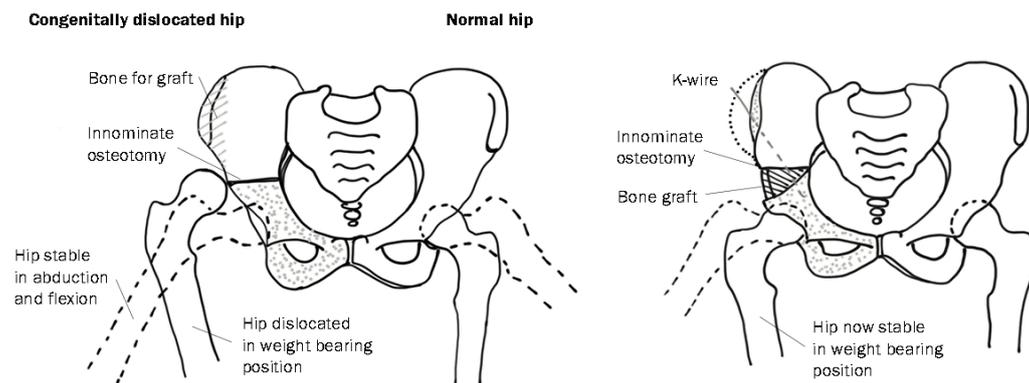
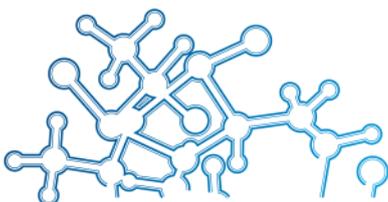


# Salter Osteotomy Using ActivaScrew™ Cannulated - 3 Year-old Child

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Introduction

Salter osteotomy is used for overcoming the instability of reduction in congenital dislocation and subluxation of the hip in children over age of 3 years. The principle of the method is illustrated in Figure 1.

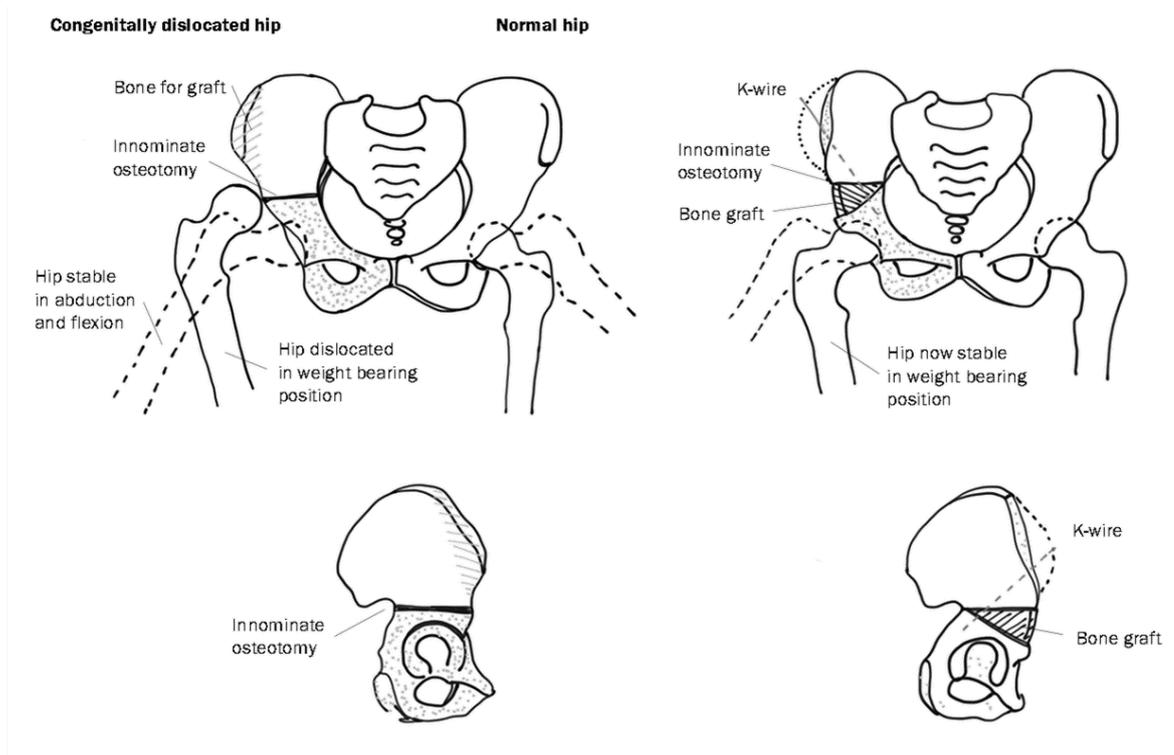


Figure 1 The principle of innominate osteotomy.

