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Trigger Finger in Children after an Uncomplicated Injury is a Rare Presentation: Original Case Report and Review of the Literature

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Abstract

Background: Trigger finger is a rare condition in children and it is even more uncommon in the 5th finger. The etiology of Trigger finger includes congenital cases, which are the most common and usually affects the thumb; post-traumatic cases, more frequent after penetrating injury; and tumoral cases.

Methods: In this paper, we report a post-traumatic trigger finger on a 2-year-old girl who was seen in our clinic complaining of triggering in her small left finger, following a slight contusion. As far as we know there is no previous report of this condition involving the fifth finger in toddlers.

Conclusions: The natural history of pediatric trigger finger is poorly characterized due to the small number of retrospective cases series available. Based on our experience, the methodology to be followed would be, after a thorough history and after ruling out concomitant pathology, if a congenital trigger finger in a child come into our clinic, the most successful resolution is release of the A1 pulley.

Keywords: Stenosing tenosynovitis; Flexor tendon sheath; Flexion deformity; Post-traumatic

Case Report

A 2 year-old girl, was seen in our clinic complaining of triggering in her small left finger. Her mother referred a progressive flexion of the 5th finger of her left hand following a slight contusion with the corner of a table over the finger, 3 weeks before the visit. The patient wore a metallic digital splint of the metatarsophalangeal (MCP) joint for 10 days, which had been placed there by the pediatric emergency department of another hospital.

During the physical examination in our clinic, 3 weeks after the contusion, the patient presented a constant triggering of the finger. Active extension of the distal joint was not possible. The patient noticed a painful triggering of her 5th finger, with lack of extension (Figure 1). No prominent nodules on the palmar base of her finger were noticed. After 4 months period of observation and splinting, a surgical intervention was considered. A standardized surgical technique was performed. Following the administering of the general anesthesia and perioperative antibiotics, a Bruner-type 3 mm incision was made over the A1 pulley of her 5th finger (Figure 2). After identifying and protecting the neurovascular structures, the A1 pulley was incised. Before releasing the pulley the full motion of the superficial flexor tendon was checked (Figure 3). Prior to closure, full passive motion without triggering was confirmed. A Continuous suture using 4/0 nylon was performed; a bulky soft dressing was applied. Early motion was initiated after wound healing, and the patient regained a painless full range of motion within two weeks. After 6 months the patient showed no clinical recurrence of the problem. At the final follow-up, she was able to flex and extend without triggering or pain.

Discussion

Trigger finger in children is an uncommon problem that is predominantly found in thumbs. The exact etiology of the pediatric trigger thumb and trigger fingers have not been explained yet. Proposed etiologies include trauma, infection, congenital soft-tissue malformations, intratendinous nodules, or articular malformation [16]. The vast majority of trigger digits are primary idiopathic trigger fingers

in which the site of obstruction is the first annular. Other authors [17] proposed that chronic repetitive friction between the flexor tendon and the enclosing sheath caused a reactive intratendinous nodule. Though in the thumb, a nodule named "Notta'snodule" is frequently encountered, as a thickening of the flexor tendon, it is hardly ever seen in the other congenital trigger digits [18]. Pediatric trigger finger is about one tenth as common as trigger thumb [2]. Post-traumatic



Figure 1: It shows a triggering of her 5th finger with lack of extension.

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triggering of the finger is an uncommon presentation of stenosing tenosynovitis of the flexor tendon as well as the locking under the A1 pulley. We reported a case of a 2-year-old toddler, previously healthy with no history of perinatal trauma, viral or bacterial infections, with no rheumatologic or metabolic disorders. Until now the girl's development had been normal without any other anomaly. In our case report, after a slight trauma, no penetrating injury caused stenosing tenosynovitis of the flexor tendon and locking under the A1-pulley, resulting in progressive contracture in flexion consequently in a lack of extension. The releasing of the A1 pulley and the evaluation of the complete passive digital range of motion allowed this young girl to return to her previous functional status. It is known that pediatric trigger finger has been linked to mucopolysaccharide storage disorders such as Hurler syndrome or Hunter syndrome, and also Diabetes, infection and juvenile inflammatory arthritis². However, no concomitant disease was associated with the patient [8,19]. The exact etiology of the pediatric trigger finger remains unknown. Several authors have described flexor tendon abnormalities accounting for triggering in their cases [9,20-22]. We carried out an exhaustive review of the literature, and this case is the first non-congenital one in a small child. Cardon et al. [2] described trigger fingers of the fifth finger, but in most of his cases they were either older children or associated with concomitant diseases. Bae

et al. [19] described 5 patients out of 18 reporting trigger finger of the small finger. All of them were older children and/or had a congenital origin. Three of them presented a hypoplastic ulnar FDS. In our report, the FDS had no abnormality, no nodule was palpable. Defreud et al. [18], reported a delayed post-traumatic trigger finger in a 14-year-old boy after blunt trauma, but in this case an undisplaced greenstick fracture of the distal radial was associated. The outline of treatments is still controversial [23]. Many authors reported good results from observation and conservative therapy, corticosteroid injection, splint therapy [20] for trigger fingers, but other reports [24,25] recommend surgical release of the A1 pulley with few complications. The natural history of pediatric trigger finger is poorly characterized due to the small number of retrospective cases series available. Based on our experience, the methodology to be followed would be, after a thorough history and after ruling out concomitant pathology, if a congenital trigger finger in a child come into our clinic, the most successful resolution is release of the A1 pulley. If the case is about a mild trauma, if after a period of conservative treatment and stretching we have no results, surgical treatment will be the best option. In pediatric trigger finger the safe technique is performing an open release of the A1 pulley. The release of the A1-pulley in trigger thumb resolves the problem in almost all cases but in the trigger finger this procedure alone is very often not able to correct the problem and needs additional surgical treatments such as resecting the ulnar split of the FDS, or the ulnar slip and the A-3 pulley or both slips of the FDS. Spontaneous resolution of the trigger thumb or finger is controversial. There are reports of successful splint treatment of finger trigger digits in children [20,26]. In conclusion, surgical treatment with A1 pulley release and resection of a single slip of the flexor digitorum superficialis tendon resulted in successful resolution of trigger digits in 91% of cases, regardless of the underlying anatomic abnormalities encountered at the time of release. It is a nice, easy, and safe technique which allows children to return to their previous functional status.

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Figure 2: A Bruner-type 3 mm incision was performed over the A1 pulley of the 5th finger and identification of the structures was carried on.



Figure 3: The completed full motion of the superficial flexor tendon was checked.

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