

REPAIR OF THE FLEXOR POLLICIS LONGUS TENDON IN INFANT

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ABSTRACT

The author presents the case report of the rare for infant injury — the laceration of flexor pollicis longus tendon, which requires decisions on some complex questions relating to optimal tendon suture, suture material, type and duration of immobilisation, and the protocol for post-operative management.

Keywords: Flexor Tendon; Injury; Infant.

INTRODUCTION

Open injuries of the fingers in infants are rare. Open wounds of the hand most frequently occur in children of preschool and school age. A. G. Pugachev¹ gained significant experience in the treatment of paediatric patients with damage to the tendons of the fingers. However, there were no infants among the 123 patients. The youngest patient was two years old. F. Fitoussi *et al.*² reported their experience of the treatment of 16 children with injuries of the flexor pollicis longus, but there were no infants in their series of patients either. The age of the youngest patient was one year and four months. The treatment of small children requires decisions to be taken on some important issues relating to optimal tendon suture, suture material, type and duration of immobilisation, and the protocol for post-operative management.

Here we present our decision on these questions which we met during the treatment of our little patient with the rare for infant injury — the laceration of flexor pollicis longus tendon.

CASE REPORT

A little girl (age of 11 months) was attempting to take her first steps at home when she fell on a glass jar and injured the left thumb. At hospital, two hours after the accident, wound debridement and skin suture were performed by the duty doctor (Fig. 1). Wound revision was carried out on the third day after trauma under general anaesthesia. A flexor pollicis longus injury was found in Zone 2 as well as partial (1/2) injury of the digital nerve on the radial side. The proximal end of the tendon was found at the lower third of the forearm through an additional approach (3 cm) at the palmar-radial surface. The proximal end of the tendon was retrieved to the thumb wound using an intravenous catheter (diameter 1.4 mm), as a conductor. The tendon was repaired by Tsuge's technique³ with our modification^{4–7} (Fig. 2). A schematic representation of this option is presented in Fig. 3. For the core suture, we used a special needle with a looped suture polyfilament polyamide 5/0 (“Lintex”, Saint Petersburg). Prolen 7/0 (“Ethicon”) was used



Fig. 1 The hand after wound suture.

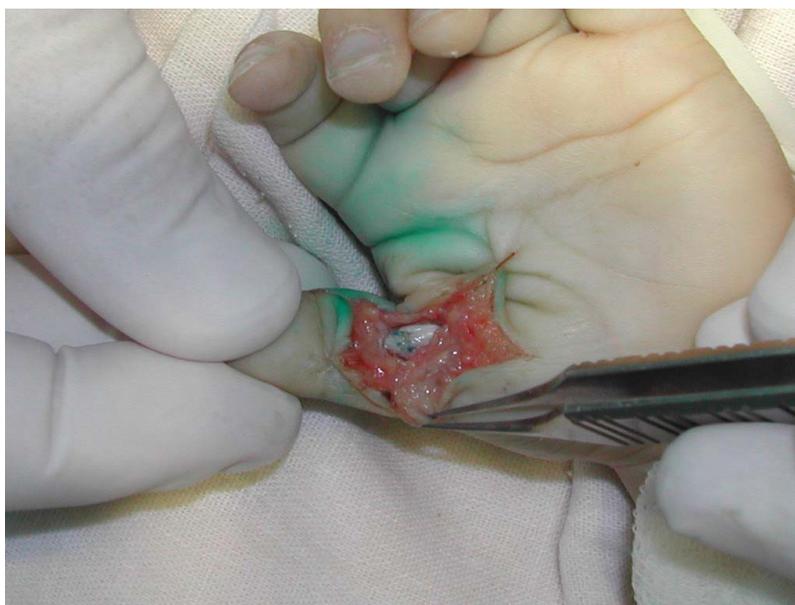


Fig. 2 The tendon is restored by the modified Tsuge suture technique.

