THE SO-CALLED CONGENITAL TRIGGER DIGIT : FURTHER EXPERIENCE

L. DE SMET, A. STEENWERCKX, H. VAN RANSBEECK

The authors reviewed 53 patients with 70 congenital trigger digits. Three of these were seen at an early age. Most "congenital" trigger digits present later than the neonatal period. A clear difference exists between trigger thumbs and trigger fingers. In our series, thumbs were more frequently affected, 30% were bilateral and none resolved spontaneously. The long fingers were less frequently affected, and two of them (28%) recovered without operation. All other children had an operative release of the A1 pulley of the flexor tendon sheath, with excellent results.

Keywords : trigger finger ; congenital ; surgery.
Mots-clés : doigt à ressaut ; congénital ; chirurgie.

INTRODUCTION

Many aspects of congenital trigger fingers remain unclear. In children most digits do not trigger but remain locked in the flexed position (1, 3, 7, 14). The thumb is much more frequently affected than the other digits (3, 10, 14, 15).

Section of the A_1 pulley of the flexor tendon is the generally accepted treatment for congenital trigger fingers, although there is some debate about the timing of surgery (1, 3, 5, 10, 14, 15).

The aim of this study was to provide a more detailed clinical description of this disorder and to discover etiological features and associated conditions as well as to evaluate the results of surgery performed, as an extension of a previously reported series (11, 14).

PATIENTS

Fifty-three patients were seen from January 1990 through December 1996 : 25 boys and 28 girls. Forty-five children presented with a trigger thumb. Ten of these were bilateral, 16 involved the right thumb and 19 the left. A trigger finger was seen 15 times in 10 patients. The middle finger was involved 8 times, the ring finger 5 times, the index twice. One girl had multiple "congenital trigger digits". We saw her at the age of 14 days. She presented with locking of the thumb, the third and the fourth finger bilaterally. No other anomalies were present.

As considerable debate exists as to whether the congenital trigger digit is really congenital or an early acquired condition, we recorded both the age of onset as stated by the parents and the age at presentation in our clinic. In this series only 3 parents claimed that the trigger was present at birth. One case was the child with multiple trigger digits, one was a boy with triggering of the right middle finger and one was a trigger thumb. Seven parents detected the trigger digit before the age of six months ; 13 children were between six months and one year and 31 were older than one year when the parents discovered the trigger digit. In the children over one year of age the history was frequently short. Two of them were referred urgently because of suspected dislocation (as has been described in the literature) (2). Their parents were absolutely

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Table I. — Age at discovery of the "trigger" finger

Before the age of 14 days :	3 cases
Between 14 days and 6 months :	7 cases
Between 6 months and 1 year :	13 cases
After the age of 1 year :	30 cases

certain that the thumb had been "normal" before the presumed trauma, although none of them had pain (table I).

A family history was present in 6 cases : 3 families each with two affected siblings presented with a trigger thumb. In one of these 3 families, the father had also had a congenital trigger thumb. None of these 6 children had other congenital deformities.

Associated congenital anomalies noted were numerous, each occurring in one patient : extreme macrosomia, congenital torticollis, congenital radial head luxation, cleft palate and lip, pedes plani valgi, bilateral metatarsus adductus, curly toes, Erbs palsy, bilateral complex syndactyly of the toes, bilateral camptodactyly of the fifth finger. A radial clinodactyly was associated in 2 trigger thumbs, which persisted after the release. Intoeing was seen in 2 patients.

Spontaneous recovery was noted in two congenital trigger fingers. Both concerned a middle finger, which recovered within six months. None of the trigger thumbs recovered spontaneously.

All operations were performed under general anesthesia. A transverse incision was used and the A_1 pulley was transsected with a number 15 blade. The skin was closed with Vicryl rapid resorption®. All procedures were done on an outpatient basis. Histological examination was not performed.

DISCUSSION

Notta (cited in 9, 14) described in 1850 the presence of a nodule on a tendon that interfered with its gliding. In children, this nodule is always present. Differentiation from the other more severe palm-clutched thumb anomalies is necessary (2, 3, 10, 11). Triggering in children is rare. Usually the thumb is held in a fixed flexion position. Pain is not a presenting symptom of trigger finger, but when pressure is applied against the thickened nodular area, it causes discomfort. When the thumb is passively forced into extension, the skin over the thickened area becomes ischemic. Flexion

