Kirschner-Wire Fixation of Small Bones

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Abstract

A simple technique for Kirschner-wire placement in small bones is to place the wire over the to-be-pinned bones, push the wire out through the skin, and run the wire back across the bones.

There are several techniques for small bone fixation. Displacing a fracture allows one to run a wire out through one fragment, reduce the fracture, and run the wire back across the fracture into the proximal segment of bone. A large needle can be used as a wire guide for a small pin.[1]

Sometimes, however, the fracture cannot be displaced, or one is dealing with a ligamentous injury without a fracture. A useful technique giving the precise angle and starting point for wire placement is illustrated (Figure 1). Through a surgical incision, a Kirschner wire is placed at the proper angle across the to-be-pinned bone(s), pushed out through the skin, pulled back until the tip is on the edge of the bone, and driven across.

Case Report

A 51-year-old man sustained a closed, crushing injury to his fifth finger. The distal fragment of the middle phalanx was displaced and rotated 90°. During surgery 1 week later, after failed attempts at closed reduction, the injury was exposed dorsally, reduced, and pinned using the described technique (Figures 2, 3).

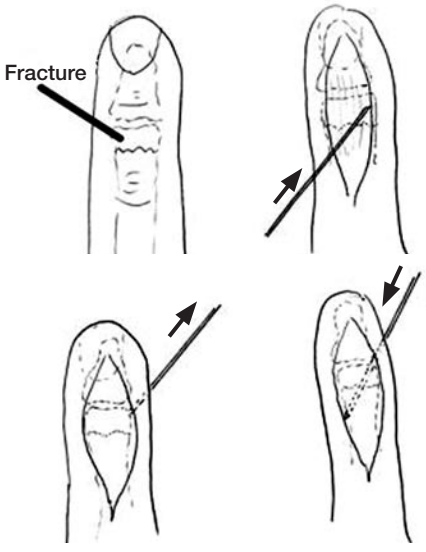

Figure 1. A Kirshner wire is placed across the fracture with the proper angle and pushed out of the skin. The wire is then withdrawn until it is just touching the bone. It is then driven into the bone across the fracture at the same angle.

This technique is quick, easy, and precise and minimizes C-arm exposure. We have used it without difficulty for fixation of small bone fractures in the hand and for carpal reconstructions.

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Reference

1. Waldron VD. Targeting device for pinning finger fractures. *Am J Orthop.* 2000;29:733.

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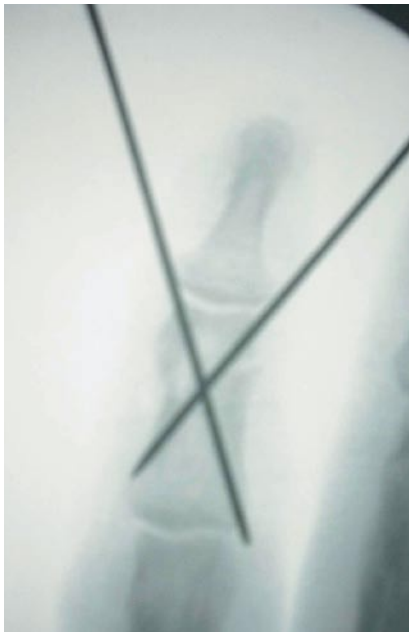

Figure 2. A transverse middle phalangeal fracture is reduced through a dorsal midline incision.

Figure 3. With a correct starting point on the surface of the bone and the correct angle, the small fracture is perfectly pinned.