



# Fractures du radius distal et arthroscopie du poignet

Dr Delclaux



Hôpitaux de Toulouse



# Intérêts de l'arthroscopie dans les fractures du radius distal

after fluoroscopic reduction



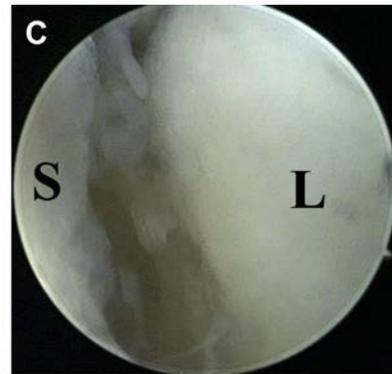
arthroscopic reduction



## Box 1

The advantage of wrist arthroscopy in the surgical treatment of distal radius fracture

1. Accurate reduction of intra-articular fragments is possible compared with fluoroscopic reduction.
2. Intra-articular fragments (free body) undetected with radiograph and CT can be recognized.
3. Screw protrusion into joint surface can be monitored.
4. Intra-articular soft tissue injury associated with fracture can be evaluated and treated.



## Arthroscopic-Assisted Reduction of Intra-articular Distal Radius Fracture



# Technique chirurgicale

- **Abord palmaire**
- **Réduction open :**  
plaque +/- broches +/- fixateur externe
- Contrôle fluoroscopique
- Arthroscopie :
  - Nettoyage articulaire au shaver
- **Bilan arthroscopique :**
  - nb fragment, réduction, lésions associées
- Réduction sous contrôle arthro
- **Complément d'ostéosynthèse**
- Traitement des lésions associées

