We examined prospectively 4719 newborn infants to determine the congenital incidence of trigger thumb. No cases were found.

Fifteen other children aged from 15 to 51 months had surgery for this condition. The anomaly had not been seen at birth and all thumbs presented with a flexion contracture without triggering. The condition is usually seen after birth as a flexion contracture of the interphalangeal joint. The term ‘congenital’ is a misnomer because patients acquire the deformity after birth. The term ‘trigger’ is inaccurate as most thumbs show a fixed-flexion contracture without triggering.

We suggest that rather than ‘congenital trigger thumb’ a more appropriate description of this disorder is ‘acquired thumb flexion contracture in children’. If the contracture persists after one year of age, treatment by dividing the A-1 pulley is simple and effective.

We report the incidence of trigger thumb found during a screening programme of more than 4000 infants and describe the presentation and results of surgical treatment in 17 cases. More appropriate terminology for this anomaly is suggested.

PATIENTS AND METHODS

Between August 1991 and October 1994, 17 thumbs in 15 children (eight boys, seven girls) with flexion contractures of the interphalangeal joint were treated by the senior author (WLH). Two (13%) had bilateral involvement and the right thumb was involved in eight and the left in nine. Children presenting under the age of one year were observed for spontaneous resolution until they had reached that age. Splinting or physiotherapy was not used. Children presenting after the age of one or who had been seen before then but in whom the condition had not resolved, were treated by operation through a zig-zag incision using loupe magnification (Bayne and Costas 1990; Morrissy 1992; Harris 1993). Perioperative antibiotics were administered. The radial digital nerve was identified and gently retracted. The A-1 pulley was incised, the flexor pollicis longus tendon was freed, and the thumb was fully extended. The pulley was not excised and the nodule was not shaved. The skin was closed with an absorbable chromic suture and a padded thumb spica splint was applied with the thumb in extension. At one week, the splint was removed and full interphalangeal joint movement was begun.

From January 1994 until May 1995, 4719 consecutive neonates had their thumbs examined by orthopaedic surgeons at the same time as their hips were assessed. Note was made of any triggering, locking, flexor tendon nodule, or fixed-flexion contracture.

RESULTS

Clinical series. The average age at diagnosis in the treated patients was 24 months (3 to 49). No child was diagnosed at
birth. One was diagnosed at three months, four between one and two years, and ten after the age of two years.

Three children (20%) had been initially misdiagnosed by the referring physician as having thumb dislocations or fracture. The parents of six children (40%) reported that the thumb deformity was first noted after trauma to the digit. One child had a history of daily thumb-sucking throughout infancy. There was no family history of trigger thumb.

All 17 thumbs presented with a nodule and a flexion contracture of the interphalangeal joint averaging 35° (20 to 50). Triggering was not seen and no thumb was locked in extension. The radiographs were normal in all cases. No sesamoids were apparent because their ossification does not occur until about 11 years of age (Greulich and Pyle 1959). The average age of the patients at the time of operation was 30 months (15 to 51). All 17 thumbs had an enlarged flexor pollicis longus tendon proximal to a tight A-1 pulley.

The follow-up averaged 12 months (6 to 35). All nodules had resolved. Sixteen thumbs had a range of movement comparable to that of the opposite side, but one had lost 10° of hyperextension at the interphalangeal joint. This child was 32 months old at the time of operation and was last reviewed six months postoperatively. No complications occurred after surgery.

Screening study. In the newborn screening study no case of triggering, locking, nodule formation, or fixed-flexion contracture was noted.

DISCUSSION

The incidence of congenital trigger thumb is unknown (Rodgers and Waters 1994). ‘Congenital’ implies that the deformity is present at birth. A congenital aetiology has been proposed based on the rare occurrence in twins (Bolinger and Fahey 1952), occasional bilaterality (James 1960; Rodgers and Waters 1994). ‘Congenital’ implies that the deformity is present at birth. One was diagnosed at three months, four between one and two years, and ten after the age of two years.

The natural history of the condition is also controversial. Dinham and Meggitt (1974) reported a spontaneous resolution rate of 30%, but others refute this claim (Zadek 1942; Sprecher 1949; White and Jenson 1953; Fahey and Bolinger 1954; Ger et al 1991). Delaying treatment until after the age of three years may result in persistent (Ger et al 1991) or permanent joint contracture (Dobyns 1988; Tachdjian 1990; Wright and Jobe 1991).

Treatment with a splint is impractical and unsuccessful in young children as is steroid injection (McCarroll 1985; Tachdjian 1990). Operation is the only uniformly successful treatment (Zadek 1942; Van Genechten 1982; Dobyns 1988; Ger et al 1991). On top of the flexor sheath and closely applied to it are three pulleys, two annular and one oblique (Doyle and Blythe 1977). The first annular pulley is located at the metacarpophalangeal joint and is the site of the constriction. The skin incision must be performed carefully because the radial digital nerve may cross the midline. Simple incision of the A-1 pulley and partial resection have both been advocated. The nodule in the tendon is produced by constriction of the flexor tendon by the tight A-1 pulley (Hueston and Wilson 1972; Flatt 1994), and requires no further treatment.

Surgical complications are rare, but damage to the digital nerve, tendon injury, secondary adherence, inadequate release and infection have all been described (Dobyns 1988; Bayne and Costas 1990; Tachdjian 1990; Wright and Jobe 1991; Wood and Sicilia 1992). Adequate release of the A-1 pulley prevents recurrence and preservation of the more distal oblique pulley is necessary to prevent bow-stringing of the tendon (Bayne and Costas 1990).

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.
References


