Case Report

Bilateral Symmetrical Congenital Trigger Thumb and Middle Finger in a 2-Year-Old Child: A Case Report

Vilai P, MD[1], Vechmamontien S, MD[1]

[1] Department of Orthopedics Surgery, HRH Princess Maha Chakri Sirindhorn Medical Center, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand

In the case report, a 2-year-old child presented with fixed thumb interphalangeal joint and triggering of middle finger both hands symmetrically. The patient was diagnosed with bilateral symmetrical congenital trigger thumb and trigger middle fingers. The symptoms of the left hand resolved non-operatively with physiotherapy but the pathology on the right hand required surgery. The A1 pulley was released in the right thumb and right middle finger. Subsequent release of the A3 pulley and the ulnar slip flexor digitorum superficalis of the middle finger was resected. The outcomes were good post-operatively and both the patient and parents were satisfied with the treatment.

Keywords: Congenital trigger thumb, Congenital trigger finger, Bilateral and symmetrical

J Med Assoc Thai 2019;102(Suppl.6): 111-4
Website: http://www.jmatonline.com

Trigger fingers in children are rarer than trigger thumb[1-3]. In addition, bilateral congenital trigger finger is extremely rare and sometimes associate with other genetic and congenital disorders[1]. Trigger thumb is caused by the mismatch of the size between the FPL and A1 pulley and Notta node formation[1]. On the other hand, trigger finger is different and has multiple etiologies. Thickened tendons and tendon sheaths, trauma, flexor digitorum superficialis abnormality, nodal formation in the flexor tendons and tightness of the annular pulleys are all implicated causes[1,2,4]. Furthermore, pediatric trigger fingers can be associated with juvenile diabetes, inflammatory arthritis, and muco-polysaccharide disorders[1,15]. Surgical release remains the treatment of choice. However, some authors have suggested the use of splinting and other methods of physiotherapy as an alternative treatment[12]. One case report explored the possibility of viral synovitis as the cause of trigger finger and the patient was successfully treated after the resolution of the symptoms[3]. In the case report, a patient had bilateral symmetrical trigger thumb and trigger finger where the symptoms on the left hand resolved by itself and the contralateral side required surgery. No literature has reported such a case. The genetic disorder was also investigated in this case.

Correspondence to:

Vilai P.

Department of Orthopedics Surgery, HRH Princess Maha Chakri Sirindhorn Medical Center, Faculty of Medicine, Srinakharinwirot University, 62 Moo 7, Rangsit-Nakhon Nayok Road, Ongkharak, Nakhon Nayok 26120, Thailand.

Phone: +66-37-395085

E-mail: v.parunyu@gmail.com

Case Report

A 2-year-old boy presented at the hand clinic with fixed interphalangeal joint of both thumbs and bilateral triggering of middle fingers. The child also experienced difficulty with full extension of the affected fingers. His symptoms have persisted 1 year prior to consultation. There were no other medical or family history of significance and no history of trauma. The boy's development was normal and all vaccinations were completed in correlation with his age.

At the hand clinic, physical examination showed painless nodule at his right thumb with a fixed flexion deformity at 50 degrees. His right middle finger was in flexion position but could be fully extended passively with 'triggering' at the range of motion of 60 degrees flexion (Figure 1). There was no pain associated with the triggering. His left hand was symptom free after physiotherapy treatment. No other abnormal musculoskeletal examinations were found. Radiographs of both hands were normal. After 6 months of physiotherapy, only the symptoms of his left hand were resolved but the contralateral side showed no sign of improvement. Surgery was the next treatment option for right trigger thumb and middle finger. The A1 pulley was released at the right thumb (Figure 2). The A1 pulley was released at the right middle finger along with partial release of the A3 pulley and resection of the ulnar slip of the flexor digitorum superficialis (Figure 3). Long arm slab was used for 2 weeks after surgery. There were no complications post-operatively.

The authors consulted the pediatric physicians for possible genetic and congenital disorder associations. The ulnar slip was also sent for pathological evaluation. The results

How to cite this article: Vilai P, Vechmamontien S. Bilateral Symmetrical Congenital Trigger Thumb and Middle Finger in a 2-Year-Old Child: A Case Report. J Med Assoc Thai 2019;102(Suppl.6): 111-4.

were normal with no associations of genetic or congenital disorders.

After the slab was removed the physiotherapy program was initiated. The patient could fully extend and flex the affected fingers after 3 months of physiotherapy.

Discussion

Trigger finger in children are very rare in comparison to trigger thumb[1-3]. Bilateral trigger finger combined with trigger thumb are extremely rare and rarely discussed in literature[2]. Genetics were suggested to be the etiology of trigger finger[9]. However, other etiologic factors were proposed for this disorder[2]. If left untreated, trigger finger has been shown to cause major disability of hand function.