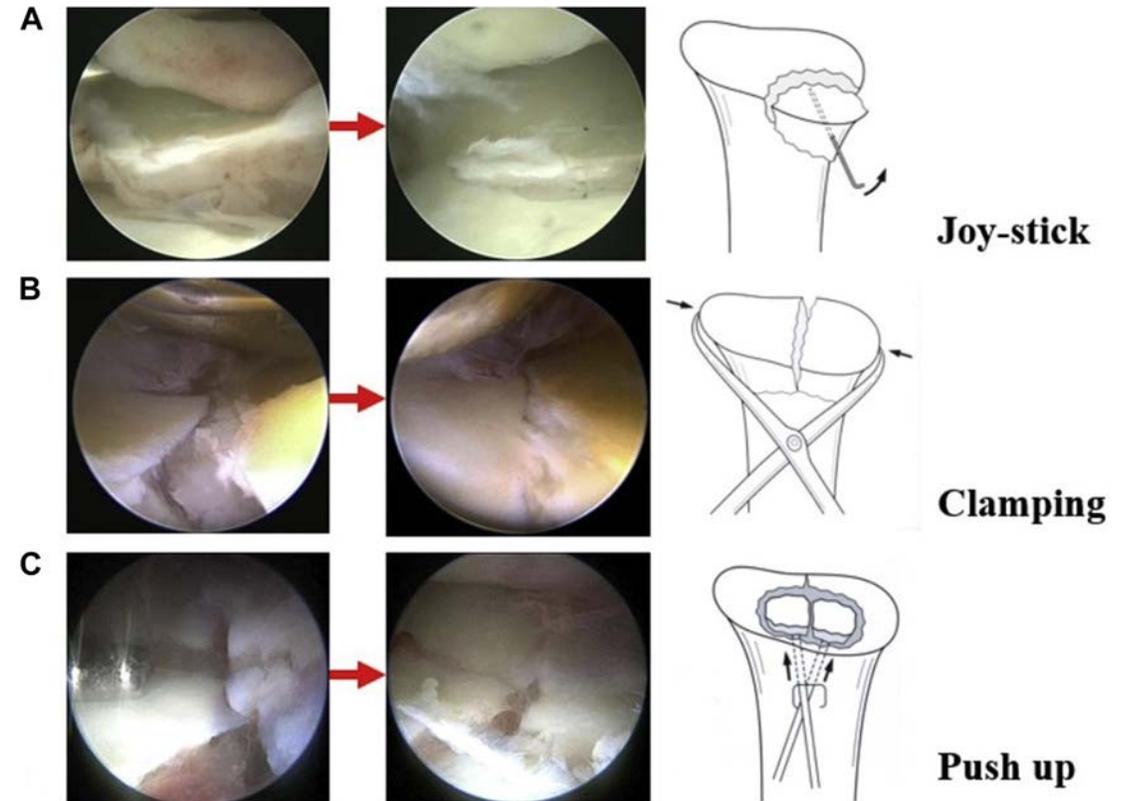


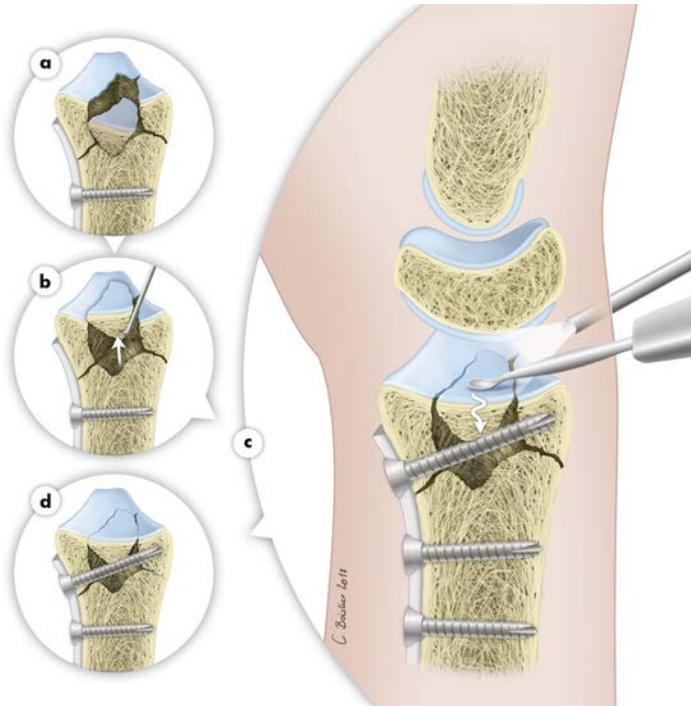
Fig. 5. (A) The step-off of the fragments is reduced by joystick maneuver. (B) Fragments, which are separated from each other, are reduced by tenaculum clamping technique. (C) The central depression is reduced by pushing up from the intramedullary. (Adapted from Abe Y. How to perform wrist arthroscopy with volar locking plate fixation for distal radius fracture. MB Orthop 2014;27(1):81; with permission.)

# Technique chirurgicale

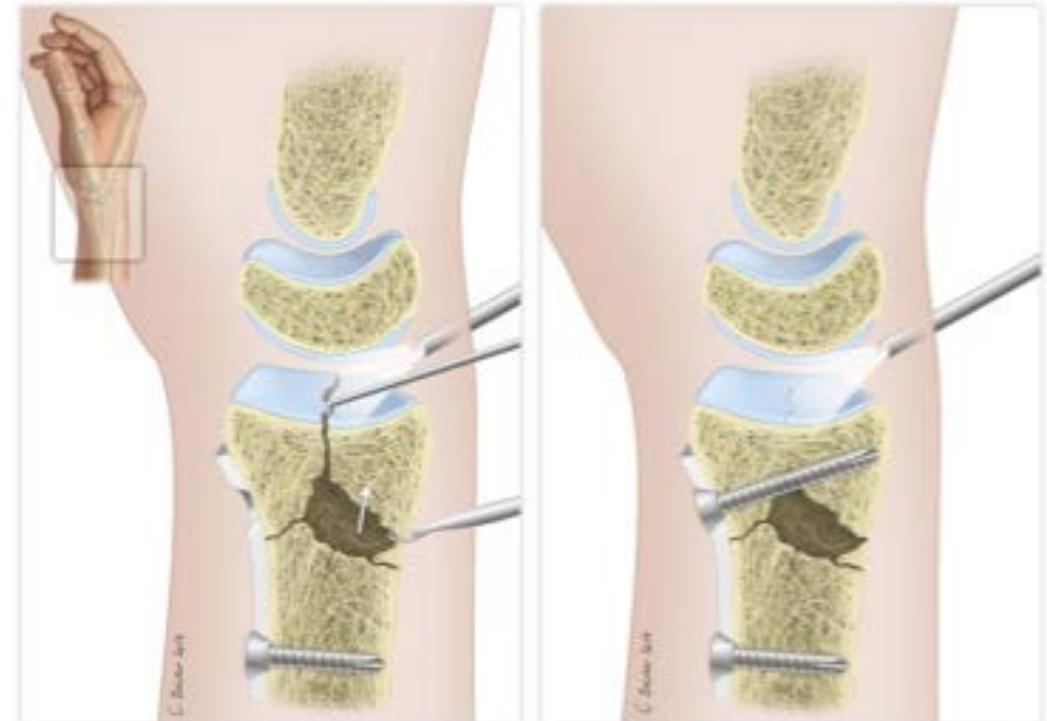
## Why do we use arthroscopy for distal radius fractures?

