

Normal radiographic anatomy

Ulna variance
-4 mm to +2 mm

Radial Length
8 - 17 mm

Radial Angulation
16 - 29°

Palmar Angulation
0° - 22°

RADIOGRAPHIC CRITERIA OF INSTABILITY (in distal radius fractures)

Dorsal or palmar Angulation > 20°

Dislocation > 2/3 of diaphyseal width

Metaphysial comminution

Shortening > 5 mm

Intraarticular component

Associated fracture of the distal ulna

Osteoporosis

NB: If 2 instability criteria are present, surgery is indicated

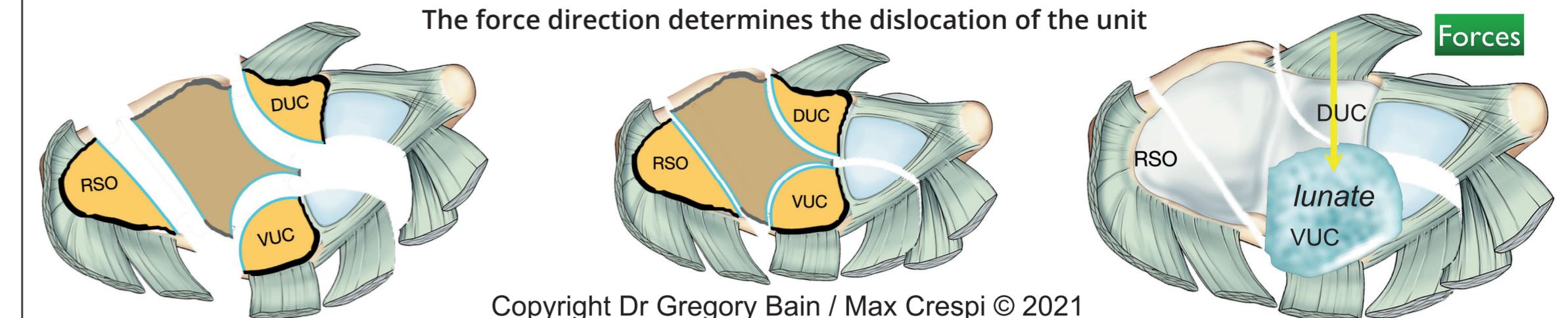
Da Lindau T.

TREATMENT ALGORITHM FOR WRIST FRACTURES

P.P. Borelli (Brescia), A. Fagetti (Varese), G. Lauri (Firenze), E. Carità (Verona)

Osteoligamentous unit concept (Bain 2013)

The force direction determines the dislocation of the unit

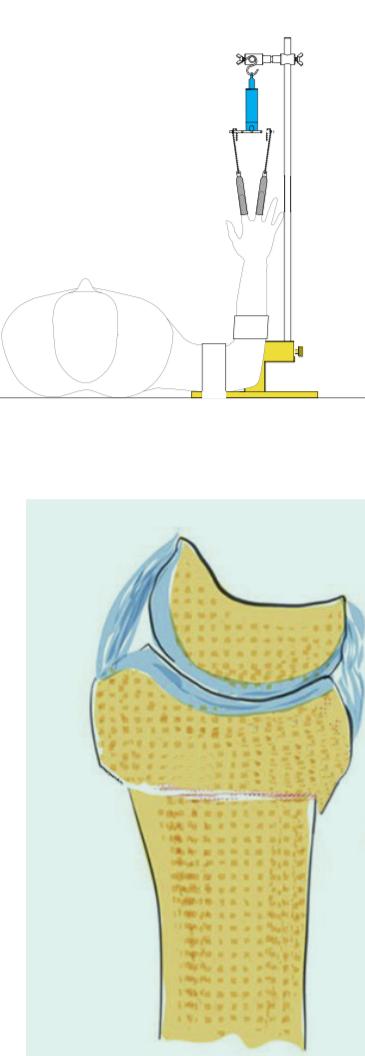


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DISPLACED DISTAL RADIUS FRACTURE