for adaptation. The damaged nerve was repaired by epiperineural stitches (prolen 9/0 "Ethicon"). The incisions at the finger and forearm were closed by absorbable suture Vicryl rapid 5/0 ("Ethicon"). The thumb was fixed in flexion position to the palm by stitch of one Vicryl 4/0 ("Ethicon") suture. After surgery the hand and forearm were immobilised in a long arm splint with the elbow fixed in 90° flexion. Antibiotics were prescribed for the first five days after the operation. The dressing

was changed twice a week. For the first three weeks, the dressing was changed with the patient under short narcosis. By the 19th day after surgery the skin sutures (Vicryl rapid 5/0) had been absorbed. Knots were removed with a damp napkin (Fig. 4). On the 21st day the skin suture holding the finger to the palm was removed. Cast immobilisation was continued for four weeks after the surgery. For the two subsequent weeks, the thumb was fixed to the palm in flexion by a strip of plaster and standard

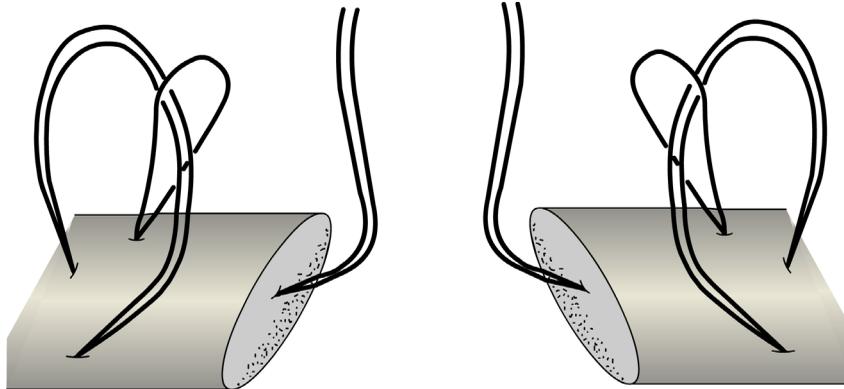


Fig. 3 Sketch showing the suture technique.



Fig. 4 The 19th day after surgery. The internal parts of the skin sutures (Vicryl rapid) at the base of the thumb have been absorbed. Some parts had adhered to the bandage. Other knots are removed from the skin of the thumb and forearm with a damp napkin.

soft bandage. The fixation was completely removed six weeks from the date of the operation. No special exercises or massage was carried out. After eight weeks distal phalanx flexion and extension had been restored (Figs. 5 and 6). The child was examined one year after the trauma. The function of the thumb was completely restored.

DISCUSSION

Difficulties in the treatment of serious injuries of the hand in small children arise due to the anatomical and physiological features. The small size tendons dictate the necessity of special

suture technique and fine suture material. We consider the modified Tsuge technique as the most optimal in these situations. With this method there is no need for large tendon exposure. It is possible to obtain a strong enough connection by making only two needle entrances and two needle exits at each end of the damaged tendon. A needle with a looped suture 5/0 in diameter was used. Monofilament suture — 7/0 was used for adaptation instead of the traditional 6/0 suture.

A short plaster splint (up to the level of the elbow joint) does not guarantee good fixation of the hand in a small child.² For this reason we used the long arm splint with immobilisation of the elbow joint at a right angle.



Fig. 5 Eight weeks after the operation, IPJ flexion.



Fig. 6 Eight weeks after the operation, IPJ extension.

Dealing with a small child is complicated enough, therefore, the practice of early active or passive mobilisation in the post-operative period is unrealistic. We decided on a method of full immobilisation for four weeks. After removal of the cast, we were afraid to leave the repaired finger absolutely without protection. Soft bandage to fix the thumb during the fifth and sixth

weeks seemed appropriate. As it turned out the child repeatedly fell on both hands and even flat on her face on the 30th day. Without a soft bandage, it is most likely that the child would have fall on the straightened thumb (when falling the palm reflexly “opens”) which might well have resulted in tendon rupture.

CONCLUSION

A good outcome was achieved by this labourious and long treatment of a serious hand injury, whereby the challenge was to cope with the anatomical and physiological characteristics of an infant.

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