Ludovic Ardouin<sup>1</sup> · Alexandre Durand<sup>2</sup> · André Gay<sup>3</sup> · Marc Leroy<sup>1</sup>

European Journal of Orthopaedic Surgery & Traumatology Received: 29 April 2018 / Accepted: 30 May 2018



**Fig. 7** Articular radius fracture with free articular fragments: **a** Articular assessment. **b** Hyperreduction under arthroscopy. **c** Impaction of the free fragment on the screws with a spatula. **d** Final result



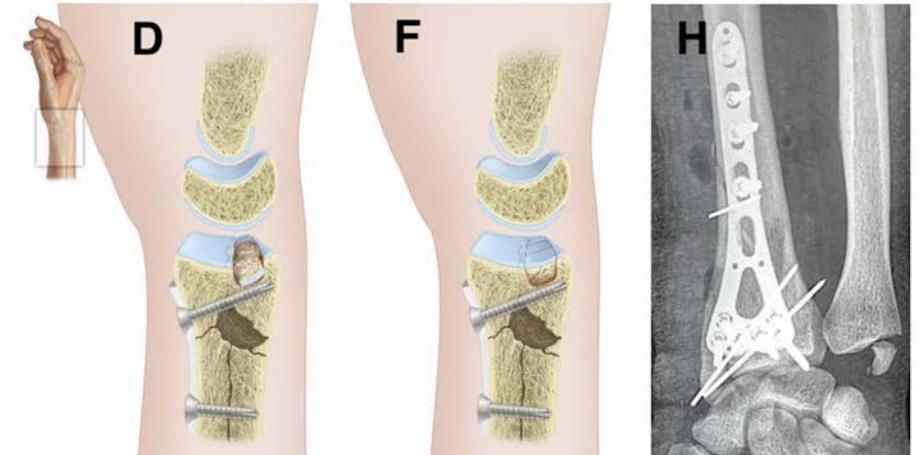
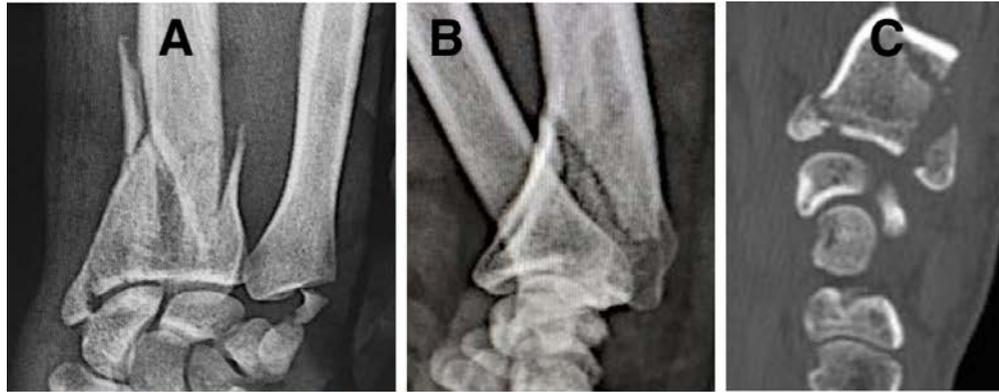
**Fig. 6** Reduction in articular radius fracture under arthroscopy using a 3-mm probe or a spatula via a metaphyseal approach

