

Universal External FIXATOR of small and medium -sized bones

Experience with the use of "universal" external fixator for small and medium bones

In recent years there has been a significant increase in the devastating trauma of small and medium-sized bones. Need to use external fixator for the primary treatment of these injuries was increasing. There was no fixation, allowing universal use. Therefore, with the help of the head of the surgical department and the support of the leadership in the district hospital Havlíčkův Brod we started to develop a fixation that would allow universal use for primary treatment and treatment of devastating injuries to small and medium-sized bones.

Basis was existing material conditions of our surgical department. To make it simple we used Kirschner wires, whose availability is actually unlimited. The strength of each of Kirschner wires helped us to ensure the stability of small and medium-sized bones and joints of the upper and lower extremities. These Kirschner wires were used to secure bone fragments. They are unthreaded and threaded and using both types, there is no release from the bone. First, we secured a fracture at two levels. After several attempts, we began using securing fractures in one level and the connection was either single or for higher stabilization doubled. This allows to ensure the stabilization of fractures and even allows to ensure distraction or compression of bone fragments. We made the clamping sleeves, which conform to the stable securing of Kirschner wires that are used to the assembly, and the connecting parts of the construction of the external fixator. The strength of Kirschner wires allows universal use of the fixator.

Gradually new connecting clamps were developed. Currently clutch in angle of connection 90/90 degrees, 90/45 degrees, the jet adjustable coupling in one and two level and a rotary coupling are developed. Furthermore a set of micro-connectors was created for small children and possibly for dental surgery.

Every year in terms of district hospitals we use external fixation of small and medium-sized bones about 10-20 times a year. Usage is universal. We used the fixator to treat devastating injuries of fingers and feet. In cooperation with the plastic surgeon we made a joint replacement for the healed hand after injuries of joints.

After gunshot injury with partial loss of V. Metacarp, we conducted healing of devastated tissue and healing of lossy injury of V. Metacarp, followed by substitution of trikortical graft from the iliac crest and the total healing process on the external fixator. We used external fixator in healing of comminutive fractures of the distal radius, radiocarpal injury. In the lower limbs are external fixators used in the healing of devastating injuries of the fingers, metatarsal of legs. During the healing of open fractures of the calcaneus and ATC joint. Over the last 10 years, we performed about 80 operations using this universal external fixator at the surgery department. We use non-threaded Kirschner wires.

In either case, there was no release of Kirschner wires. Several times we used the fixator on two or more fingers at a devastating injury. In the distal radius, we have combined the stabilization of distal radius by external fixator and by Kirschner wires. Channel infection occurred only in two cases. Recently, we also use elbow joints and begin to early rehabilitation of the joints, which significantly improved momentum in affected joints. Finally, for us the economic point of view is positive, the price Kirschner wires and connectors in comparison with renowned companies is up to ten times lower. However we see the most positive impact in versatility for small and medium-sized bones, children and the possibility of use in dental surgery.

SET of Universal External Fixator of small and medium-sized bones

Registration cod: MZDRX00JVT8R



Usage is universal!

The device is intended for external fixation of bones with modular characteristics, to fix the metacarpal phalangeal, distal forearm in adults and children (which can also be used on the proximal forearm, elbow and humerus) and also for external fixation of the phalanges, metatarsals and tarsal bones in adults and tibia in children. This system allows the external fixation of bone fragments in one or more levels and the opportunity to build a one or two-core system of external fixation at the same time.

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Indication:

Splintery fractures of the bones of small and medium-sized upper and lower limbs, devastating trauma of small and medium-sized bones. Open fractures from G2, lossy injuries of bones, lossy injuries of skin and muscle cover. indications for use of external fixator of small and medium-sized bones.