Local Anesthesia

**OPTIONAL: 10' VERTICAL TRACTION
FOR TV STUDY OF FRACTURE PATTERN
AND ASSOCIATED LIGAMENT INJURY.
DRUJ STABILITY TEST (without traction)**



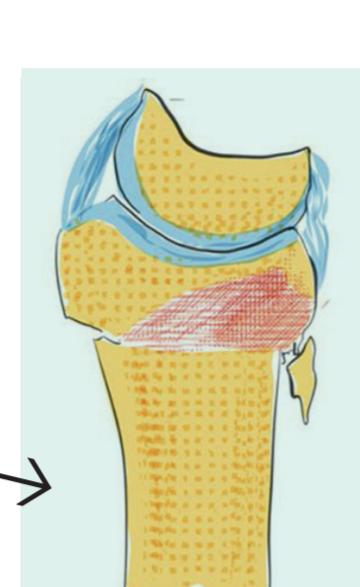
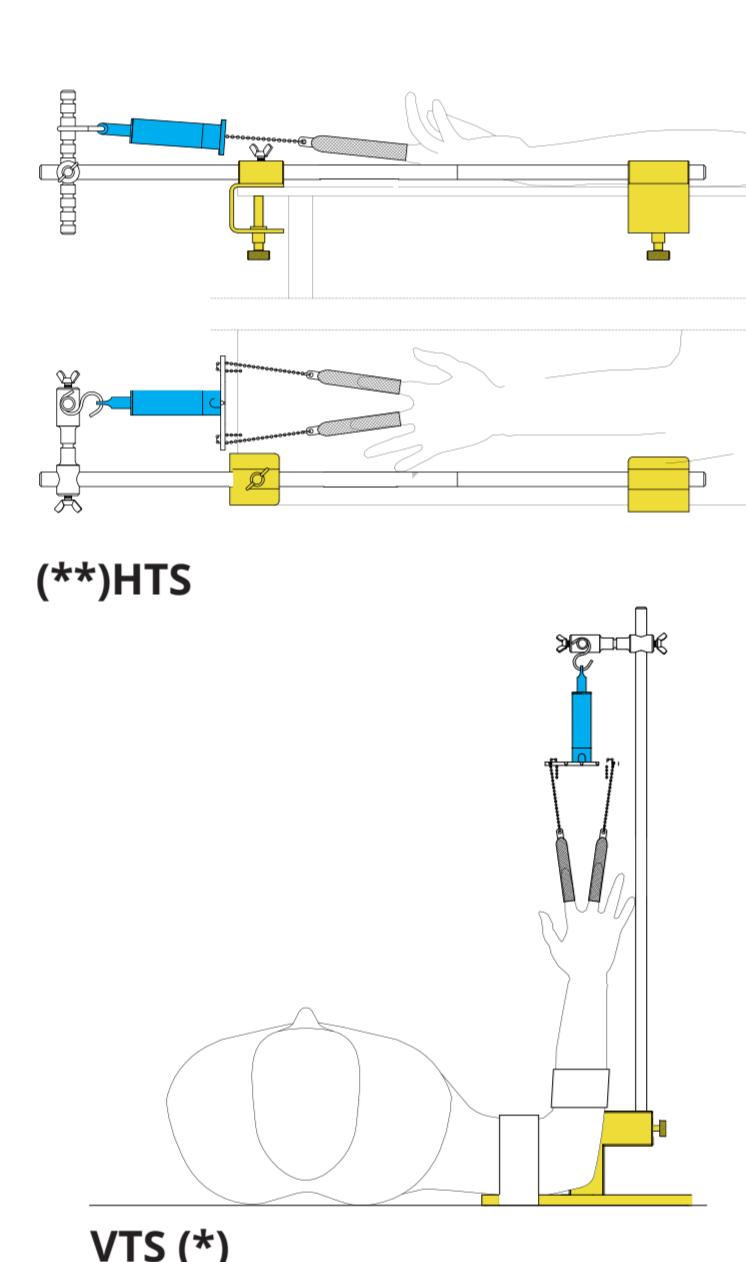
**SHORT OR LONG CAST
NEUTRAL AXIS**

