

LOCON-T®
distal radius plate system

as described by A. Weiland, MD
and R. Gelberman, MD

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general PRECAUTIONS

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INDICATIONS

Operative exposure of the fracture becomes necessary if acceptable reduction cannot be achieved by closed means or in those high-energy injuries in which extensive soft tissue or associated skeletal injury requires stable fixation of the distal radius.

There are two basic types of fractures that ordinarily require open reduction and internal fixation:

- Shearing fractures of the joint surface, including Barton's, reverse Barton's and radial styloid fractures.
- Compression fractures of the articular surface or combinations of injury patterns in which articular fragments are displaced, rotated, and not amenable to reduction without operative intervention.

CONTRAINDICATIONS

Contraindications may include, but are not limited to the following:

- Severe medical illnesses
- Patient unreliability
- Localized septic process
- Massive soft tissue swelling
- Lack of basic equipment
- Unfamiliarity with the surgical approaches

REFER TO THE PACKAGE INSERT FOR MORE INFORMATION.



DESCRIPTIONS

DORSAL APPROACH

Axillary block or general anesthesia is ordinarily preferable as the choice for this surgery. The patient is placed in a supine position with the hand and arm on a hand table (preferably a radiolucent table to allow fluoroscopic imaging). External traction is used to help provide reduction of the fracture before surgical intervention. A pneumatic tourniquet is applied and the patient is prepped and draped in the standard fashion. With the pneumatic tourniquet inflated, a straight longitudinal incision is made over the dorsal aspect of the radius passing over the center of the dorsal radial tubercle between the second and third dorsal extensor compartments and extending between 7 to 12 centimeters. | **FIGURE 1**



FIGURE 1 |

As the fracture site is approached for retraction and exposure, structures are carefully identified and preserved. Identify and expose the fracture and retract the structures on both sides of the distal radial shaft. | **FIGURE 2**

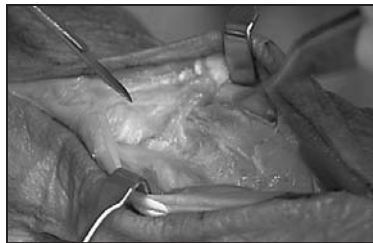


FIGURE 2 |

Under direct vision, the fracture is confirmed, reduced and/or distracted to length. Determine the appropriate plate size and whether an extender will be needed to secure any floating radial styloid or dorsal-ulnar fragments. | **FIGURE 3**

NOTE | A MALLEABLE TEMPLATE OF THE LOCON-T® DISTAL RADIUS PLATE CAN BE USED TO DETERMINE THE APPROPRIATE PLATE SIZE AND CONTOUR OF THE FRACTURED RADIUS.



FIGURE 3 |



FIGURE 4 |

Supplied benders can be used to match the implants to the contour of the dorsal radius. This may also require removal of Lister's tubercle. | FIGURE 4 The fracture is reduced using the contoured plate and plate holding forceps. | FIGURE 5

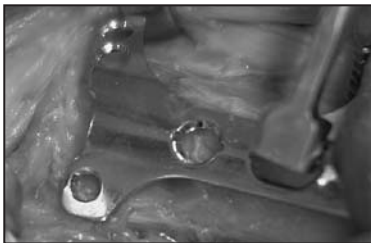


FIGURE 5 |

After ensuring reduction with fluoroscopic x-rays, screw holes are predrilled with the appropriate drill and drill guide. Screw length is determined using the screw depth gauge. The screws, which are self-tapping, are inserted directly into their corresponding drilled holes. | FIGURE 6

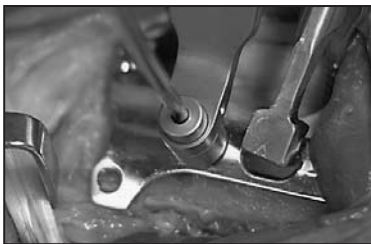


FIGURE 6 |

At this point, if further bending is necessary, the *in situ* bending instruments can be used. | FIGURE 7

