

**USE OF EXTERNAL FIXATOR FOR LIGAMENTOTAXIS
IN FRAGMENTED DISTAL RADIAL FRACTURES**

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Distal radial fracture is described in 1814 by Colles as one of the most common fractures due to indirect trauma. In 1847, Smith and Goyrand note the particular flexion type of distal radial fracture. In 1838, Barton describes the so-called marginal fractures belonging to the fractures of distal radial metaphysis. After Frykman's classification (1967), traumatic lesions are divided into 8 groups. Distal radial fractures present a serious therapeutic problem nowadays. Inadequate treatment results in a typical bayonette-like deformity and a considerable functional and cosmetic deficit. Schweiberer (1973) notes that 11 % of the patients have complaints up to 4 years after injury. Functional disorders in the carpal joint are mainly due to insufficient reposition and deficient plaster immobilization. According to Frykman, fractures of types 7 and 8 (fragmented intraarticular distal radial fractures) are of poor prognosis. The fracture of *Proc. styloideus ulnae*, i.e. of the insertion site of discus articularis or radio-ulnar syndesmosis worsens the prognosis, too. Type 3 fracture of Smith (after Thomas' classification, 1957) can hardly be conservatively treated, too. However, over 90 % of distal radial fractures are indicated for conservative treatment (Beck, 1979), especially when articular surfaces are not involved. In general, intraarticular fractures in young patients are indicated for operative reposition and stabilization as far as conservative therapy is not capable to restore the congruent articular surface and to remove axial deviations and shortening. De Palma (1952) and Willeneger (1959) consider the adaptation and neutralizing synthesis with percutaneous Kirschner needles under x-ray control an operative treatment as fracture stabilization. It requires an exact manual or apparatus reposition and traction holding but does not eliminate the need of plaster immobilization. Vidal substantiates in 1977 the technique of "ligamentotaxis" as extrafocal distraction osteosynthesis being an alternative therapeutic possibility.

Our paper summarizes the experience of 2-year long application of an unilateral external fixator in our modification for the treatment of types 7 and 8 distal radial fractures (Fig. 1) (after Frykman). A total of 17 patients (10 males and 7 females) aged between 21 and 72 years

are operated on. The right-left hand ratio is almost equal. Primary indications are considered in 12 cases but secondary ones (after failed manual reposition and plaster immobilization) in 5 cases. Primary reposition by the fixator is very good in all the patients. An additional fixation with Kirschner needle is required on the 5th day after fixator setting in one case. After fixator removing a good reposition is restored in 16 cases and early postoperative results are good. There is a severe secondary dislocation in one female patient due to absent systemic control which requires osteotomy and fixation with Kirschner needles. Late postoperative results are very good in 7 out of 9

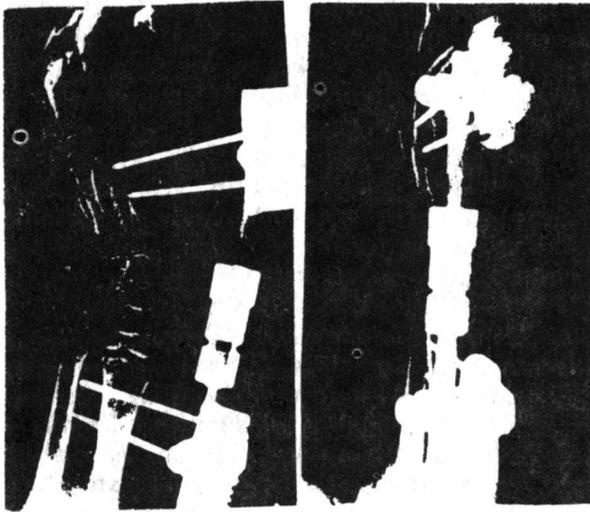


Fig. 1

cases which will be arthroscopically objectified and reported elsewhere. Our experience in the treatment of one of the most common fractures is rather encouraging, indeed. We emphasize that extrafocal osteosynthesis in its variant of ligamentotaxis can maintain a permanent repository traction in the region of the fracture and eliminates the need of metal implantation in the site of callus formation.

It is a method of choice in fractures with metaphyseal spongioid defect and in open fractures even with subsequent osteitis. The term of radiocarpal joint immobilization is not shortened. However, the risk of the so-called "fracture disease" is considerably reduced (only one case in this series against 17 % of cases with manual reposition). An almost completely rehabilitated hand is obtained and the term of hospitalization is shorter than in cases when open reposition and internal stabilization are used.