

Practicability and reliability of a new locking plate for scaphoid reconstruction in difficult pathologies

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Introduction:

Headless compressions screws are usually the most implanted devices for scaphoid nonunions or difficult fractures. For special circumstances when screw osteosynthesis is not possible because of instability of the fragments or failed healing, a special locking plate has been developed. The purpose of this study was to evaluate the practicability and reliability of this new device for difficult scaphoid pathologies.

Methods

Between March 2010 and December 2013, 18 patients (aged between 18 and 56 years) were treated by scaphoid locking plate osteosynthesis. Two patients were operated at least once on the scaphoid. The indication for using the plate was in 16 cases scaphoid nonunion or delayed union and in 2 cases a multifragmentary fracture of the scaphoid.

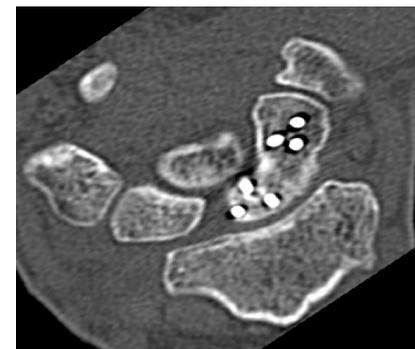
The fracture was located in 5 cases in the proximal third of the scaphoid, in 4 cases in the proximal-middle third, in 6 cases in the middle third, in one case in the middle-distal and in 2 cases in the distal third. In 15 cases the locking plate fixation was used as primary option.



scaphoid locking plate, Medartis®, Basel, Switzerland

Results

17 of 18 scaphoids demonstrated bony union 4 months postop on average (CT scan). 9 of the 18 plates have been removed. Reasons for hardware removal were mechanically disorders of wrist flexion due to impaction of the plate or protrusion of the screws. One patient will be re-operated in terms of delayed union.



43 year old woman with fracture of the left scaphoid in the proximal-middle third with preexisting cyst.

Osteosynthesis with scaphoid plate and cancellous bone graft from the iliac crest.

Ct scan postoperativ after 4 months with bony union.

Conclusion

This new locking device for scaphoid reconstruction is a useful tool and reliable backup option in the treatment of difficult nonunions or multifragmentary scaphoid fractures. However hardware removal should be performed due to intraarticular impaction in most patients. The practicability is satisfying and satisfying fusion rates can be accomplished. We use this plate now as a rescue option in situations when a very stable osteosynthesis is necessary for healing and screw fixation has already failed or may be not practicable.