X-Ray on the 5th day

**CONTINUE CAST IMMOBILIZATION
FOR 5 WEEKS**

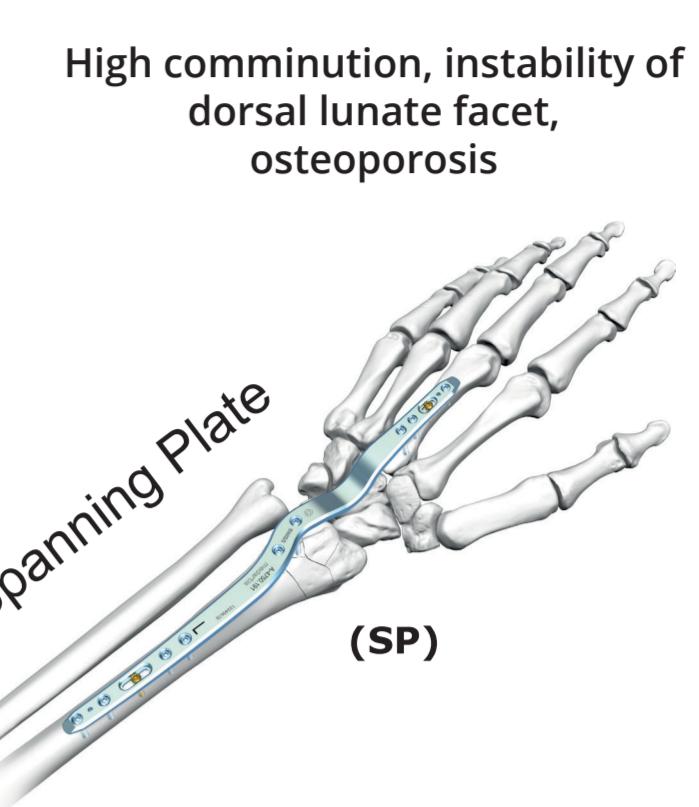
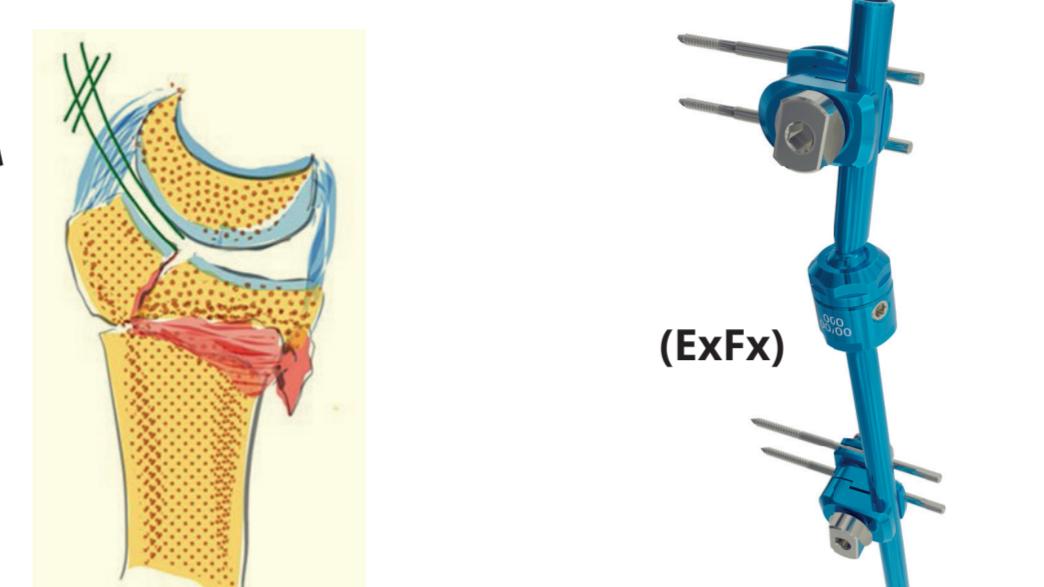
X-Ray after 2 weeks, based upon instability criteria