Lee et al found that 71% of their pediatric trigger thumb resolved non-operatively with splinting and physiotherapy and 23% resolved without any treatment[11]. Nemoto et al-found the rate of pediatric trigger thumb to be 73%[12]. Sharma et al described a case where trigger finger in children spontaneously resolved without treatment[3]. Tordai and Engkvist reported cases of pediatric trigger fingers which could be resolved without operation[13]. Pargali and Habibzadeh described a very rare case on bilateral trigger

Figure 1. Right hand with fixed thumb IP joint deformity and triggering of middle finger.

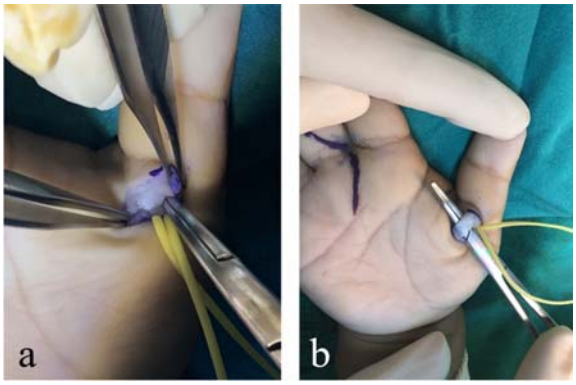

Figure 2. Surgery of trigger thumb. (a) A1 pulley was identified and released. (b) Adequate release was tested.

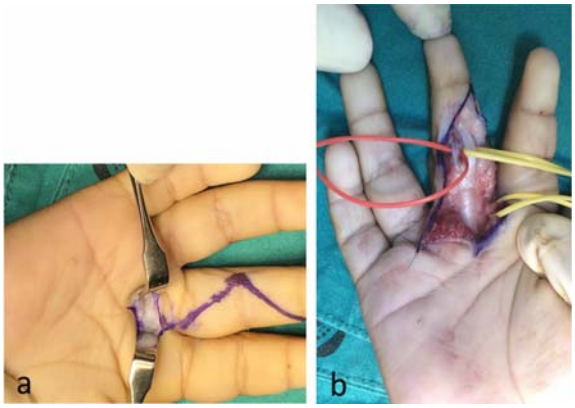

Figure 3. Surgery of trigger middle finger. (a) A1 pulley of right middle finger is identified and released. (b) A3 pulley and ulnar head of the FDS are shown.

Figure 4. Post-operative right thumb and middle finger was in full extension.

Figure 5. Fully flexion (left) and extension (right) of the fingers of the right hand 3 months post-operatively.

finger in a 5-year-old child which was successfully treated with physiotherapy and medical treatment[14].

Trigger fingers in children weremostly treated with surgery[7,8,10]. Release of the A1 pulley and partial section of the A3 pulley were the most common surgery performed for trigger fingers[2]. Oda et al reported a case of a 9-year-old boy treated surgically for bilateral trigger fingers in addition to trigger thumb[8]. Good results of joint motion and triggering were reported after the surgery. De Luna et al-described a case of a 2-year-old boy with multiple bilateral trigger fingers[2]. His right hand was surgically treated and full function of the affected digits was achieved after surgery.

In our case, non-operative treatment was initiated for both hands. Both the trigger thumb and trigger middle finger on the left hand were resolved. The symptoms on his right hand persisted and required surgical treatment. The results after surgery was good, with full flexion and extension of the thumb and middle finger observed. Genetic disorders and associated congenital disorders were also worked up in this case and the results appeared to be normal. Multiple digits involvement was~~is~~ always questioned for the associated congenital and genetic disorders in literature[1,15].

Conclusion

In conclusion, bilateral trigger finger in addition to trigger thumb is very rare and can be treated both non-operatively and surgically. The left hand of this patient received physiotherapy treatment while surgical treatment was required on his right hand. However the symptoms on both hands resolved with return to full function. Exploration on the possibilities of non-operative roles in treating bilateral trigger fingers and trigger thumb should be performed.

What is already known on this topic?

Isolated congenital trigger thumb and trigger finger is well known in literature and has a developed for the treatment algorithm. Non-operative treatment in congenital trigger thumb has a good clinical outcome in comparison to trigger finger. However, bilateral symmetrical congenital trigger thumb and finger is extremely rare and roles in treatment remains elusive.

What this study adds?

Bilateral symmetrical congenital trigger thumb and finger could be treated with good outcomes both non-operatively and surgically. There is a role for physiotherapy treatment of trigger thumb and finger in children with pre-developed hand functions. In older child with maturity of hand function or late onset of symptoms normally requires surgery. Genetic and congenital disorder should always be investigated.

Potential conflicts of interest

The authors declare no conflict of interest.

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