# Technique chirurgicale

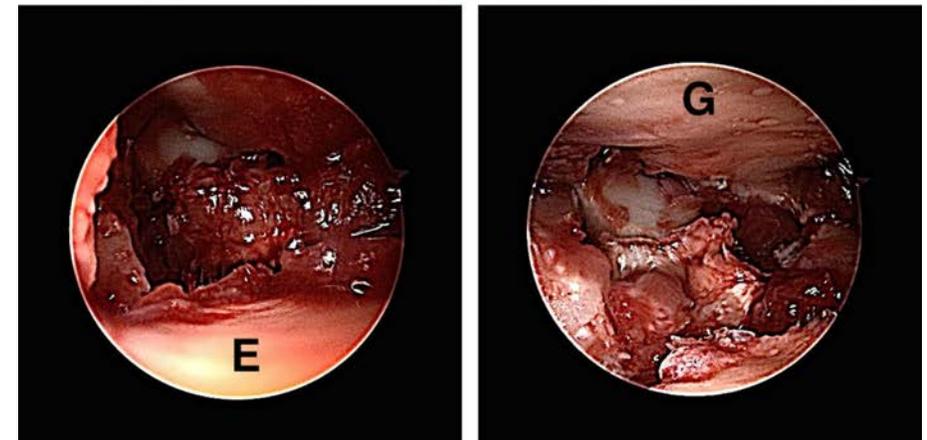
## Why do we use arthroscopy for distal radius fractures?

Ludovic Ardouin<sup>1</sup> · Alexandre Durand<sup>2</sup> · André Gay<sup>3</sup> · Marc Leroy<sup>1</sup>

European Journal of Orthopaedic Surgery & Traumatology Received: 29 April 2018 / Accepted: 30 May 2018

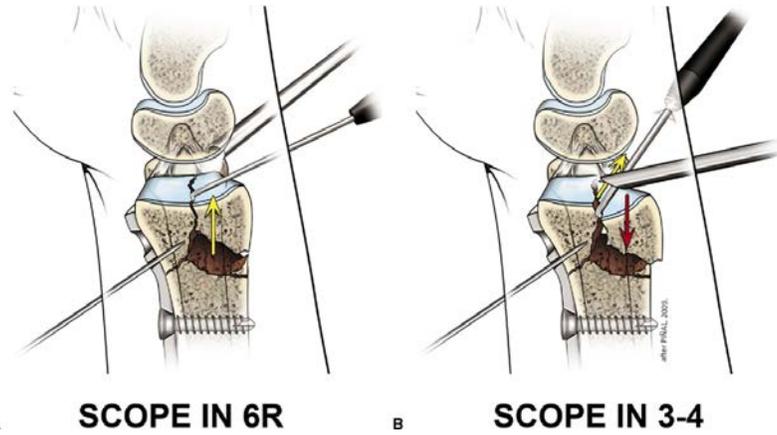


**Fig. 8** Arthroscopic reduction in and fixation of distal radius fracture with “upside-down” articular fragments: **a, b, c** Radiographs and CT scan of the fracture of the radius. **d, e** Radio-carpal view of displaced dorsal articular fragments with a rotation of 180°. **f, g** Reduction in the fragments. **e** The fragments are reduced into an anatomical position. **h** Radiograph of the volar locked-plate fixation

