

Clinical analysis of the trigger thumb of childhood

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Trigger thumb of childhood, termed congenital trigger thumb, is a pathology of the flexor pollicis longus tendon with an unknown etiology.

In this study, treatment outcomes of 47 trigger thumbs of 36 children were evaluated. There were 18 males and 18 females with a mean age of 34 months (9 months-13 years). Average age of recognition of pathology by the family was 20.5 months (0-8 years). In seven of 11 bilateral cases pathology was recognized simultaneously while in the other four, diagnosis was made at different times.

We used conservative treatment for all patients under three years of age, which was unsuccessful. Thus, surgical release was performed in all cases. In the mean follow-up of seven years (range 5-15), contracture and palpable nodules disappeared.

In conclusion, we believe trigger thumb in childhood should be treated surgically and that the term "congenital trigger thumb" should be changed to "developmental trigger thumb".

Trigger thumb of childhood is known as a pathology of the flexor tendon system¹⁻³. The pathology presenting in childhood is referred to as a congenital entity by numerous authors. While the thumb seems normal, the interphalangeal (IP) joint is held in fixed flexion. A nodule at the base of the metacarpophalangeal (MCP) joint, known as Notta's node, can be palpated. The incidence is reported as less than 0.3% in childhood^{1,4,5}. Etiology is not clear. The pathology can be detected soon after birth or in childhood. Bilateral involvement is reported between 25% to 50%. Treatment can be either conservative or surgical¹⁻⁷.

In this paper, we evaluated 47 trigger thumbs of 36 children retrospectively and aimed to point out some different aspects of the pathology, treatment strategy and terminology.

Material and Methods

Between 1987-1998, 47 congenital trigger thumbs of 36 patients operated in the Division of Hand Surgery, Department of Orthopedics and Traumatology, Çukurova University Medical Faculty were followed. Of the 36 patients, 18 were male and 18 female. Mean age was 34 months (range 9 months to 13

years). There were 14 left, 11 right and 11 (30.5%) bilateral cases. The recognition of the pathology by the family was between a few days to eight years after birth (Fig. 1). In seven bilateral cases the pathology was diagnosed on the same day, while bilateral pathology could not be discovered at the initial exam in four cases.

In all cases, nodule formation was diagnosed at the first visit. Triggering was present in seven thumbs and absent in 40 with a mean flexion contracture of 40 degree (range 20-70) (Fig. 2). In two cases who were treated at 10 and 13 years of age, but diagnosed before age one, we observed 30 and 45 degrees deformity to radial

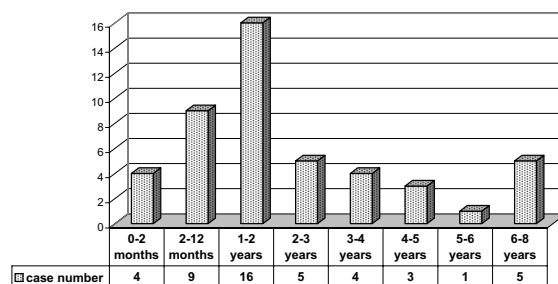


Fig. 1. Graphic showing age of cases at time of diagnosis.



Fig. 2. Clinical appearance of a three years old case with a 30 degree flexion contracture of the thumb. Neutral extension can not be achieved by manipulation general anesthesia.

side of the axis of the thumb.

Additional pathologies were multiple trigger fingers in three, congenital heart disease in one, dysplasia of the hip in one, inguinal hernia in one and pes plano valgus in one case. Chromosome analysis was not done since there was no family history of the disease.

Surgical treatment was recommended for those above three years of age. Passive stretching exercises were recommended for all cases under three years. After three months, we surgically treated these patients since conservative measures were unsuccessful. Thus, all thumbs were treated surgically. Surgical treatment was performed between 9 months to 3 years of age in 26, 3 to 6 years in 12 and 6 to 13 years in nine cases.

Operations were performed under general anesthesia using upper arm pneumatic tourniquet. A transverse skin incision was done over the volar flexor crease of the MCP joint. Tendon pulley was released longitudinally in order to obtain a full finger extension. Nodule excision was not performed. Additional corrective phalangeal osteotomies were done for two cases with angular deformity. Osteotomized phalanges were fixed with mini plates. Extensor type splint was used for immobilization of all cases for two days, and then active and passive exercise was started.

Results

The mean follow-up time was seven years (range 5-15).

Pathology was diagnosed in the first two

months in four (8.5%), between two months to two years in 12 (25.5%), between two to five years in 25 (53.2%) and between 5 to 8 years in six (12.7%) cases. In four (36.3%) of 11 bilateral cases, the pathology was diagnosed as unilateral initially but in the postoperative follow-up period the pathology had developed on the other thumb.

Results of conservative treatment in 26 patients below three years of age were not satisfactory. Thus, so all thumbs were treated surgically but without nodule excision. After surgical treatment, all patients were free of contracture and nodule with normal range of motion. No complications occurred.

Discussion

Etiology, pathology and even treatment are somewhat controversial in trigger thumb of childhood. Some authors have mentioned the relation of genetic inheritance in congenital trigger thumb by additional anomalies, positive family history and multiplicity of the pathology in twins^{6,7}. In our study, we observed additional congenital anomalies in only five cases and this led us to question the genetic inheritance.

It has been claimed that the cause of stenosis was stress on the sesamoid bone⁶. Other authors have proposed that the problem may arise from tendon, sheath or pulley, similar to the pathology in adults¹⁻³. We support this latter concept.

Timing and type of surgery are also controversial. In addition to those who support healing, others advocate conservative treatment such as exercises, splinting and corticosteroid injection. Unsuccessful conservative treatment and age over three years are the most absolute indications for surgical treatment^{1-6,8}. Even in early-diagnosed cases, passive correction of extension by conservative means failed to deliver successful results. Results of conservative treatment in 26 patients below three years of age were not satisfactory in our series. If there exists restriction in IP extension, or rigidity and thickening in the tendon sheath, we advocate urgent surgical release. After evaluation of outcomes we believe that the excision of the nodule is not necessarily needed.

In late cases, inappropriate attachment of the tendon pulls the thumb to the radial side and a bony deformity in radial deviation develops.

This condition cannot be detected while in flexion but can be seen when the finger is corrected. The treatment of this deformity should be corrective phalangeal osteotomy.

In our series, we observed that in 8.5% of the cases the pathology was diagnosed in the first two months following birth, in 53.2% of the cases between two months to two years, and in the remainder after two years of age. Variances in the interval of recognition of the pathology, especially in bilateral cases, should compel us to reconsider the term congenital trigger finger. Just as “congenital hip dislocation” was changed to “developmental dysplasia of the hip”, we believe that “congenital trigger thumb” should

be similarly differentiated and be changed to “developmental trigger thumb”, as mentioned by Ezaki³ and Slakey⁸.

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