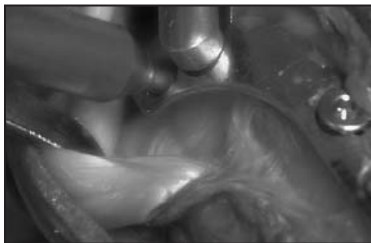


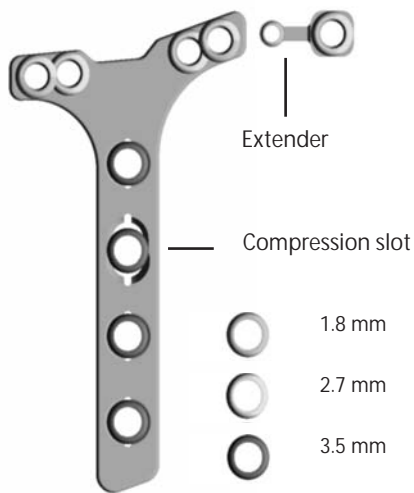
FIGURE 7 |



Standard 2.5 mm drill guide for compression slot



Interlocking 2.5mm drill guide fits into slot on plate



NOTE | 3.5mm screws are used along the longitudinal section of the plate while 2.7mm screws are used in the transverse section. 1.8mm screws are used only to connect the extenders to the plates. The screws must be used as described above as improper selection will cause either significant prominence or failed fixation.

1.8 MM CORTICAL SCREW
1.1 mm drill
1.5 mm hex
2.7 MM CORTICAL SCREW
2.0 mm drill
1.5 mm hex
3.5 MM CORTICAL SCREW
2.5 mm drill
2.5 mm hex

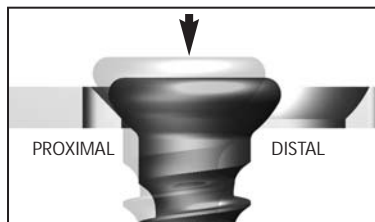


FIGURE 15 |

If compression of the fracture is necessary, the compression slot in the middle of the plate may be used. A hole is drilled at the proximal end of the slot. As the screw is tightened, the head of the screw will push the entire plate proximally. | FIGURE 8



FIGURE 9 |



FIGURE 10 |



FIGURE 11 |



FIGURE 12 |

EXTENDER

If an extender is indicated, a 1.1mm drill hole is made through the most radial or ulnar transverse hole of the plate. The extender is then held in position using the extender holding forceps | FIGURE 9 while a self-tapping 1.8mm screw is inserted through both the plate and the attachment hole of the extender. | FIGURE 10

The extender can then be optimally positioned from 0° to 15° distally or proximally depending on the location of the fragment. | FIGURE 11
Once positioned, a 2.0mm drill hole is made and a self-tapping 2.7mm screw is used to obtain fixation of the extender to the fragment. | FIGURE 12

NOTE | In some cases, such as severe comminution, it may be necessary to augment the extender with K-wires for additional fixation strength.



Volar Plate

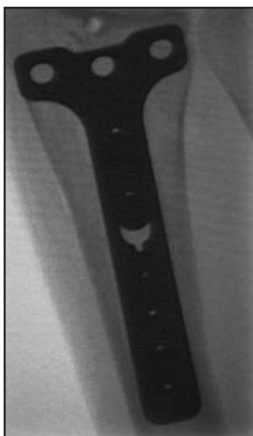


FIGURE 13 | Fluoroscope x-ray for proper position



FIGURE 14 |

VOLAR APPROACH

The appropriate surgical approach is used with regard to the anterior aspect of the distal radius providing adequate exposure while protecting the median and ulnar nerves, flexor tendons, palmar capsular, and radiocarpal ligaments.

The fracture is identified and exposed and the structures are retracted on both sides of the distal radial shaft. Under direct vision the fracture is confirmed, reduced and/or distracted to length. The appropriate size of plate is determined utilizing the plates or templates. An extender may be indicated to secure floating radial styloid or dorsal ulnar fragments.

NOTE | Refer to Extender protocol

After ensuring reduction with fluoroscopic x-rays, | FIGURE 13 screw holes are predrilled with the appropriate drill and drill guide. Screw length is determined using the screw depth gauge. The screws, which are self-tapping, are inserted directly into their corresponding drilled holes.