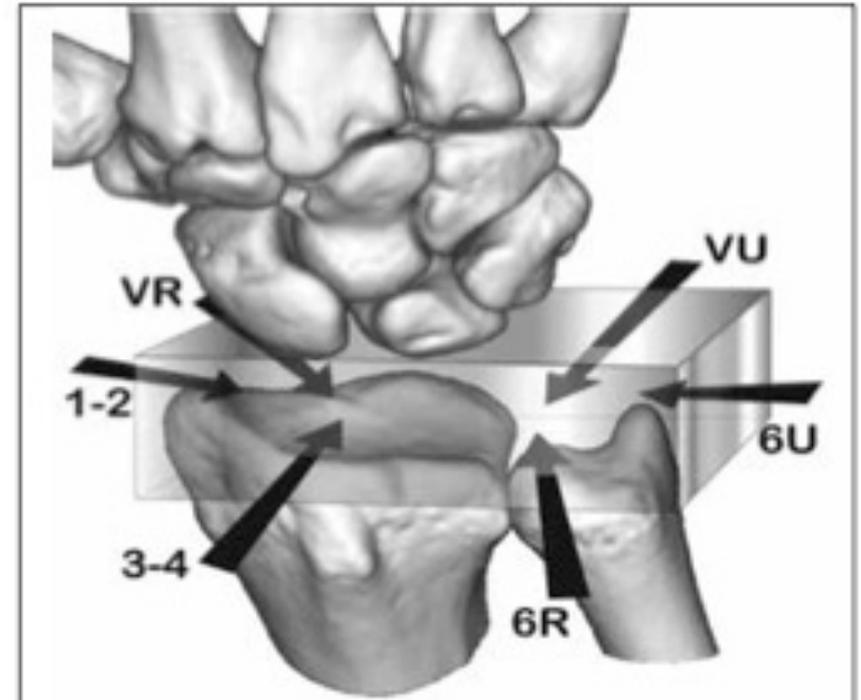


## Technical Tips for (Dry) Arthroscopic Reduction and Internal Fixation of Distal Radius Fractures

Francisco del Piñal, MD, Dr Med



**FIGURE 6:** **A** If the scope is placed in 6R, it will rest on top of the ulnar head, providing a stable platform from which to work, thus avoiding conflict with the reduction. **B** Instability of the scope and conflict of space during the reduction (yellow and red arrows) are inevitable when the scope is placed in any other portal. (Copyright © 2011 by Dr. Piñal.)



# Bilan des lésions associées

1. TFCC
2. Lésions SL
3. Lésions LT
4. Lésions chondrales

## Arthroscopic Evaluation of Associated Soft Tissue Injuries in Distal Radius Fractures

Tommy Lindau, MD, PhD (Hand Surgery)

Grade	Radiocarpal Joint	Midcarpal Instability	Step-off
1	Hemorrhage of inter-carpal ligament, no attenuation	None	None
2	Incomplete partial or full tear, no attenuation	Slight gap (<3 mm)	Midcarpal only
3	Ligament attenuation; incomplete partial or small full tear	Probe can be passed between carpal bones	Midcarpal and radiocarpal
4	Complete tear	Gross instability; 2.7-mm scope can be passed through (drive-through sign)	Midcarpal and radiocarpal

From Geissler WB, Freeland AE, Savoie FH, et al. Intracarpal soft-tissue lesions associated with an intra-articular fracture of the distal end of the radius. *J Bone Joint Surg Am* 1996;78(3):357-65; with permission.

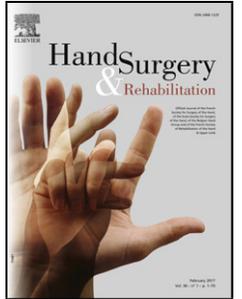
Study, Year	Number and Type of Injury	TFCC Injury (%)	SL Injury (%)	LT Injury (%)
Geissler et al, <sup>2</sup> 1996	60, intra-articular	49	32	15
Lindau et al, <sup>3</sup> 1997	50, intra-articular and extraarticular	78	54	16
Richards, <sup>17</sup> 1997	118, intra-articular and extraarticular	35 (intra-articular) 53 (extraarticular)	21 (intra-articular) 7 (extraarticular)	7 (intra-articular) 13 (extraarticular)
Mehta, <sup>18</sup> 2000	3, intra-articular	58	85	61
Hanker, <sup>19</sup> 2001	173, intra-articular	61	8	12

Abbreviations: LT, lunotriquetral; SL, scapholunate; TFCC, triangular fibrocartilage complex.

