

## Management of Fractures of The Distal Radius With Volar Two-Peg Plate

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### Key Words

Lower end Radius Fractures - Intraarticular/  
Periarticular.

### ❖ Abstract ❖






Lower end Radius fractures may be periarticular / intraarticular. They some times pose management problems (especially the comminuted intraarticular cases). The results are affected by axial shortening and articular incongruity. In last one year 20 fractures (19 patients) with Volar 2 peg plate and external fixator (to be retained for 2 wks) wear treated.

O.T.A. classification was used to classify these fractures and the results were analysed using the *Demerit point system of Gartland and Werdy*. Minimum follow up was 1 year. Excellent to good results in 90% cases; fair in 10% and we had no poor result.

### Material and Methods

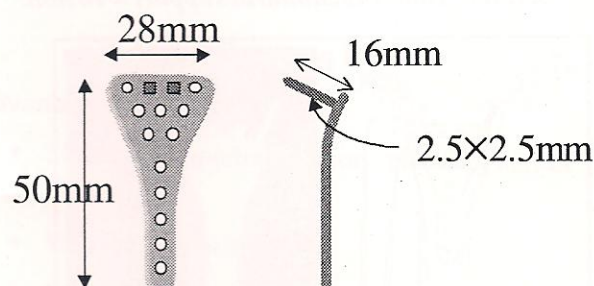
Age (yrs)	No. of Patients
20 - 40	8
40 - 50	6
50 - 60	5

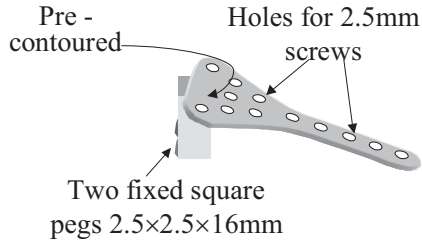
of 19 patients 10 were male and 9 females. The fractures were classified using the O.T.A. classification.

OTA Type		No. of Cases	
A3		6	
B3		3	
C	C1 	3	11
	C2 	3	
	C3 	5	

8 Cases in age from 20 - 40 yrs. 2 were polytrauma cases, 6 Cases from age of 40 - 50 yrs. 5 were due to road traffic accident and 1 was due to low velocity trauma (house hold fall). All 5 cases in elderly age group were due to low velocity injury. Of the 20 fractures 18 were closed and 2 Gr I open injuries. Most of the cases reported with in 2 days of injury.

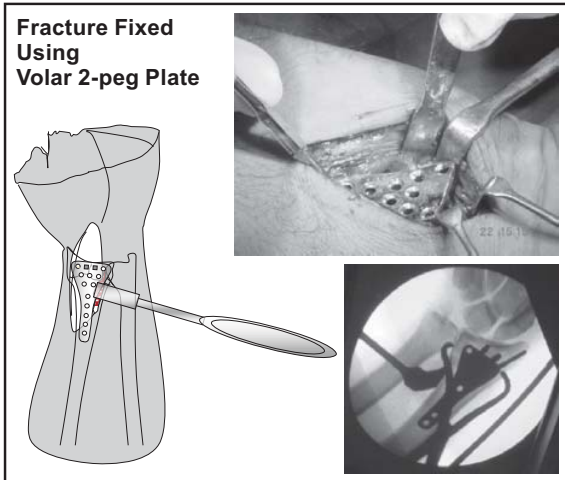
### ❖ Implants ❖





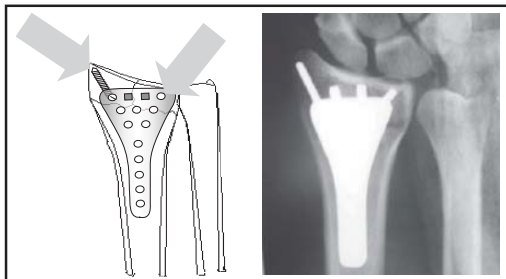
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1. Distraction.
2. Incision over Flexor Carpi Radialis(FCR) tendon.
3. Anterior sheath of FCR opened.
4. FCR retracted laterally and its posterior sheath slit.
5. Pronator Quadratus exposed.
6. Pronator quadratus erased & retracted medially exposing fracture fragments.
7. Reduction of fracture using tenaculum.
8. Fracture fixed using Volar 2-peg Plate.



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- Articular surface supported by two pegs & two screws - **Total subchondral support = 10 mm.**

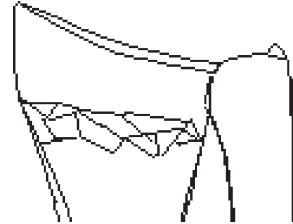


- Lateral screw directed to tip of radial styloid.
- Medial screw directed towards posteromedial corner of radius.

