Multiple finger replantations

Finger replantation is challenging for microsurgeons because the first hours of the fragment's revascularization postoperatively are critical in preventing development of necrosis.

Continuous advances in the field of microsurgery, with better and more precise instruments and greater numbers of cases presented in the literature, allow better prediction of the likely outcome of cases.

Case presentation

A 55-year-old factory worker was admitted via helicopter into the plastic surgery department after accidentally amputating eight fingers. Surgery was indicated to restore the hand functions by regaining pinch, grasp and sensitivity.

Radiography of the hands and finger fragments was performed to plan the intervention. Blood tests revealed anaemia and leukocytosis.

Examination revealed total amputation at the second phalanges of the second, third, fourth and fifth fingers (left hand), and total amputation at the first phalanges of the second, third, fourth and fifth finger (right hand). The wounds were washed and debrided, and the fingers evaluated for their pedicles and neurovascular status.

The fragments of the fourth and fifth fingers on both hands could not be replanted because of the extent of the damage, so stumping was performed.

The steps taken were bone fixation by central osteosynthesis with Kirschner wires, tendon repair, arterial, nerve and vein repair. The arteries, nerves and veins were repaired using a microscope.

Results

The intervention was initially successful for all fingers, but 1 week postoperation the left index finger developed necrosis. As a result of the crushing mechanism, the intima of the vessels was damaged leading to clot formation and ischaemia. The other three replanted fingers had good outcomes (presence of good capillary refill, warm skin, minimal bleeding from the suture line, normal blood oxygen level – 99%) and in the first days postoperatively, leeches were used to compensate venous drainage. The Kirschner wires were removed after 5 weeks, after which the patient was enrolled in an intensive recovery programme.

Multiple fingertip amputation is challenging, but whenever the fragments can be replanted, this technique is superior to any alternative methods of reconstructing missing fingertips. BJHM

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