

Treatment of congenital thumb flexor tendon stenosis tenosynovitis in pediatric patients with "u" type needle knife

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Abstract: To introduce the clinical effect of "U" acupotomy in treating congenital bunion tendon stricture tenosynovitis in children. [Methods] Under local anesthesia, "U" acupotomy was performed, and the parents were asked to help the children with passive flexion and extension of the thumb interphalanx. [Results] After acupotomy, there was no swelling, tenderness, springiness or noose on the right palm of the child, and the patient could flex and extend the affected finger autonomously. No recurrence was found in the follow-up for 6 months. [Conclusion] The "U" acupotomy in the treatment of congenital bunion or flexor tendon stenosing tenosynovitis has obvious effect, low cost, simple operation and few complications, which can effectively improve the clinical symptoms of children.

Keywords: acupuncture; thumb flexor tendon; stenosing tenosynovitis; case report

1. Introduction

Flexor Tendon stricture Tenosynovitis (Flexor Tendon Tenosynovitis (FTTS), also known as "snap finger" or "trigger finger", is a common clinical disease [1]. In clinical practice, the stricture tenosynovitis of flexor tendon in children is relatively rare and mostly congenital. The most common sites of thumb are thumb, middle finger and index finger, respectively [2,3], and its etiology and pathogenesis are still unclear. Commonly used traditional treatments have local closed treatment, massage therapy, Chinese medicine outside wash, oral medications, physical therapy and surgical treatment (e.g., block release AI) [4], etc., and traditional surgical treatment time is long and hard to cure such diseases, surgical treatment wound or complications much [5, 6], its safety and therapeutic effect is not clear, children do not cooperate or parent is not easy to accept the surgical treatment, so choose a reasonable, effective and scientific treatment is particularly important [8], in this paper, the "u" type needle knife loose solution in treatment of children with congenital hallux flexor tendon narrow tenosynovitis clinical effect in 1 case.

2. Methodology

2.1 Patient data

The child was male, 2 years old, and the family complained that the pain and swelling of the right interphalangeal joint of the child was accompanied by limited movement for 2 weeks and aggravated for 3 days. Physical examination on admission showed swelling of the right interphalangeal joint, normal skin color, slightly high skin temperature, local tenderness (++). Right hand thumb joint activities between limited: independent buckling 30°, right thumb strength level III, feel normal, and against a resistance to play during a passive straight ring or lock in QuQuWei unbend, playing loud place (as shown in figure b) can reach the nodules synthesis, in our hospital to check blood routine, electrocardiogram (ecg), liver and kidney function, blood coagulation four not seen obvious abnormality in a regular examination.

3. The operation

3.1 Surgical instruments

Sterile gloves, iodophor cotton balls, sterile gauze, hole towel, 0.5% lidocaine, "U" needle knife, treatment table and other surgical tools were prepared before the operation. Among them, the needle knife blade was "U" shaped, the needle body diameter was 4mm, the length was 50mm, and the length of the handle was 20mm (As shown in Figure A). The needle knife used during the operation was made by Jiangsu Wuxi Medical Instrument.

3.2 Preoperative operation and treatment

Assistant and performer with sterile gloves, the performer and children sat, aides hold children right wrist joints and supination put thumb palm side up in the treatment of desktop, in joint ring fixed point and tenderness obviously, and marking, iodine volts cotton ball in the designated area disinfection (as shown in figure b), after 3 times of disinfection assistant will treat towel spread in the bottom right hand, with 0.5% lidocaine in point (one point for "tenosynovitis den") [9] local infiltration anesthesia, 2 treatment points each 1 ml of 0.5% lidocaine injection (figure c).The performer left thumb and index finger placed on both sides of the fully exposed therapy in children with thumb, right hand holding needle knife thorn skin into quickly from these two points, the blade to nodules and tendons to parallel, do longitudinal cutting in nodules and the sheath (as shown in figure d), take care to avoid damage on either side of the tendon in the process of cutting refers to the artery and nerve, the feeling after finishing needle knife cutting loose, with the thumb is released, the joint expanded, no play activities with the right hand thumb ring and resistance, flexible flexion (figure e), bi, exit the needle knife, cotton ball local oppression hemostasis 3 min, sterile gauze to cover the wound dressing is fixed, remove the bandage after told 3 d.