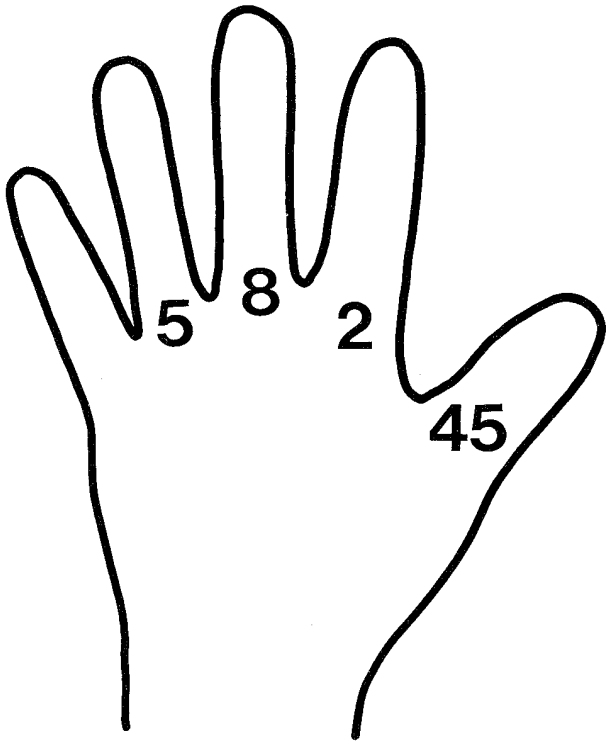

Fig. 1. — Distribution of the trigger fingers.

of the thumb is preserved, but extension is impossible.

Flatt (4) calculated a relative frequency of 2.2% of all congenital upper limb anomalies. Ger *et al.* (5) estimated an incidence of 1 in 2000 for the general population. Rodgers and Waters (9) tried to establish a prospective incidence by examining 1000 newborns, but none was found to have a trigger digit. All these suggest an incidence of less than 3 in 1000.

The age at which the trigger finger appears is a point of discussion (1, 2, 3, 5, 7, 14). It can be seen at birth in some cases. In most cases, however, it only becomes apparent during infancy or early childhood. Some authors believe that the diagnosis is delayed because of the characteristic grasp posture of a thumb in an infant of less than three months (3, 7). Others believe that it is an early acquired deformity caused by the trauma of continuous flexion in the infant (10).

In this series only one child was seen in the clinic before the age of six months ; in 9 others

the trigger thumb was detected by the parents before the age of six months. In a large prospective study of 1043 newborns Rodgers and Waters found no trigger thumbs at birth (9). Before the age of three months the trigger fingers were not seen in their retrospective clinical series.

The etiology is unresolved (6, 8, 9, 10, 12, 13). Sprecher (10) in 1949 stated that the etiology in children must be similar to that in adults. Hueston and Wilson in 1974 (6) suggested that Notta's nodule is caused by a bunching up of the spiralling of the fiber components within the flexor tendons due to a stenosed proximal sheath pulley. Van Genechten in 1982 agreed that there may be a bunching up of the flexor tendon, but stated that the stenosis in children is caused by the sesamoid bones which cause crowding near the metacarpophalangeal joint. Others find evidence for a genetic background (8, 12, 13).

The high incidence of associated anomalies and positive family history would suggest a genetic influence, especially the striking association with syndactyly and cleft lip and palate.

In our series only two patients were not surgically treated. Conservative treatment such as steroid injection or splinting has been published. We have never used local steroid injection in children. Despite a careful neglect of at least six months, we never saw spontaneous resolution of the trigger thumb ; only 2 trigger fingers, other than the thumb, resolved spontaneously. This is in contrast to the findings of Dinham and Meggitt (1), who found a rate of resolution of 30% before the age of one year and 12% after 6 months when the diagnosis was made between 6 months and 3 years. However, a surgical release even after the age of 4 years did no leave residual contracture (1, 3, 5).

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SAMENVATTING

L. DE SMET, A. STEENWERCKX, H. VAN RANSBEECK. Zogenaamde congenitale springvinger en springduim.

Zeventig congenitale springvingers en -duim werden bij 53 patiënten vastgesteld. De meeste, behalve 3 werden pas na de neonatale periode vastgesteld. De duim is veruit het meest aangetast (54×), 10 maal zelfs bilateraal, en recupereerde nooit spontaan. Bij 13 patiënten werd een geassocieerde pathologie vastgesteld. Zesmaal was er een familiale voorgeschiedenis. Een transsectie van de A_1 poulie, gedaan voor 68 vingers, leverde uitstekende resultaten op.

RÉSUMÉ

L. DE SMET, A. STEENWERCKX, H. VAN RANSBEECK. Le doigt à ressaut dit congénital.

Septante doigts et pouces à ressaut dits congénitaux observés chez 53 patients ont été revus. A l'exception de 3 patients, le diagnostic a été fait après la période néonatale. Le pouce était atteint le plus fréquemment (53 fois). Dans 10 cas l'affection était bilatérale. Une récuperation spontanée n'a été observée dans aucun cas de pouce à ressaut. Chez 13 patients une autre pathologie était associée et chez 6 une atteinte familiale était évidente. Le traitement chirurgical réalisé sur 68 doigts a abouti à des résultats très favorables.