Particular parts of the external fixator of small and medium-sized bones



CLUTCH D1
- surgical steel,
90° / 90°, length
17 mm, Ø 8mm.
Code-13P01



CLUTCH D2
- surgical steel,
90°/45°, length
17mm, Ø 8mm.
Code -13P02

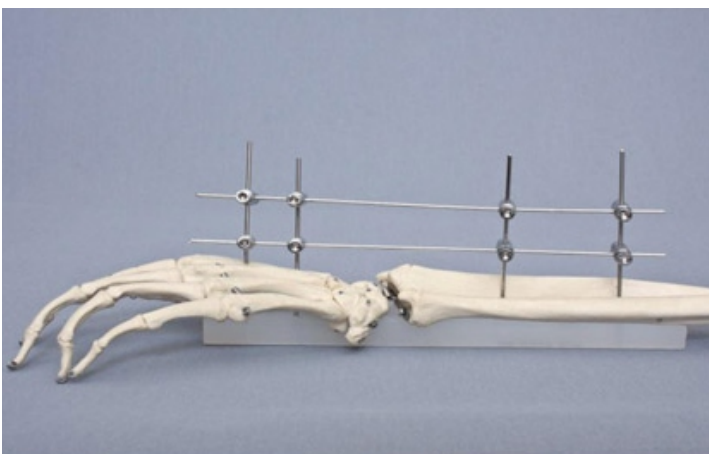


JOINT CLUTCH simple
- surgical steel,
length 27mm, Ø 8mm.
Code - 13P03



JOINT CLUTCH double
- surgical steel,
length 39,5mm, Ø 8mm.
Code - 13P04

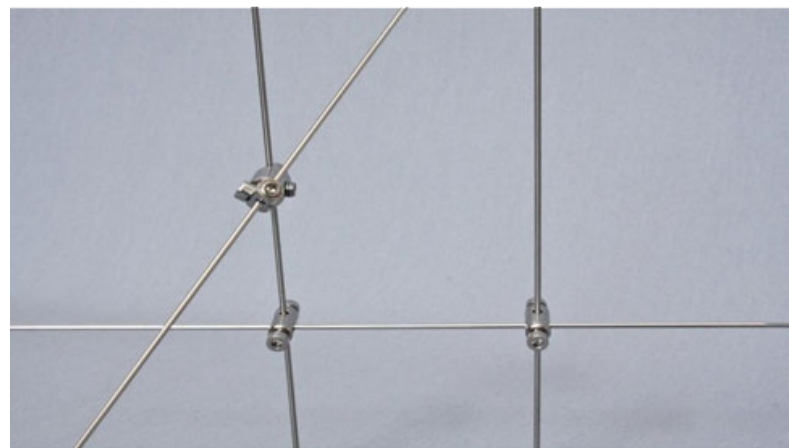
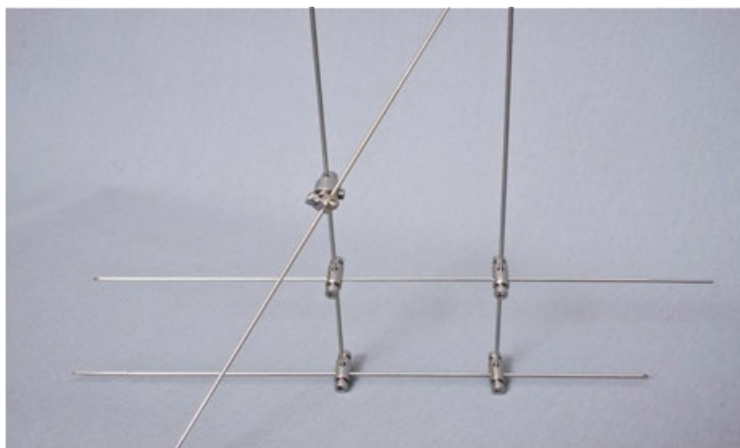
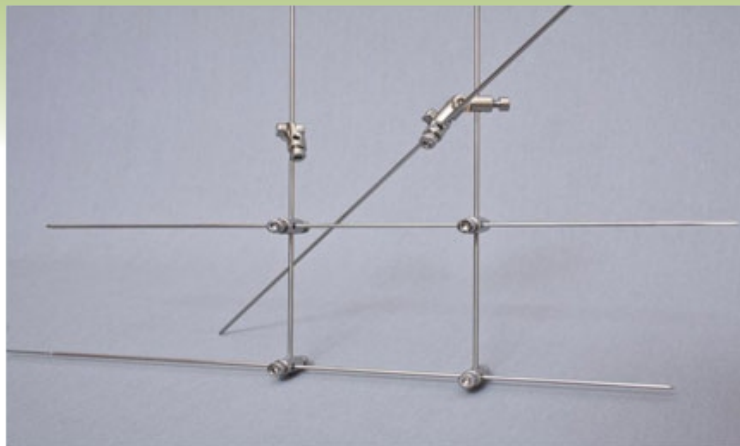
Model application-external fixation on the upper limb



