

Complications of volar plating for distal radius fractures

A series of 58 cases with 5 year follow-up

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What does the literature say?

- Rates of 3-27% in literature *
- Due to differences in definition of complications, follow-up period, surgical methodology, etc.

*Wilson, James ; Viner, Jeremy J ; Johal, Kavan S ; Woodruff, Michael J. Volar Locking Plate Fixations for Displaced Distal Radius Fractures: An Evaluation of Complications and Radiographic Outcomes, HAND, July 2018, Vol.13(4), pp.466-472

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Materials and Methods:

- Retrospective study
 - Based on electronic patient files and by phoning patients
- Consecutive series
- Single center
- 3 dedicated hand surgeons

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Results - General

- 58 cases
- Follow-up: 5,4 to 5,9 years
- Age: 64 years
- Sex: 78% female
- Material: 54% Stryker Variax, 41% Zimmer Crosslock, 5% Synthes

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Results – Radiographic parameters (1)

- Fracture classification: AO system
 - A type (extraarticular): 69%
 - B type (partial articular): 5%
 - C type (complete articular): 26%



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Results – Radiographic parameters (1)

- Osteosynthesis classification: Soong
 - G0 (dorsal to critical line): 45%
 - G1 (volar but proximal to the rim): 53%
 - G2 (on or beyond the rim): 2%



Soong, E., Maximilian ; Earp, E., Brandon ; Bishop, E., Gavin ; Leung, E., Albert Blazar, E., Philip. Volar Locking Plate Implant Prominence and Flexor Tendon Rupture The Journal of Bone & Joint Surgery, 2011, Vol.93(4), pp.328-335

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Results – Radiographic parameters (2)

- Postoperative radioulnar variance
 - -1,2 mm (SD 1,4)



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Results – Radiographic parameters (2)

- Postoperative volar tilt:
 - 8,0° (SD 5,1)



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Results – Radiographic parameters (2)

- Postoperative radial inclination:
 - 20,2° (SD 3,4)



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Results – Complications

- Tendon: 3/58
 - 1 extensor tendon irritation (peg too long)
 - 1 EPL rupture
 - 1 FPL irritation (PQ adherence)



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Results – Complications

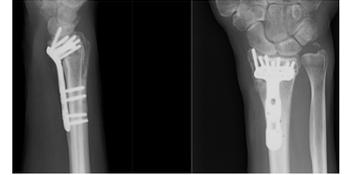
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Results – Complications

- Carpal tunnel release: 4/58 (7%)
 - Time after osteosynthesis: average 8 months
- Prevalence of carpal tunnel syndrome in general population:
 - 14,4% has paresthesias
 - 4,9 % has EMG changes

Prevalence of carpal tunnel syndrome in a general population. JAMA. 1999 Jul 14;282(2):153-8. Atroshi I, Gummesson C, Johnsson R, Ornstein E, Ranstam J, Rosén I.

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Results – Complications

- Miscellaneous:
 - 1 superficial wound infection
 - 1 patient unhappy with scar
 - 1 intraarticular peg



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Results – Plate removal

- Plate removal: 8/58 (14%)
 - 2 because of tendon irritation
 - 3 because of carpal tunnel syndrome (all Soong G1)
 - 1 because of an intraarticular peg
 - 1 because of patient request (Soong G1)
 - 1 because of unrelated surgery (MCP cyst)

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Conclusion

- Series with good reduction and plate position
- Relatively high complication rate:
 - 16% total complication rate
 - 9% of complications directly related to the osteosynthesis
 - 14% plate removal
- Complications seem mild: all solved with plate removal or CTR
- Complications seem related to plate positioning
 - => narrow margin of error



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