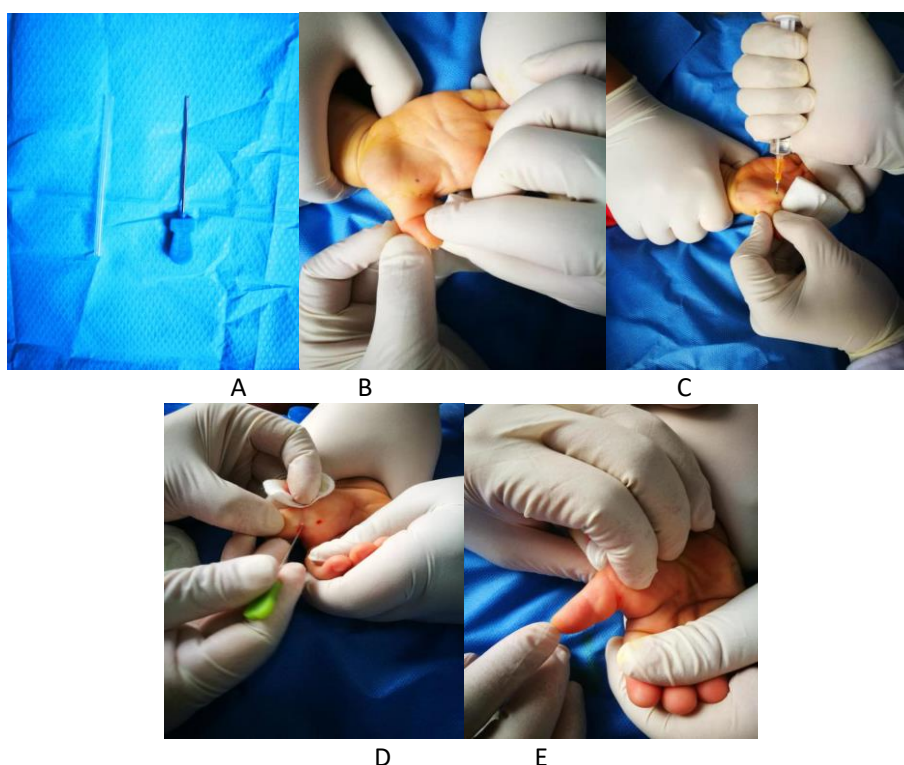


Figure 1 Figure A shows the "U" type acupotomy used intraoperatively. Figure B shows the fixed point of the right palmar finger of the child. Figure C shows the injection of 1ml 0.5% lidocaine at the treatment point. Figure D shows that "U" acupotomy is performed at the fixed point; Figure E shows the thumb condition of postoperative children.

3.3 Postoperative exercise

Needle knife release technique, after being anesthesia fade, is charged with family members to help

children with palm refers to, active passive flexion and extension of the interphalangeal joint functional exercise, such as to prevent tendon adhesion, postoperative follow-up to guide families to help children with functional exercise, postoperative 1 month, 2 months follow-up, April, June 1, a total of 6 months of follow-up.

4. The results

Six months after our review, children with the right hand thumb joints between no swelling, pain, adhesion, though normal skin temperature, daily activities is not limited, joint activities between children with thumb can independent buckling 90 °, right thumb strength level V, feel normal, and flexible, elastic ring and bowstring phenomenon, in the digit place untouched nodules, not recurrence during the follow-up period.