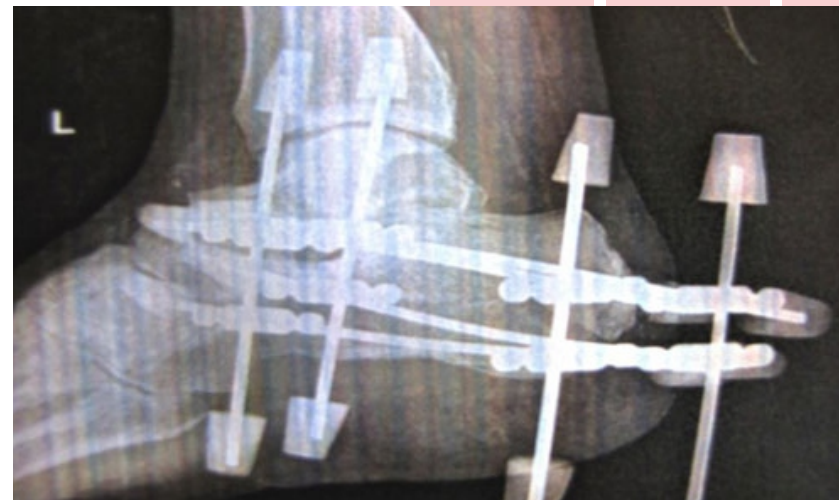
Model applications - external fixation on the lower limb



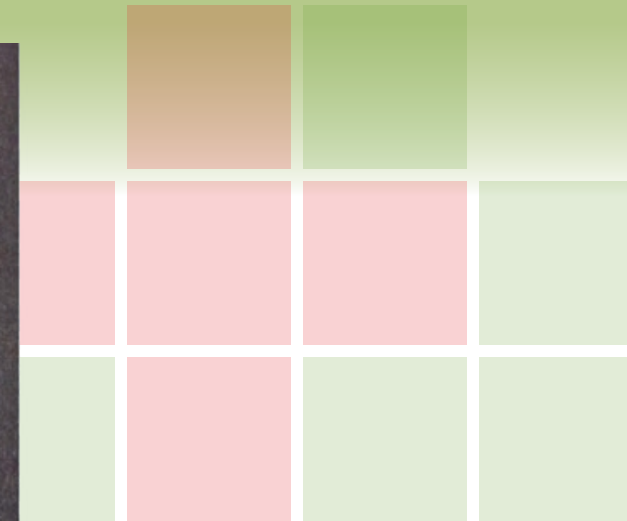
Model construction of the external fixator