The osteotomy and the bone graft are traditionally stabilized with one or two metallic K-wires. Problem with the K-wire fixation can be migration or bending of the wires, irritation from the protruding K-wires and pin tract infection. Also removal of the K-wire(s) is usually done at 6 weeks post-op. The stabilizing made with bioabsorbable cannulated screws prevents the problems mentioned above still allowing exact positioning of the implants along the guiding K-wires.

## 1 Case Description

Patient was a 3 years old child with congenital dislocation of the hip. Patient's left side hip has been operated 4 months ago using K-wires. The right side hip was now operated with Salter osteotomy using two fully threaded 4.5 mm ActivaScrew™ Cannulated.



Figure 2 Preoperative X-ray.

## 2 Surgical Procedure

The skin incision was made along the iliac crest. The periosteum was freed both on the outside and on the inside of the pelvic bone. After tonsil elevators were placed subperiosteally on the inside and on the outside of the bone, to protect surrounding soft tissue, the osteotomy was performed with an oscillating saw.

The graft was harvested from the iliac crest using an oscillating saw (Figure 3). The bone graft was trimmed with the oscillating saw before positioning it into the osteotomy line.



Figure 3 Left: Initiate osteotomy, Right: Harvesting of the autograft

The osteotomy and the bone graft wedge were stabilized with two 1.6mm K-wires under fluoroscopy. The positions of the K-wires and the x-ray are illustrated in Figure 4.

