Acta Orthop. Belg., 2005, **71**, 347-348

TECHNICAL NOTE

External fixation of finger fractures made simple

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The authors present a simple method for treatment of comminuted and compound phalangeal fractures in the hand, using readily available K-wires and needle sheaths.

INTRODUCTION

Phalangeal fractures with segmental bone loss are often difficult to manage by someone who does not specialize in hand surgery. In addition to the difficulty in assembling and applying the small-fragment external fixators, the latter are not easily available in all the hospitals at all times. We have therefore come up with a simple method to stabilize these fractures using the most basic instruments that are readily available at any time, anywhere in the hospital. The technique is described below.

TECHNICAL TIP

All that is required for this procedure is a pair of 1.6 mm K-wires and a couple of thick plastic needle covers (fig 1). The general principles followed for any type of external fixation device apply to this procedure as well. The number of K-wires to be applied on either side of the fracture depends upon the fracture pattern and fracture site. Once the K-wires are applied on either side of the fracture site, the fracture is manipulated into an acceptable alignment using the K-wires as the lever arm. The fracture reduction and finger length is maintained by keeping the K-wires apart with the help of plastic needle caps using them as connecting rods (fig 2, 3). Either one or two needle caps can be used as connecting rods, the first one as close to the skin as possible and the other further away from the first one to make the setup more stable.

Fig. 1. — K-wire and needle sheath

DISCUSSION

Comminuted and compound phalangeal fractures in the hand with or without intra articular extensions and segmental bone loss are difficult to manage. Although these fractures can be well

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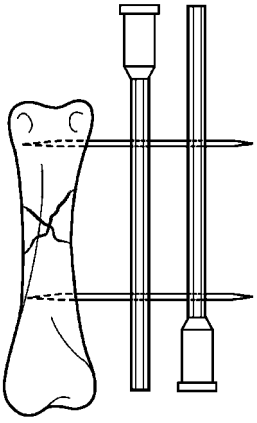

Fig. 2. — Final assembly using the needle sheaths as connecting rods.

reduced after the initial debridement and manipulation, it is difficult to maintain the reduction until fracture union. Operating on these patients in the middle of the night often puts one in a dilemma as to what exactly should be done with these difficult injuries. Although K-wire is a simple option, this cannot be used in all types of phalangeal fractures. For someone who is not familiar with external fixators, setting and assembling the small fragment external fixators could become a nightmare. Also it is costly and not easily available in all the hospitals during out of hours. The authors have experienced problems with small fragment external fixators and so have come up with the above described method using the most basic instruments that are readily available any time, anywhere in the hospital. They have found this method to be very simple and cost effective ; it can be done by even inexperienced surgeons during the middle of the night. This kind of fixation can be used either as a temporary or definitive fixation depending upon the availability of hand surgeons in that hospital. We have successfully applied this method in our hospital, both on a temporary and on a permanent basis and have found it to be quite useful. This will rather avoid the costlier, designer external fixators which in our experience are cumbersome when it comes to these types of finger fractures.

Fig. 3a-b. — Pre-operative (**a**) and post-operative (**b**) AP and lateral views of a fracture stabilised with K-wires and a plastic sheath