X-RAY – external fixation of the finger and the heel



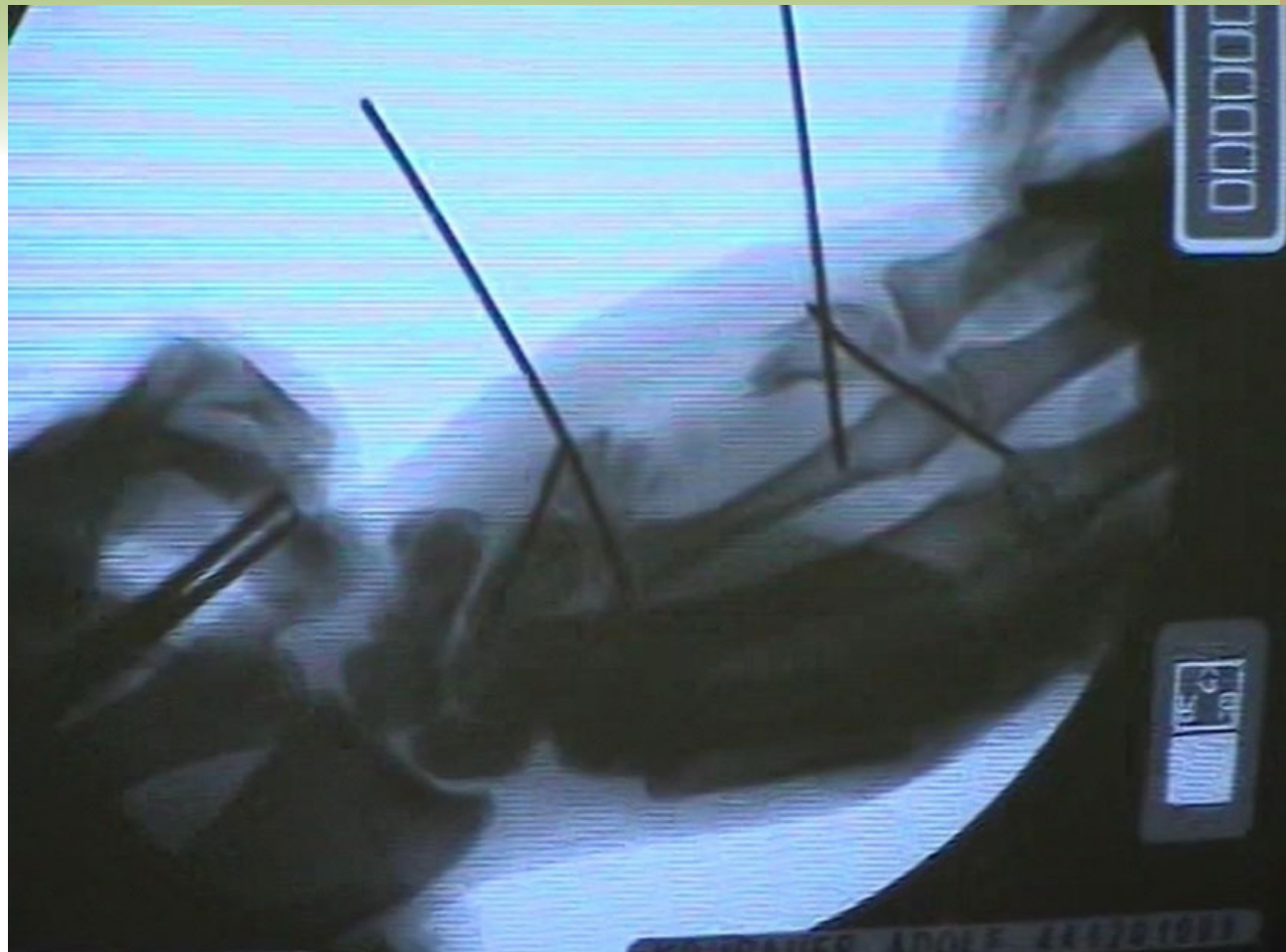
X-RAY – external fixation of the forearm