Traction systems are nowdays recommended in the treatment of wrist fractures



NON-KEY TYPE FRACTURES

Marginal distal Fractures, articular 3-part-fractures, comminuted fractures

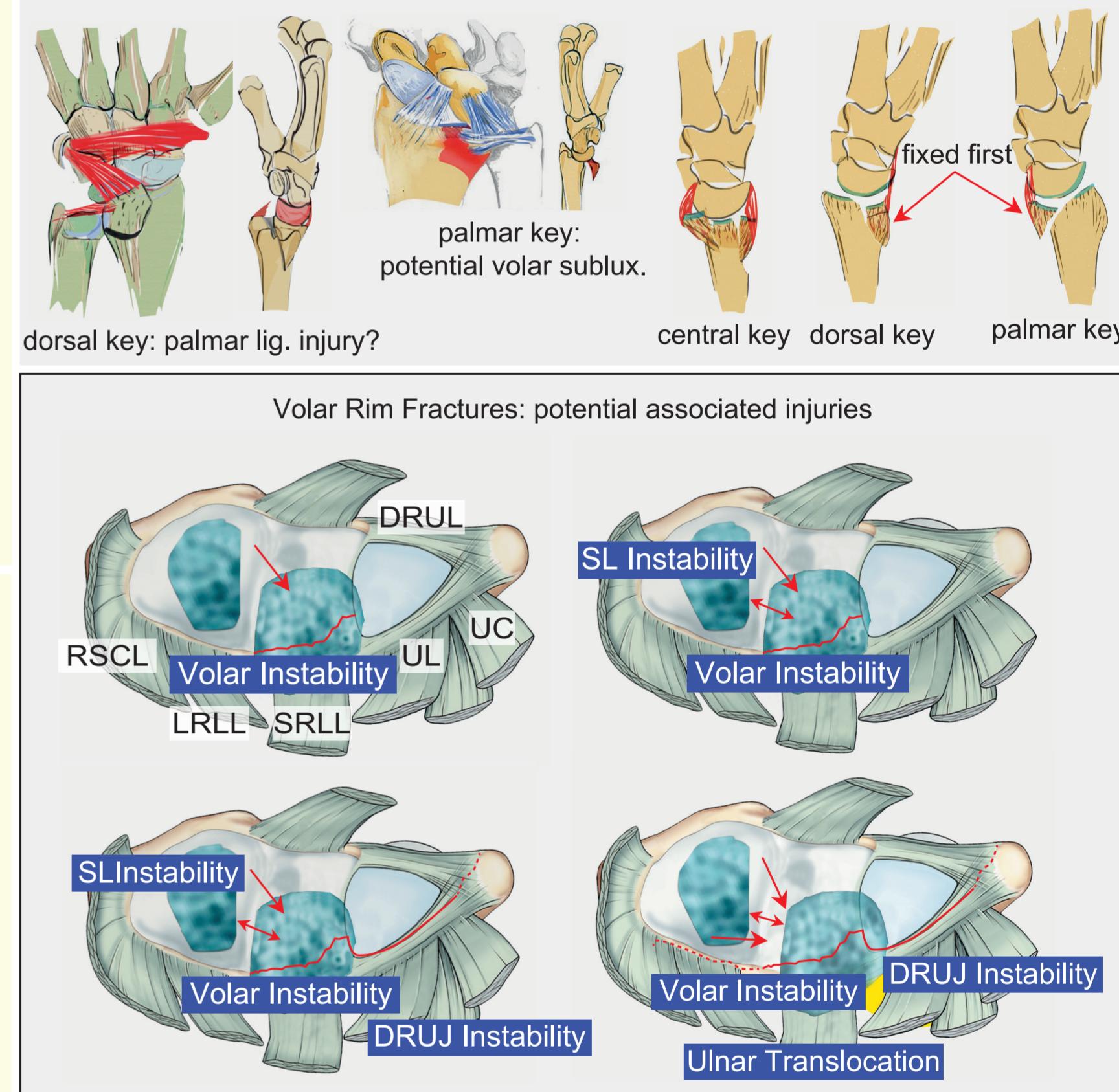