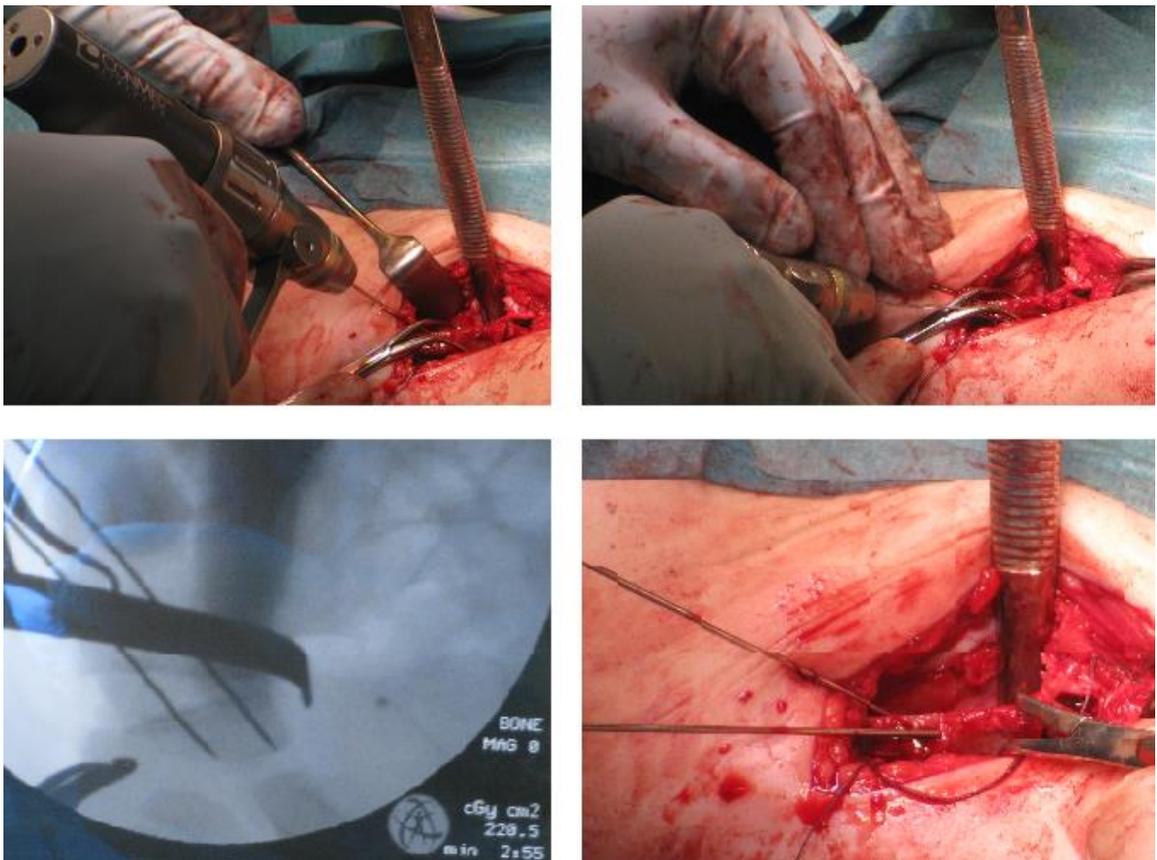
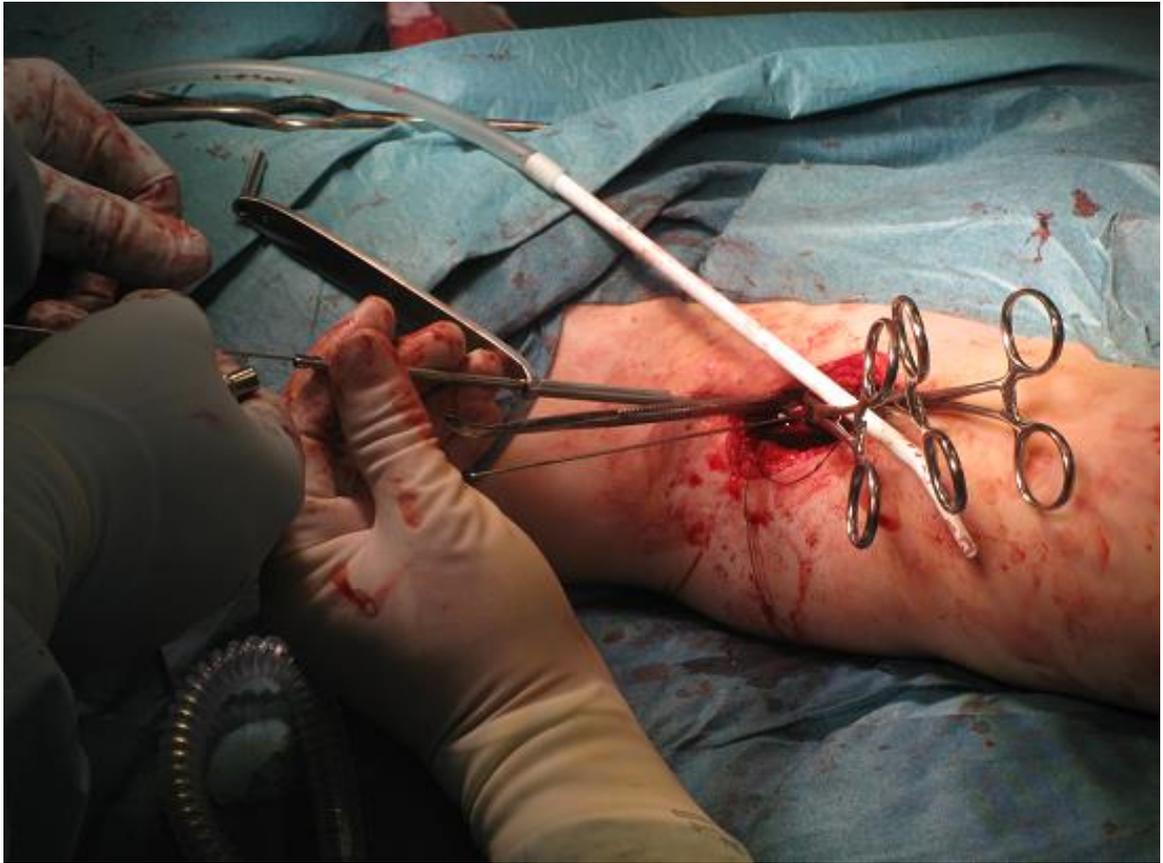


Figure 4 Positioning of the K-wires.