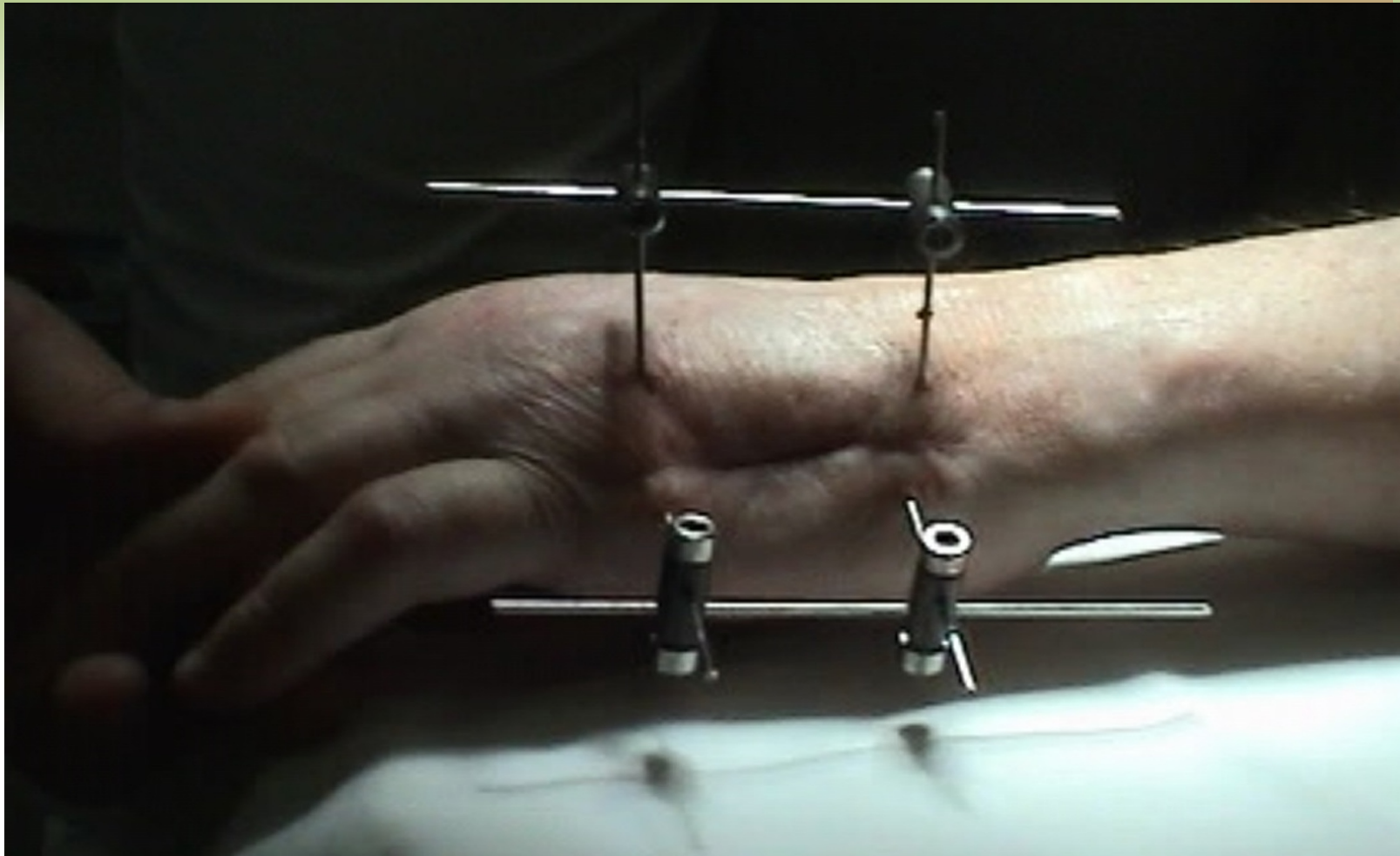
THE OPERATION - GUNSHOT INJURIES OF THE HAND