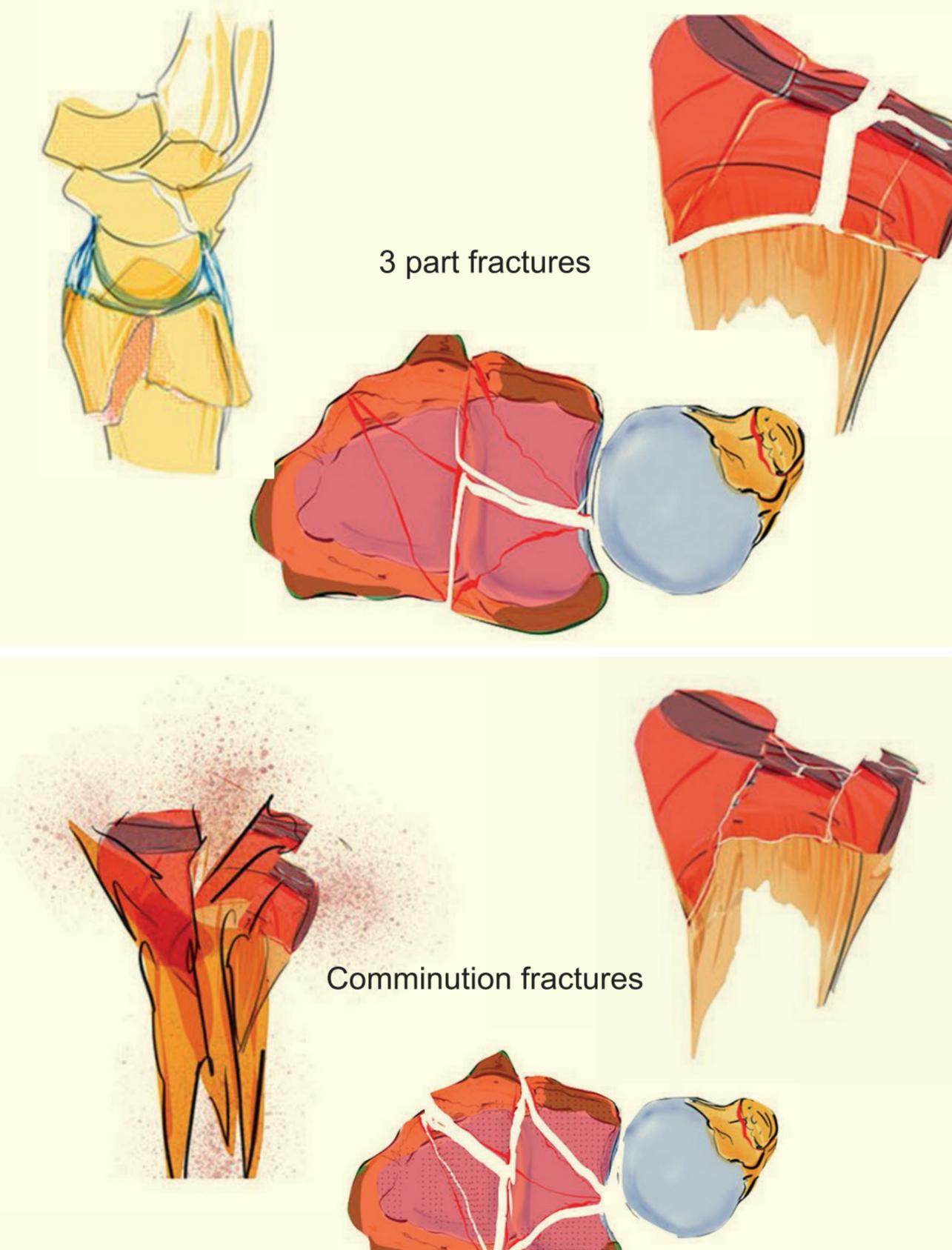
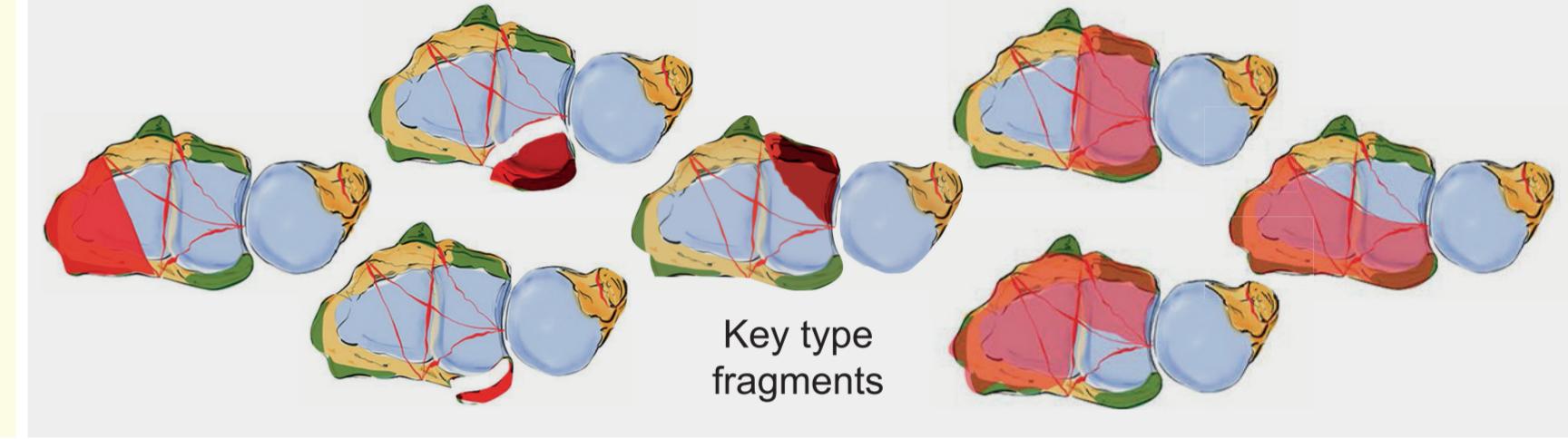
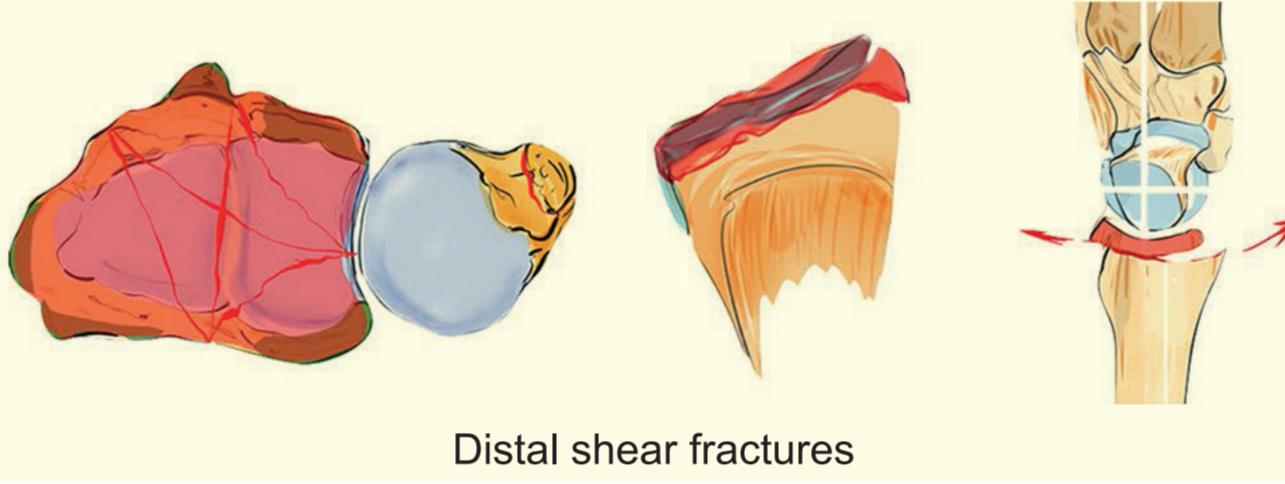