The drilling was done along the K-wire under fluoroscopy. The K-wire was held in the bone so that it did not come out in the drill bit. This was achieved by pressing the K-wire from the proximal end of the drill bit against the bone with another K-wire while the drill bit was pulled out, see Figure 5.



*Figure 5 Preventing the problem of the K-wire coming out of the bone.*

The tapping was also made along the K-wire under fluoroscopy carefully controlling the migration of the K-wire (see Figure 6).

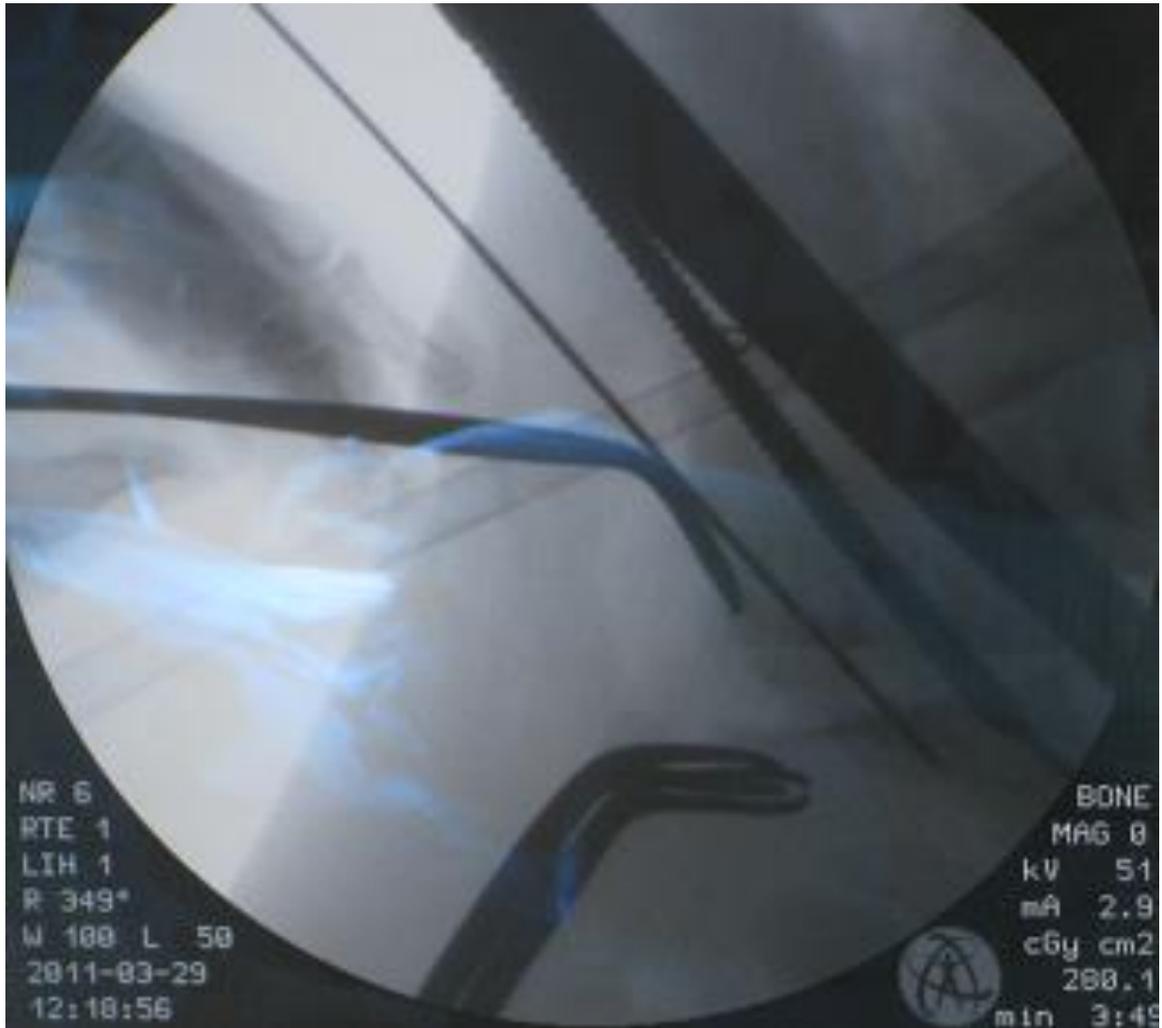
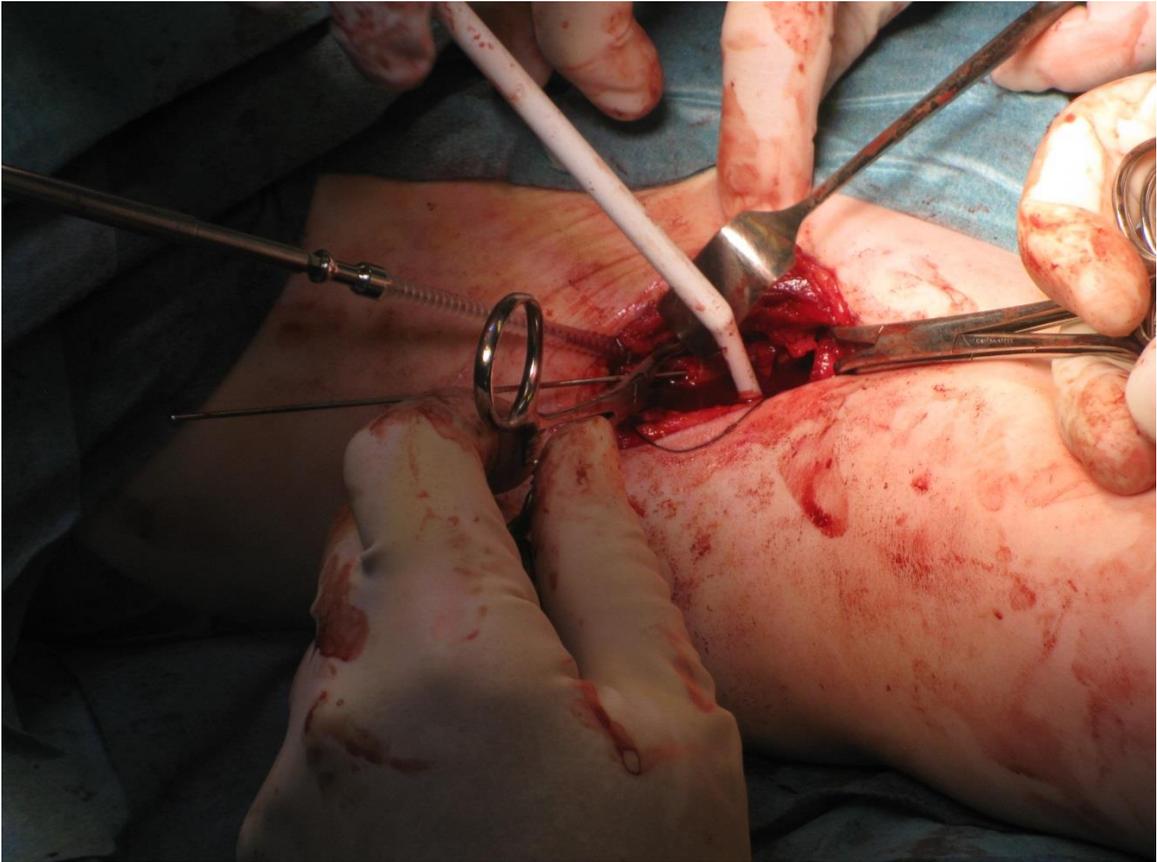