At this point, if further bending is necessary, the *in situ* bending instruments can be used. | FIGURE 14

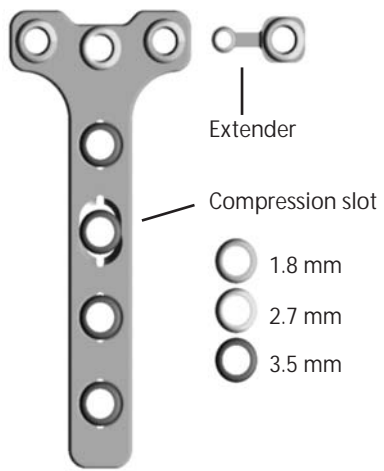
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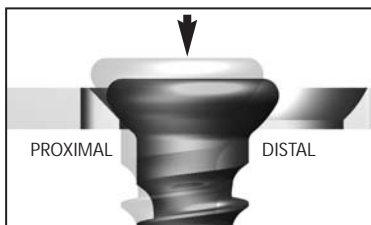


FIGURE 15 |

If compression of the fracture is necessary, the compression slot in the middle of the plate may be used. A hole is drilled at the proximal end of the slot. As the screw is tightened, the head of the screw will push the entire plate proximally. | FIGURE 15

item LISTING



Dorsal Plate



Extender



Volar Plate

CATALOG NUMBER	CATALOG DESCRIPTIONS
PLATES	
49000SML	DISTAL RADIAL PLATE DORSAL, SMALL, LEFT
49000SMR	DISTAL RADIAL PLATE DORSAL, SMALL, RIGHT
49000MDL	DISTAL RADIAL PLATE DORSAL, MEDIUM, LEFT
49000MDR	DISTAL RADIAL PLATE DORSAL, MEDIUM, RIGHT
49000LGL	DISTAL RADIAL PLATE DORSAL, LARGE, LEFT
49000LGR	DISTAL RADIAL PLATE DORSAL, LARGE, RIGHT
4900000V	DISTAL RADIAL PLATE VOLAR, UNIV
4900000E	DISTAL RADIAL PLATE EXTENDER
SCREWS	
49000212	CORTICAL BONE SCREW 1.8MM (12MM)
49000214	CORTICAL BONE SCREW 1.8MM (14MM)
49000216	CORTICAL BONE SCREW 1.8MM (16MM)
49000218	CORTICAL BONE SCREW 1.8MM (18MM)
49000220	CORTICAL BONE SCREW 1.8MM (20MM)
49000222	CORTICAL BONE SCREW 1.8MM (22MM)
49000224	CORTICAL BONE SCREW 1.8MM (24MM)
49000226	CORTICAL BONE SCREW 1.8MM (26MM)
49000228	CORTICAL BONE SCREW 1.8MM (28MM)
49000230	CORTICAL BONE SCREW 1.8MM (30MM)
49000310	CORTICAL BONE SCREW 2.7MM (10MM)
49000312	CORTICAL BONE SCREW 2.7MM (12MM)
49000314	CORTICAL BONE SCREW 2.7MM (14MM)
49000316	CORTICAL BONE SCREW 2.7MM (16MM)
49000318	CORTICAL BONE SCREW 2.7MM (18MM)
49000320	CORTICAL BONE SCREW 2.7MM (20MM)
49000322	CORTICAL BONE SCREW 2.7MM (22MM)
49000324	CORTICAL BONE SCREW 2.7MM (24MM)
49000326	CORTICAL BONE SCREW 2.7MM (26MM)
49000706	CORTICAL BONE SCREW 3.5MM (6MM)
49000708	CORTICAL BONE SCREW 3.5MM (8MM)
49000710	CORTICAL BONE SCREW 3.5MM (10MM)
49000712	CORTICAL BONE SCREW 3.5MM (12MM)
49000714	CORTICAL BONE SCREW 3.5MM (14MM)
49000716	CORTICAL BONE SCREW 3.5MM (16MM)
49000718	CORTICAL BONE SCREW 3.5MM (18MM)
49000720	CORTICAL BONE SCREW 3.5MM (20MM)
49000722	CORTICAL BONE SCREW 3.5MM (22MM)
49000724	CORTICAL BONE SCREW 3.5MM (24MM)
49000726	CORTICAL BONE SCREW 3.5MM (26MM)
49000728	CORTICAL BONE SCREW 3.5MM (28MM)
49000730	CORTICAL BONE SCREW 3.5MM (30MM)
49000732	CORTICAL BONE SCREW 3.5MM (32MM)
49000734	CORTICAL BONE SCREW 3.5MM (34MM)
49000736	CORTICAL BONE SCREW 3.5MM (36MM)
49000738	CORTICAL BONE SCREW 3.5MM (38MM)
49000740	CORTICAL BONE SCREW 3.5MM (40MM)

