Treatment and clinical results of distal radial fractures nonunion or delayed union

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Background & Aims
- Distal radial fracture as one of the most common fractures
- Nonunion or delayed union of distal radius fractures are uncommon
  - Bacorn and Kurtzke (1953) - 0.2%
  - Watson-Jones (1942) - 3/1399
  - Segalman and Clark (1998) - 12 cases / 24 years
  - Fernandez and Jupiter (2001) - 10 cases / 15 years
- No consensus regarding the best treatment
- Surgical treatment can be difficult because of soft tissue contracture and small, osteoporotic distal fragments
- The aim of our study was to evaluate contributing factors, treatment, and clinical and functional outcomes of distal radius nonunion or delayed union

Methods
- Retrospective study, between 1998 and 2016
- Reviewed preoperative and postoperative radiograph and range of motion, fracture type, grip strength compared to contralateral hand and functional score
- Thirteen patients (2 male and 7 female)
- Average age: 62.6 y/o (37-80 y/o)
- Radiographic evidence of lack of bony trabeculae crossing the fracture site
- Delayed union: 4 months
- Nonunion: 6 months

Results
- Average time from injury to our clinics: 7.2m
- Pre-op and post-op ROM
  - Flexion: 21.9° - 63.8°
  - Extension: 26.9° - 67.3°
  - Pronation: 44.6° - 69.2°
  - Supination: 31.5° - 74.6°
- Grip strength: 76.7% compare to contralateral
- 7/9 of these cases received bone grafting
- All of these patients achieve bone union

Conclusions
- Distal radius fracture non-union is rare, the healing problem seems to be related the unstable condition. (Combine distal ulna fracture, old age with osteoporosis, inadequate fixation)
- Operation treatment with bone grafting / correcting mal-alignment / stable fixation could resolve the nonunion problem and preserve the wrist function
- Achieve high union rate, fair to excellent functional outcomes, low complication rate