Key-Type concept (Hintringer et al. 2020)

KEY TYPE FRAGMENTS

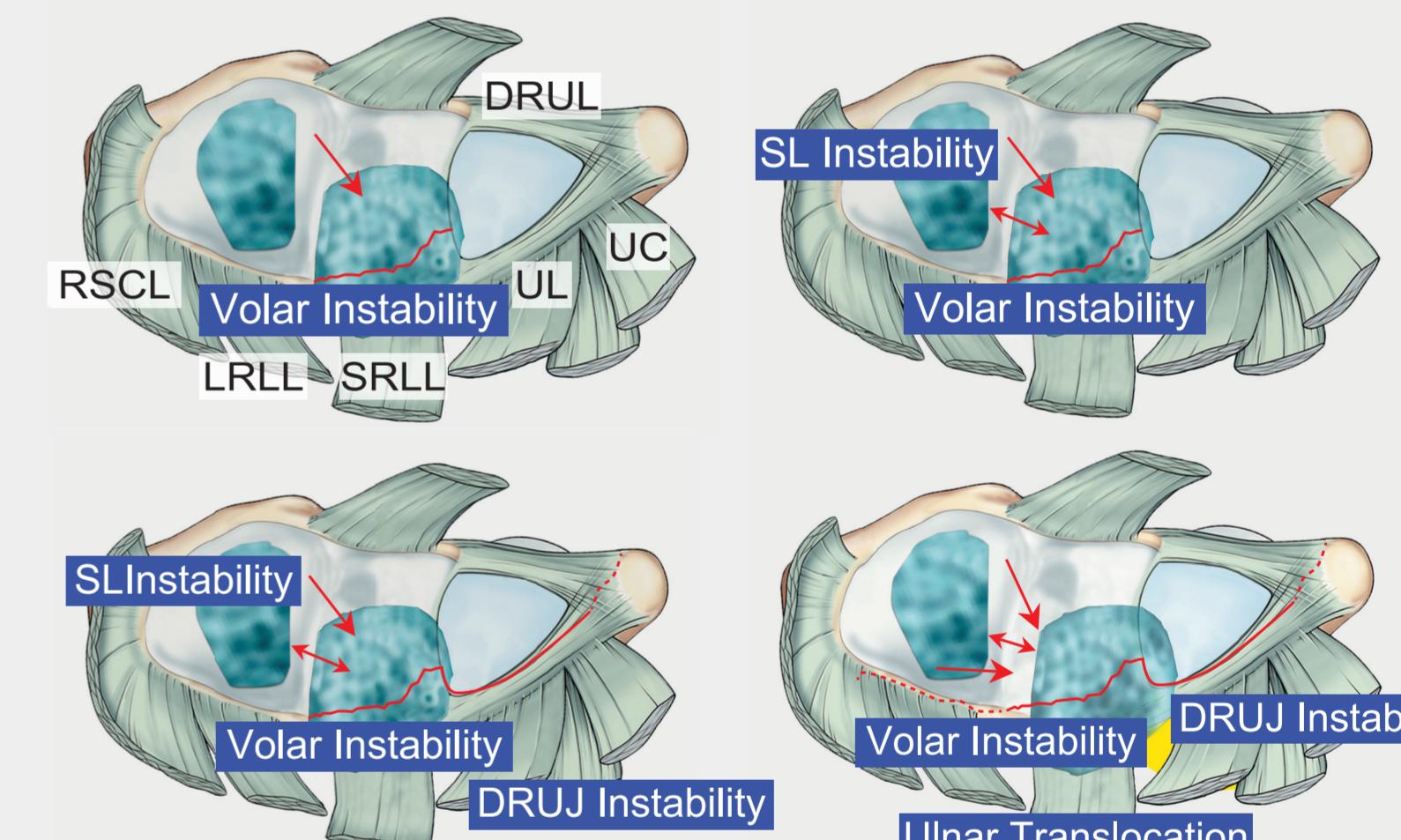
Intraarticular partial fractures : the key fragments are important for the stability of the carpal bones because they include the insertion of extrinsic ligaments