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External Fixator is retained for 2 weeks

**Extraarticular Fractures :** No further external support.



**Intraarticular Fractures :** Forearm Splint for another 2 weeks.



- Use of hand and active physiotherapy as per tolerance.
- After 6 weeks ADL.

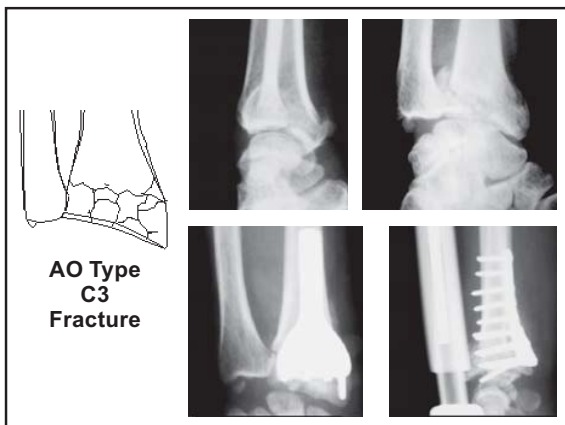
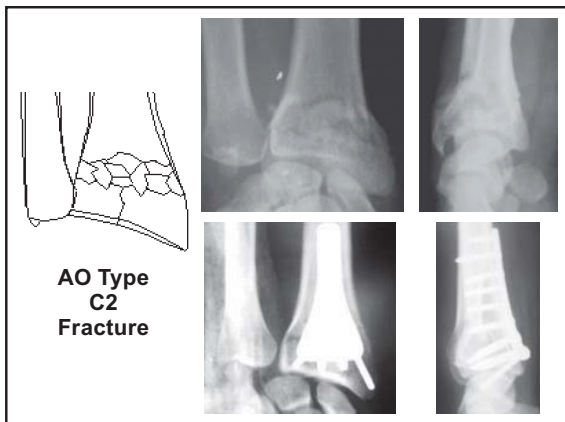
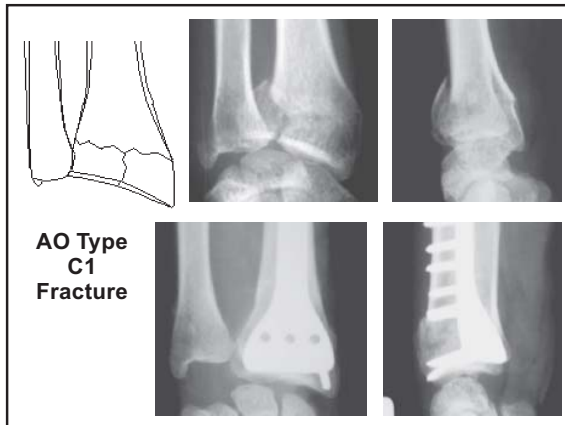
**Observations**

OTA Type		% of Cases	
A3		30%	
B3		15%	
C	C1	15%	55%
	C2	15%	
	C3	25%	

## Results

Demerit point system of Gartland and Wereley.

Outcome	Points	No.	%
Excellent	0-2	9	45%
Good	3-8	8	45%
Fair	9-20	2	10%
Poor	21	0	0%



## Literature

- Drobetz et al<sup>6</sup> reported 92% excellent and good results.(2002).
- Thielke et al<sup>23</sup> reported 35% excellent, 50% good and 15% fair results.(2003).
- Sakhaii et al<sup>21</sup> reported 15% excellent, 50% good, 25% fair and 1% poor results.(2003).

Locking screw plate were used by the authors.

## Complications

We had two complications, one had R.S.D. and other had superficial infection. Both did well with treatment.

## Discussion

Fractures of lower end of radius are common injury and the comminuted and intraarticular ones are difficult to treat.

Conservative treatment in intraarticular and comminuted and open fractures gives poor results due to radial shortening and intraarticular incongruity. The comminuted distal radius fractures remain a problem. Various closed and open methods have been and are being used to treat these fractures.

Ligamentotaxis has been used as a treatment modality. However, there are certain shortcomings with this method. Wrist stiffness, inability to restore radio palmar tilt and loss of radial length on wrist mobilization are some.

Conventional T plates rely only on distal screws. This can result in loss of reduction when wrist mobilization is started because of toggle between screw and plate. Hence, locking screw plate with adjuvant external fixator has gained world wide acceptance.

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## Advantages

- ◆ Stable subchondral support prevents loss of reduction.
- ◆ Volar plate position.
- ◆ Easier to manufacture and cheaper than locking screw plates.



## Possible Disadvantage

Like any other fixed angled devices is technically demanding.

- ◆ Recently we have overcome this using a specially designed jig making the implant surgeon friendly.

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