Treatment of a non viable upper limb amputation with a sequence of operations
Ellada Papadogeorgou, Nikolaos Daniilidis
Interbalkan Medical Center, Thessaloniki, Greece

Objective: To describe the rescue procedure of an amputated upper limb at the level of the wrist, prioritizing solely the revascularization of the hand during the first operation, because of the delayed admission of the patient.

A 34 years old male with left hand incomplete non viable amputation at the level of the wrist and the palm, caused by a severe crush injury at work, was admitted to our emergency department 6 hours after the accident and after having already had a failed operative attempt of the hand’s revascularization in another hospital.

During surgery priority was given to the successful anastomosis of the ulnar and the radial arteries, which had been ligated and thrombosed after suturing retrospectively. After the successful revascularization of the hand, adequate numbers of veins were anastomosed, median and ulnar nerve stumps were tagged and flexor and extensor tendons were sutured en block. Multiple fractures and dislocations of the hand and the wrist were temporary stabilized with an ex-fix system and k-wires.

Ten days later, a second operation took place during which all tendons were sutured, the ulnar and the median nerve were reconstructed with sural nerve grafting and the palmar skin defect was covered with local flaps and free skin grafts. The dorsal surface was left uncovered and VAC was applied.

After one month, skeletal and extensor tendon reconstruction was performed. The dorsal skin defect was covered with groin flap, which was separated after three weeks.
After this point the patient followed an intensive rehabilitation program.

Defatting and refinement of the scars followed and two years later a rotational osteotomy of the thumb together with opposition tendon transfer was also performed.

Results: Three years post-traumatic the patient has satisfying range of wrist motion and full ROM of the IP joints of the digits. He retains the extrinsic function of his injured hand, thumb’s opposition is functional and he has protective sensibility. He is completely independent in daily activities and very satisfied with the final result.

Conclusions: Complex trauma often demands modification of the usual surgical practice, in order to obtain the best possible result. In this case the usual sequence of tissue reconstructions during replantation was modified according to the circumstances, based on critical thinking and experience.