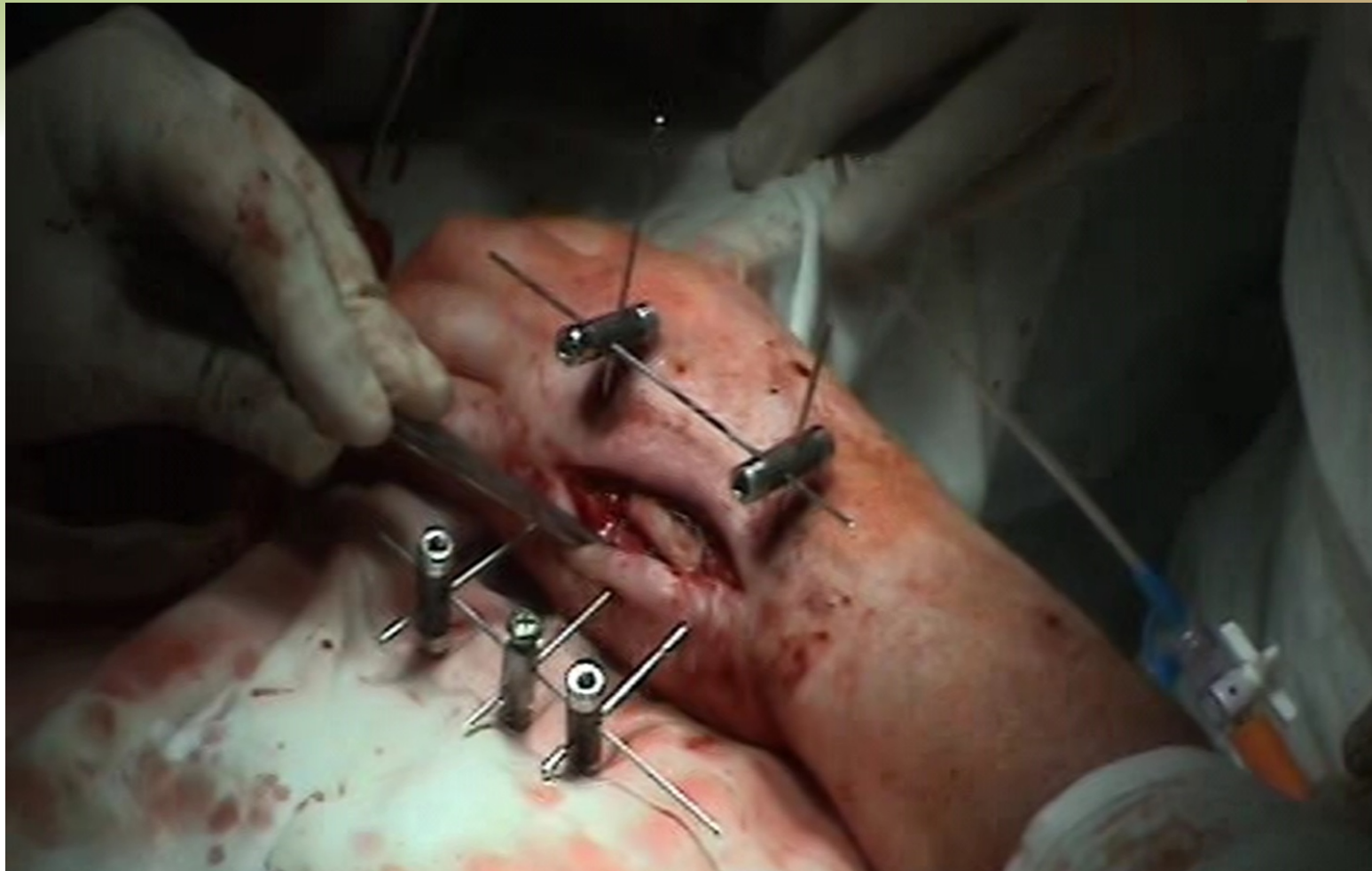
Condition after the primary treatment



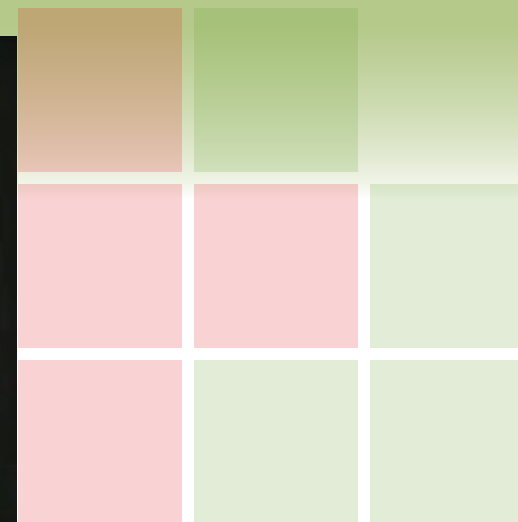
Healing of soft tissues



Situation after substitution of Metacarp



X-RAY after metacarpal substitution



Situation after reconstructive operation



Innovation -children's fixation devices



Clutch, Joints - children's fixation devices

