

Biodegradable Volar Plate Fixation of a Dislocated Intra-Articular Smith Fracture

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In the case of distal radius fractures the choice of material used for fixation can have a big impact on the outcome. The disadvantages of metal implants for this application, for example tendon irritation or rupture, infection and implant migration, are well documented and can necessitate a second operation to remove the metal hardware. Also, stainless steel hardware has to be removed prior any MRI examination.

The use of a biodegradable system means the patient will not need a removal operation. For the following case we chose to use Inion OTPS™ biodegradable fixation, consisting of a Volar Plate and eight 3.1 mm diameter screws.

The Case

The patient was a 57 year old female who fell onto her outstretched right hand in December 2005 and sustained a dislocated intra-articular Smith-type fracture (AO classification: C1).



Figure 1. Pre-operative X-ray showing dislocated intra-articular fracture

Initially the fracture was treated using closed reduction and immobilisation with a plaster cast. This did not give a satisfactory result which lead to decision to carry out Open Reduction and Internal Fixation (ORIF).

The Procedure

The patient was prepared for surgery in the normal manner.



Figure 2. Preparation of the patient for the ORIF procedure

The fracture was exposed by dissecting through the overlying tissues taking appropriate care to avoid damaging any nerves.

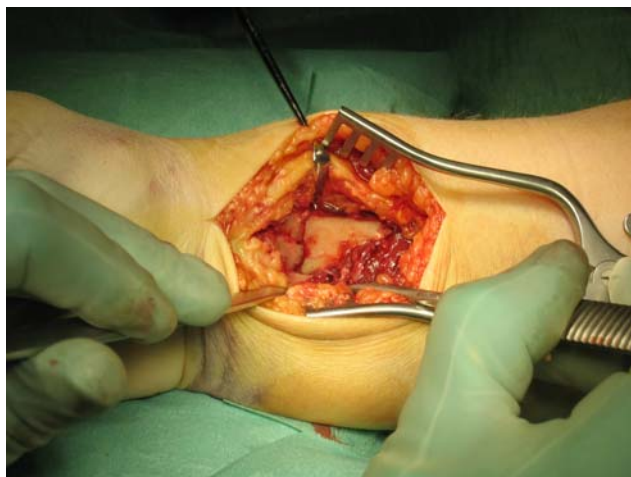


Figure 3. Incision over the fracture site showing the AO C1 class fracture.

Once the fracture was reduced to the satisfaction of the surgeon the Inion OTPS™ biodegradable fixation devices were selected. In this procedure, a Volar Plate and eight 3.1 mm diameter screws were used.

The Inion OTPS™ Volar Plate is supplied ready-adapted for this fracture site so there was no need for further adaptation. Figure 4 shows bi-cortical screws being inserted to secure the Inion Volar Plate in place.



Figure 4. Intra-operative view of the insertion of bi-cortical biodegradable Inion OTPS™ fixation screw



Figure 5. Final view of fracture with Inion OTPS™ fixation system in place

Reduction and fixation was achieved without further technical or clinical complications. The incision was closed. The forearm was immobilized using a plaster of Paris cast for two weeks followed by a further three weeks in a synthetic cast.

Post Operative

Post-operative follow-up was carried out at one, two and five weeks. At week one a 1 mm volar cortex displacement was noted. Thereafter no further displacement was observed. Healing was subsequently uneventful and after five weeks the cast was removed and an exercise programme was initiated.



Figure 6. X-ray taken five weeks post-operatively

Figure 5 shows an X-ray of the patient's wrist five weeks post-operatively with clear visualisation of the fracture site and visible screw holes.