# Bilan des lésions associées

Scapholunate, lunotriquetral and TFCC ligament injuries associated with intraarticular distal radius fractures: arthroscopic assessment and correlation with fracture types

Roulet et al. HANDSUR 2019



- Pas de corrélation entre le type de fracture du radius articulaire et le type de lésion ligamentaire
- Corrélation entre fracture styloïde ulnaire et lésion TFCC
- Laxité SL retrouvée dans : 72% des fractures styloïdes radiales isolées  
60% des fractures avec au moins une composante styloïdienne radiale
- 25% des lésions SL : Rx normales

# Incidence sur l'arthrose à long terme?

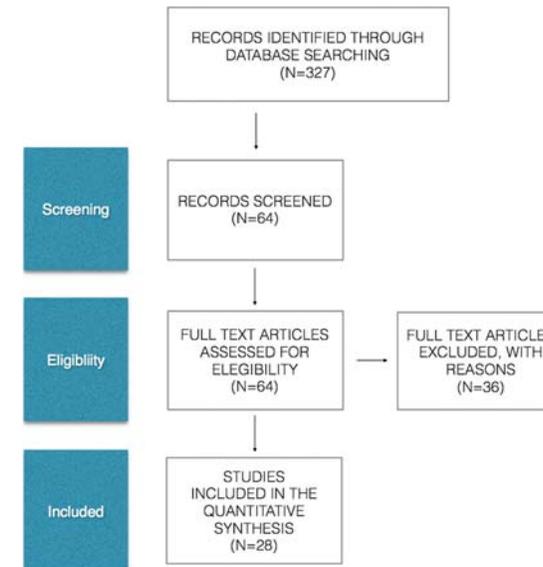
- Revue de la littérature 2016 :
  - 4 articles/28
  - Groupe arthroscopie : 47%  
= 16/34 patients
  - Groupe contrôle : 58%  
= 28/48 patients

## Wrist arthroscopy in the management of articular distal radius fractures

Francesco Smeraglia<sup>†</sup>, Angelo Del Buono<sup>‡</sup>, and Nicola Maffulli<sup>§,\*\*\*</sup>

<sup>†</sup>Department of Orthopaedic Surgery, University of Naples Federico II, via Sergio Pansini 5, 80131 Naples, Italy, <sup>‡</sup>Department of Orthopaedic and Trauma Surgery, Ospedale Vaio Via Don Enrico Tincati, 5, 43036 Fidenza (PR), Italy, <sup>§</sup>Department of Musculoskeletal Disorders, Faculty of Medicine and Surgery, University of Salerno, 84081 Baronissi, Salerno, Italy, and <sup>\*\*\*</sup>Centre for Sports and Exercise Medicine, Barts and The London School of Medicine and Dentistry, Mile End Hospital, 275 Bancroft Road, London E1 4DG, UK

British Medical Bulletin, 2016, 119:157-165  
doi: 10.1093/bmb/ldw032  
Advance Access Publication Date: 22 August 2016



# Résultats de la littérature

- Réduction articulaire :  
supériorité arthro + fluoro > fluoro seule
- Pas de supériorité démontrée sur les résultats cliniques
- Peu de résultats sur le risque d'arthrose à long terme :
  - Persistance d'un step off,
  - Elargissement antéro-postérieur,
  - Augmentation de la profondeur de la glène

## Prevalence of posttraumatic arthritis and the association with outcome measures following distal radius fractures in non-osteoporotic patients: a systematic review

C. M. Lameijer<sup>1</sup> · H. J. ten Duis<sup>1</sup> · I. van Dusseldorp<sup>2</sup> · P. U. Dijkstra<sup>3,4</sup> · C. K. van der Sluis<sup>3</sup> Arch Orthop Trauma Surg (2017)

## Arthritis predicting factors in distal intraarticular radius fractures

M. Lutz · R. Arora · D. Krappinger · M. Wambacher · M. Rieger · S. Pechlaner Arch Orthop Trauma Surg (2011)

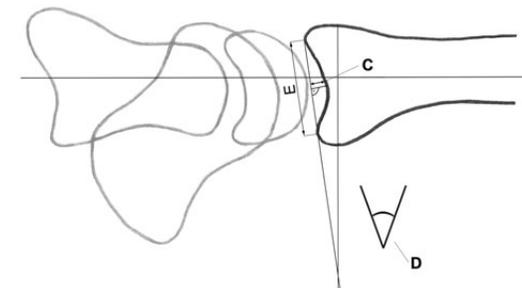


Fig. 2 Measurement of articular cavity (C), palmar tilt (D) and anteroposterior distance (E)