EMERGENCY CASEBOOK

Closed digital artery injury

A 55 year old right handed medically fit non-smoking farmer presented to the accident and emergency department six hours after a closed injury of the left little, ring, and middle fingers (at the level of the middle phalanx in the ring and middle finger and at the distal phalanx level of the little finger). His fingers had been by trapped by a 50 kg weight of metal. The ring finger progressively became dusky in colour and cold, while skin sensation decreased and gradually became absent at the level of the fracture. Hand x ray showed a comminuted fracture of the middle phalanx of the middle finger, comminuted fracture with intra-articular extension of the middle phalanx of the ring finger, and comminuted dorsal fracture of the base of the distal phalanx of the little finger (fig 1).

Doppler study of the ring finger revealed loss of digital artery pulsation at the level of the fracture. Immediate surgical exploration of the finger through zigzag volar skin incision revealed rupture of the radial digital artery of the fingers at the level of the middle phalanx. The neurovascular structures otherwise grossly looked normal. The artery was repaired by microsurgical technique.

There are two descriptions of closed arterial injury of the finger. Injuries of the digital arteries of the hand are usually due to open wounds. This may give a mistaken sense of security regarding arterial injury with closed fractures of the hand. Recognition of closed digital artery injury is difficult; the dilemma is that finger ischaemia may be secondary to venous congestion and will disappear with elevation, but this can result in a gangrenous finger if the digital artery is damaged. This can easily be ruled out by ultrasound. Early recognition and surgical repair can save the finger if the digital arteries are injured.