

PRIMARY REPAIR OF A FLEXOR TENDON AFTER A HUMAN BITE

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Scand J Plast Reconstr Surg Hand Surg 2004; 38: 62–63

Abstract. Successful uncomplicated primary closure of a human bite injury of the hand with simultaneous zone II flexor tendon injury has not been previously reported to our knowledge. We report the case of a man who was bitten on his left ring and right middle and index fingers. He was treated with antiseptic lavage, intravenous antibiotics, and operation. He had complete transection of the flexor digitorum profundus at the middle phalanx. This was repaired primarily and he made a good recovery.

Key words: flexor tendon repair, human bite, hand injury.

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Accepted 14 November 2002

The most severe complication of human bite injury is secondary infection, commonly caused by staphylococci, streptococci, and anaerobes (6, 11). Textbook treatment of human bite wounds is therefore by secondary closure (10). However, this approach can cause a serious disadvantage if there is a coexisting laceration of an open flexor tendon. In this report we describe the management of a complete zone II flexor tendon injury caused by a human bite with primary tendon repair and wound closure and uncomplicated good functional outcome.

CASE REPORT

A 47-year-old, right handed man was involved in a fight and sustained bites to his left ring, and right middle and index fingers. On examination his right middle finger was swollen with a 10 mm transverse wound on the volar aspect of the middle phalanx. He had normal distal sensation and capillary refill, but was unable to flex his terminal phalanx actively. The tendons to right ring finger and left middle fingers remained intact.

Emergency treatment within six hours of the injury consisted of wound washout, dressings soaked in povidone-iodine (Betadine), one intravenous dose of cefuroxime 1.5 g in the Accident and Emergency Department, a tetanus toxoid booster, splinting, and elevation. He was taken to theatre for definitive

treatment 18 hours after the injury. At operation there was complete transection of the flexor digitorum profundus at the middle phalanx (Fig. 1a) but the neurovascular bundles were intact. The skin and tendon were debrided, washed out with normal saline, and the tendon was repaired primarily with Kessler wire and a running epitendinous sutures; the skin was closed with interrupted nylon sutures. The wounds were dressed with Betadine-soaked gauze and the hand elevated. A modified Kleinert splint involving digits two to five was fitted on the first postoperative day. He was kept in hospital for 24 hours postoperatively for intravenous antibiotic treatment with three doses of cefuroxime 1.5 g and was discharged after five days. The hand therapist followed him for the next eight weeks using the Kleinert mobilisation routines. At two weeks the wounds were clean and well healed. By eight weeks he had active range of movement in the injured finger at the metacarpophalangeal joint: active flexion 0°–90°, extension lag 0°–10°; proximal interphalangeal joint: active flexion –10–90° and distal interphalangeal joint: active flexion 0°–35° (Fig. 1b), despite a poor attendance record with the hand therapist.

DISCUSSION

Bite injuries to the hand cause extensive crush/shearing injuries to the surrounding soft tissue unlike lacerations caused by sharp instruments (2, 9). They are also



Fig. 1. (a) Shows laceration of skin and tendon as found at the operation. (b) Shows the active flexion eight weeks after the injury.

associated with appreciable morbidity from inoculation of the wound with pathogens and saliva (1, 8, 12), greatest when there are coexisting skin and flexor tendon injuries. Prognosis is improved with early debridement, irrigation, antibiotics, and tetanus toxoid prophylaxis within 24 hours of the injury (4, 6). Some authors have advocated primary closure if the flexor sheath or joint capsule have not been breached (3), whereas others prefer to leave the wound to heal by secondary intention regardless of the underlying injury (2, 5, 10). To our knowledge repair of a zone II flexor tendon injury caused by a human bite has not been reported. However, increased morbidity associated with secondary repair or reconstruction of flexor tendon injuries compared to primary repair, has been reported (7). We therefore decided to treat our case as a primary repair, minimising the risk of infection with immediate prophylactic care and early definitive surgery. Active ranges of movement in the injured finger eight weeks after injury were not as good as those achieved after sharp flexor tendon laceration, but fully comparable to results of two stage flexor tendon reconstruction (7). The outcome might have been improved by better postoperative attendance by the patient.

We conclude that flexor tendon injuries caused by human bites can be successfully treated by primary repair and skin closure with good functional outcome provided immediate wound irrigation and intravenous antibiotic prophylaxis is given within the first six hours and primary closure is done within the first 24 hours.

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