5. Discuss

Pediatric hallux flexor tendon tenosynovitis narrow sex is common in pediatric surgical disease, its etiology is not fully clear, incidence of a disease is unknown, the more belong to congenital [10], usually unilateral common disease, a small number of visible on both sides at the same time also [11], it should be fit with congenital thumb, the thumb distal interphalangeal joints of congenital aplasia, cerebral palsy or joint stiffness and thumb thumb thumb deformities, elastic bending caused by palm supernormal diseases such as phase differential [12]. Because children's unique relationship between age and the disease often present fistling state, so often not easy to be found, families under the accidental opportunity found a pediatric thumb joints are straight and buckling condition, or a elastic ring, thumb joint unbend function that affect children's daily activities and attendance, check the digit place can reach the lenticular nodules, accompanied by limitations of tenderness, down the nodules, tell her children do thumb flexion movement, pain is aggravating, and can feel the elastic ring. Most of the patients' thumb development and functional recovery are affected by their failure to seek medical treatment in time [13]. Therefore, families should take the children to seek medical treatment as soon as they find the symptoms, so as not to delay the best treatment opportunity. Instead, it is very important for children to choose appropriate and effective treatment methods.

There are many traditional treatments for congenital bunion tendon stricture tenosynovitis in children, but most of them have poor effects. For example, local sealing treatment is prone to adhesion and degeneration around the tendon. Massage or physical therapy of traditional Chinese medicine conservative treatment methods, such as only a loose solution tendon narrow place, relieve the clinical symptoms, did not achieve the purpose of cure for the disease [14], surgical treatment, such as cutting off the thumb metacarpal head AI block release long hallux flexor tendon), shall be carried out under general anesthesia, risk is high, the wound is large, high cost, not easy to accept for families and children, and "u" type of needle knife in treatment of children with congenital hallux flexor tendon narrow tenosynovitis compared to the above treatment has its unique advantages, it is closed to ease operation, treatment of small wound, less complications, low cost, Small risk, obvious effect, simple operation, no postoperative scar [15,16], can be used in a safe aseptic state needle knife incision tendon sheath stenosis, rapid release, postoperative adhesion and recurrence is not easy, parents and children are easy to accept its minimally invasive treatment. Its treatment is not only applicable to the higher level of medical and economic areas, but also applicable to some basic areas, for the treatment of children congenital bunion tendon tenosynovitis has a very good guiding significance.

In conclusion, the author believes that acupotomy can better treat congenital bunion tendon stenosing tenosynovitis in children, quickly improve the clinical symptoms of the children under safe operation, so that the children can return to normal life as soon as possible. Good release the "U" type needle knife surgery need to pay attention to the following: (1) for pediatric hallux flexor tendon narrow sex hallux flexor tendon tenosynovitis adult sexual tenosynovitis, pathological mechanism and the cause of formation of anatomical physiology is different, more so in loose solution during the operation, need to get ready for such as surgical instruments preparation, pediatric hallux flexor tendon anatomy course positioning, etc.(2) Due to the unique age of children, it is necessary for the family members of the children to communicate with the children in advance to ease their fear, so as to actively cooperate in the operation and reduce the operation risk.(3) During the operation, the operator tries to complete the operation in one time. During the operation, the needle is inserted into the middle of the palm of the thumb and longitudinal cutting is performed away from the arteries and nerves of the side of the fingers, so as to avoid increasing the probability of local injury of the metacarpophalangeal

joint and injuries of the bunion tendon, nerves and blood vessels caused by multiple operations.(4) After the end of treatment, follow up and instruct the family members to help the children with passive flexion and extension activities of metacarpal and interphalangeal joints to prevent tendon adhesion.

"U" type of needle knife in treatment of children with congenital hallux flexor tendon narrow tenosynovitis advantage although is outstanding, but also has certain limitation, its "blindness" of needle knife surgery operation increased the possibility of a thumb long tendons, nerves and blood vessels damage [17, 18), the clinical ability of the performer of operation is more demanding, in addition, due to the fewer institute collect clinical cases, the application for further study.

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