Figure 6 Tapping along the K-wire in fluoroscopy.

Finally, the screw was inserted along the K-wire. The K-wire was removed and the screw was cut with the hot cautery along the bone surface (Figure 7). The second ActivaScrew™ was inserted following the same steps as for the first ActivaScrew™.



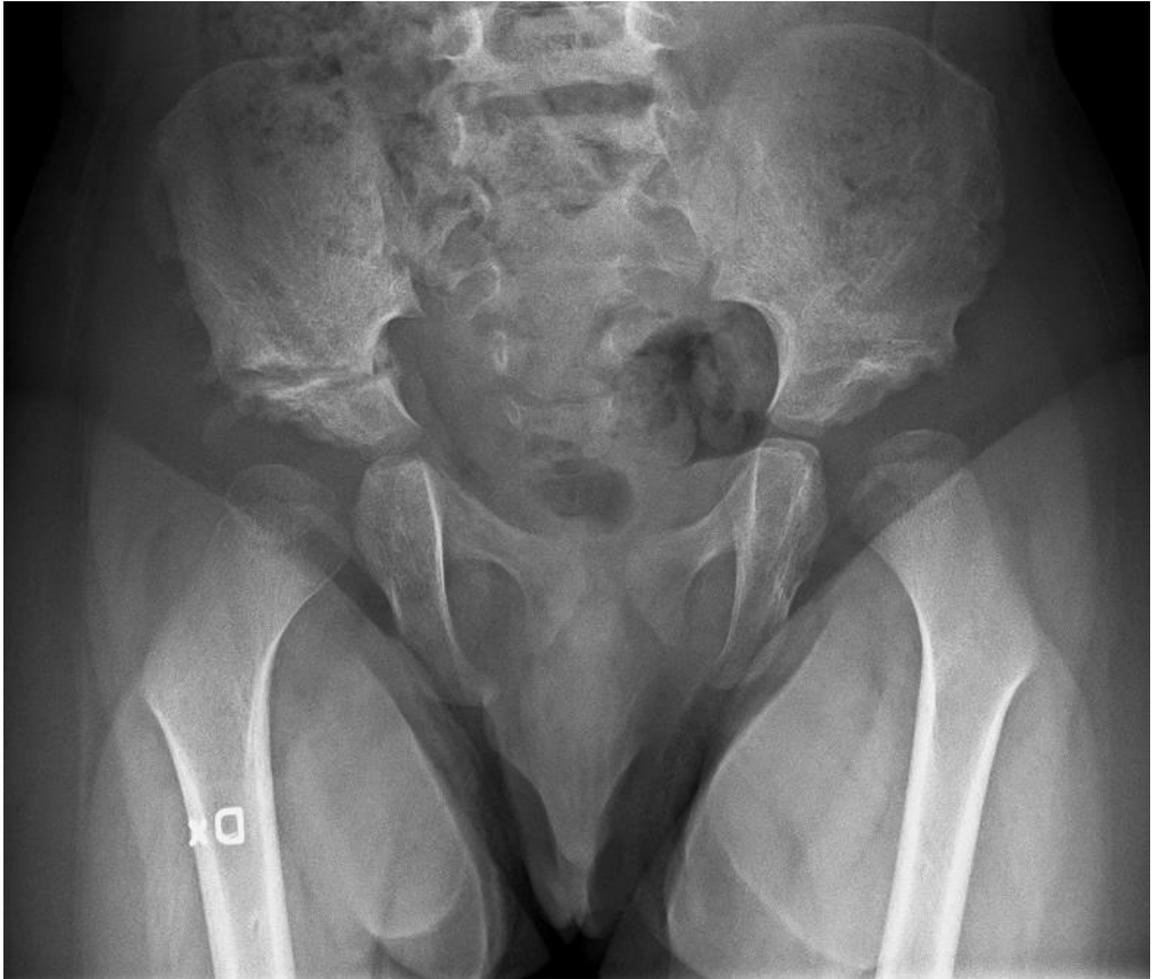
*Figure 7 Insertion of the ActivaScrew™ Cannulated 4.5mm.*

### 3 Results

The surgeon opinion after the screw insertion was that everything seemed to go well. The only problem was with the first screw where the tip of the screw displaced the osteotomy slightly before finding the threads.

#### 3.1 6 Weeks Follow Up

In 6 weeks' follow-up the position was still correct and the result seemed to be good.



*Figure 8 Postoperative x-ray 6 weeks after operation.*

### 3.2 19 weeks Follow Up

In the 19 weeks' follow-up the healing was in good progress and result was still good.



*Figure 9 Postoperative x-ray 19 weeks after operation.*

### 3.3 36 Weeks Follow Up

36 weeks after the operation the patient, the parents and the surgeon were all satisfied.



*Figure 10 Postoperative x-ray 36 weeks after operation.*

#### 3.4 60 Weeks Follow Up

60 weeks after the operation showed good bone healing with no signs of osteolysis.



*Figure 11 Postoperative x-ray 60 weeks after operation.*

#### 4 Conclusion

The ActivaScrew™ Cannulated can be used in the Salter Osteotomy to overcome the problems with the use of K-wires. No migration, pin tract infections or removal operation which makes the use of ActivaScrew™ Cannulated more comfortable to the patients.

#### 5 Contact Information Concerning the Case

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