CT scan study (\$): Planning the surgical approaches and/or arthroscopic assistance (A)

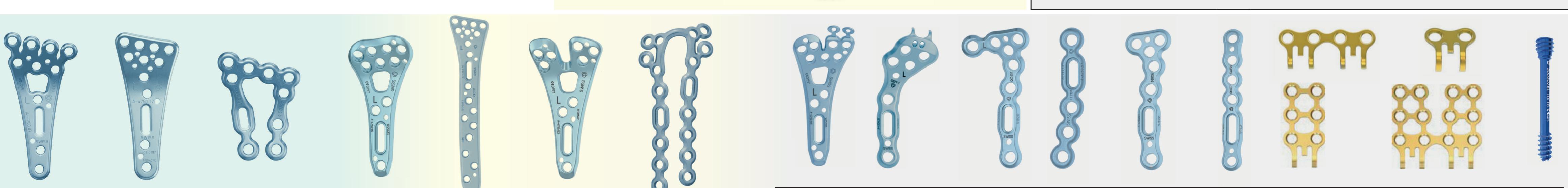


Comminution fractures

Volar Rim Fractures: potential associated injuries



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(*)VTS: Vertical Traction System. A Traction Tower (eccentric, sterilizable, micrometric modular traction) allows arthroscopic or open surgery, even by a single surgeon, and reduction control (X-Ray, TV) in two orthogonal planes without modification of wrist position.

(s): Possible dorsal or volar or combined approach

(*): If the X-Ray control in traction shows anatomical reduction it may be indicated percutaneous K-wires stabilization.

(S): The CT-scan allows the preoperative evaluation of possible articular sunken or rotated fragments or rim fractures, and to plan an arthroscopic assisted reduction/fixation or a specific open surgical approach (dorsal or volar) according to the Fragment Specific Fixation (FSF)

(ExFx): Treatment of highly comminuted fractures, exposed fractures and unstable. It may be used even in association with K-wires or plates or other devices +/- Arthroscopic assistance (A).

()HTS:** Horizontal Traction System: facilitates the volar plate fixation, especially in meta-diaphyseal comminuted fractures, and allows to use arthroscopy, if necessary, also in horizontal position, rotating the wrist in pronation.

(A): The experience with Wrist Arthroscopy allows the arthroscopic treatment of any type of distal radius articular fractures and associated ligamentous injuries.

(SP): For highly comminuted fractures of distal meta-epiphysis, and dorsal rim fractures when it is necessary to hold up the lunate facet, and when it is necessary an early loading in polytrauma and in presence of osteoporosis (ligamentotaxis has to be protected for at least 3 months)

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