared with cup and cone reamer.

Figure 3  Cup and cone reamer was used for preparing the joint surfaces for the fusion.

The joint was aligned correctly and temporary stabilized with two guidewires like shown in Figure 4.
Drilling, tapping and screw insertion was carried out along the same two guidewires.
The perioperative visual and fluoroscope view of the foot showed good alignment and well compressed joint surfaces. Appropriate position of the first MTP joint was achieved (15 degrees of valgus and 20 degrees of dorsiflexion). The wound was closed in two layers with the capsule closed beneath the extensor tendon. The skin was closed with 3-0 interrupted sutures.

![Figure 6](image)

**Figure 6** Postoperative visual and fluoroscope view of the foot.

3 Post-operative Regimen

A compression dressing was applied to support and protect the foot during the first days after the operation. The bandage is shown in Figure 7.

The stitches were removed 14 days postoperatively. The patient was instructed to wear a hallux valgus shoe and avoid full load bearing on the foot for the first 6 postoperative weeks. The patient was instructed to come for the first follow up visit at 6 weeks.

![Figure 7](image)

**Figure 7** The bandage that was applied right after the operation.
4 Results

At 6 weeks X-ray showed bony fusion of the MTP I joint (Figure 8). Full weight bearing was started gradually and the patient could go back to normal activity level within the next few weeks. The patient was allowed to start bearing exercise three months after surgery.

Figure 8  Fusion of MTP I joint could be seen in the X-ray at 6 weeks postoperatively.

Additional clinical control visits were not planned. However, the patient was advised to contact the clinic if needed. The patient did not contact the clinic later.

5 Conclusion

Bioretec ActivaScrew™ Cannulated 3.5 mm LAG is well suitable for MTP I arthrodesis. With bioabsorbable fixation devices in MTP I fusion possible long term complications and need for removal of the hardware can be avoided.

When using LAG screws for MTP I arthrodesis, it is important to plan the length and direction of the drill channel versus the length of the screw so sufficient compression and solidity of the fusion is achieved. Screws can be inserted crosswise, like on the left in Figure 9. Another option is to insert screws from the proximal to distal direction like on the right in Figure 9.
Figure 9  Screws placement crosswise (left). Screws placement from the proximal to the distal direction (right).

6 Contact Information Concerning the Case

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