

CASE REPORT FREE

Right Ring Finger Volar Mass in a 14-Year-Old Boy

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Orthopedics

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Abstract

A trigger digit is relatively uncommon in adolescents and often has a different etiology in that age group vs adults. In the pediatric population, trigger digits frequently arise from a variety of underlying anatomic situations, including thickening of the flexor digitorum superficialis or flexor digitorum profundus tendons, an abnormal relationship between the flexor digitorum superficialis and flexor digitorum profundus tendons, a proximal flexor digitorum superficialis decussation, or constriction of the pulleys. In addition, underlying conditions such as mucopolysaccharidosis, juvenile rheumatoid arthritis, Ehlers-Danlos syndrome, and central nervous system disorders such as delayed motor development have been associated with triggering. Less commonly, triggering secondary to intratendinous or peritendinous calcifications or granulations has been described, which is what occurred in the current case. This report describes a case of tenosynovitis with psammomatous calcification treated with excision of the mass from the flexor digitorum superficialis tendon and release of both the A1 and palmar aponeurosis pulleys in an adolescent patient.

[*Orthopedics*. 201x; xx(x):xx–xx.]

The etiology for a trigger digit in the adolescent population can be complex and extensive, including underlying anatomic causes or other pathological processes such as fracture, tumor, or traumatic soft tissue injuries.^{1–5} Current literature has not described a case of tenosynovitis secondary to a peritendinous soft tissue mass consisting of psammomatous calcification in the adolescent population. This report presents the clinical manifestations, the management, and the outcomes of this uncommon cause of a trigger digit in an adolescent patient.

Case Report

A 14-year-old, left-hand–dominant boy presented to the authors' clinic with 2 weeks of pain and intermittent locking of his right ring finger. He denied a history of trauma to the hand and noted the locking was worse when playing video games. He had no significant past medical history and did not take medications.

On initial examination of the right ring finger, the patient had focal pain over the region of the A1 pulley approximately 1 cm proximal to the palmar digital crease. No significant palmar mass was appreciated at that time. Plain radiographs of the right ring finger revealed normal findings (**Figure 1**). He was offered a corticosteroid injection, which he refused. He was referred to occupational therapy for splinting. However, the patient was unable to attend therapy or attempt splinting.

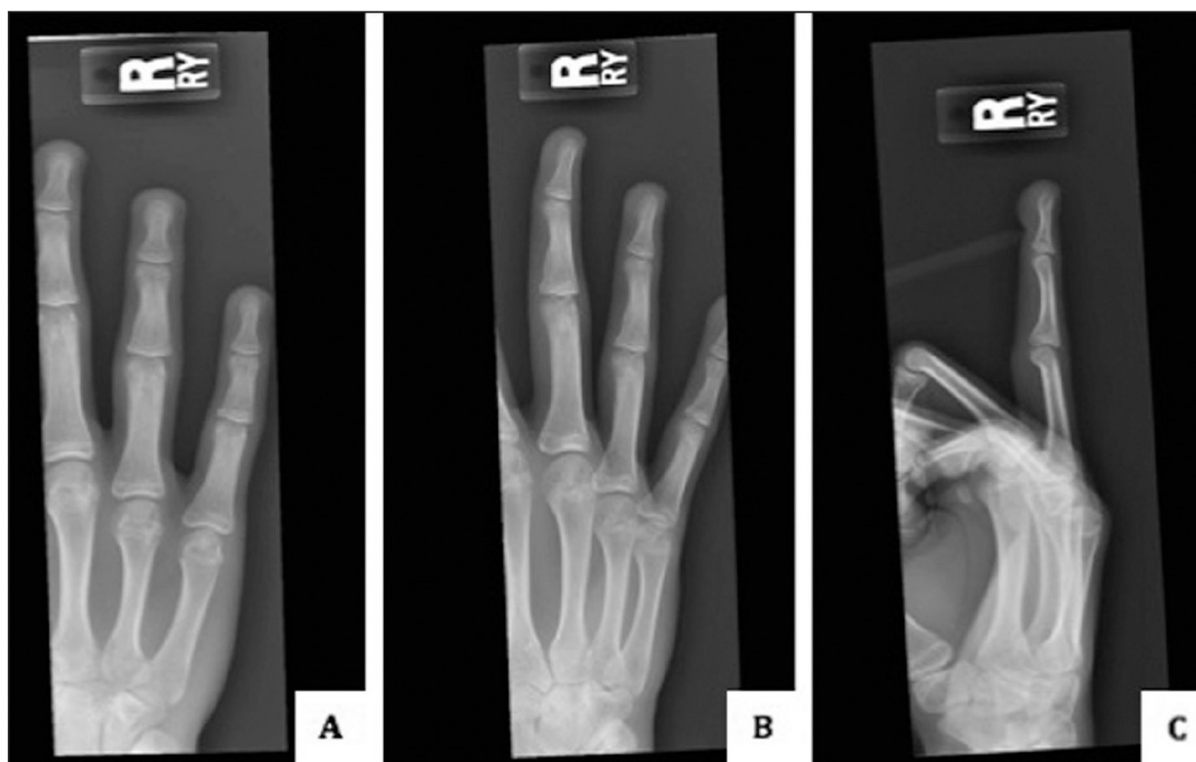


Figure 1:
Preoperative anteroposterior (A), oblique (B), and lateral (C) radiographs showing a normal appearance of the right ring finger.

He returned 2 months later with similar symptoms. However, at this point, a 5×5-mm mass could be palpated in the area of previous pain. An aspiration attempt was offered, but the patient refused. The patient desired relief of the locking symptoms and removal of the mass. The patient and his guardian opted for surgical management.

An extensile zigzag incision was made over the A1 pulley and continued to the proximal interphalangeal crease on the right ring finger (**Figure 2A**). A 5×5-mm mass was found emanating from the radial border of the flexor digitorum superficialis tendon. It was firm and yellow (**Figure 2B**). The entire mass was excised from the tendon and underwent pathological evaluation. It was interpreted as being fibrosis with fibrocartilaginous metaplasia and numerous calcified psammoma bodies (**Figure 3**).

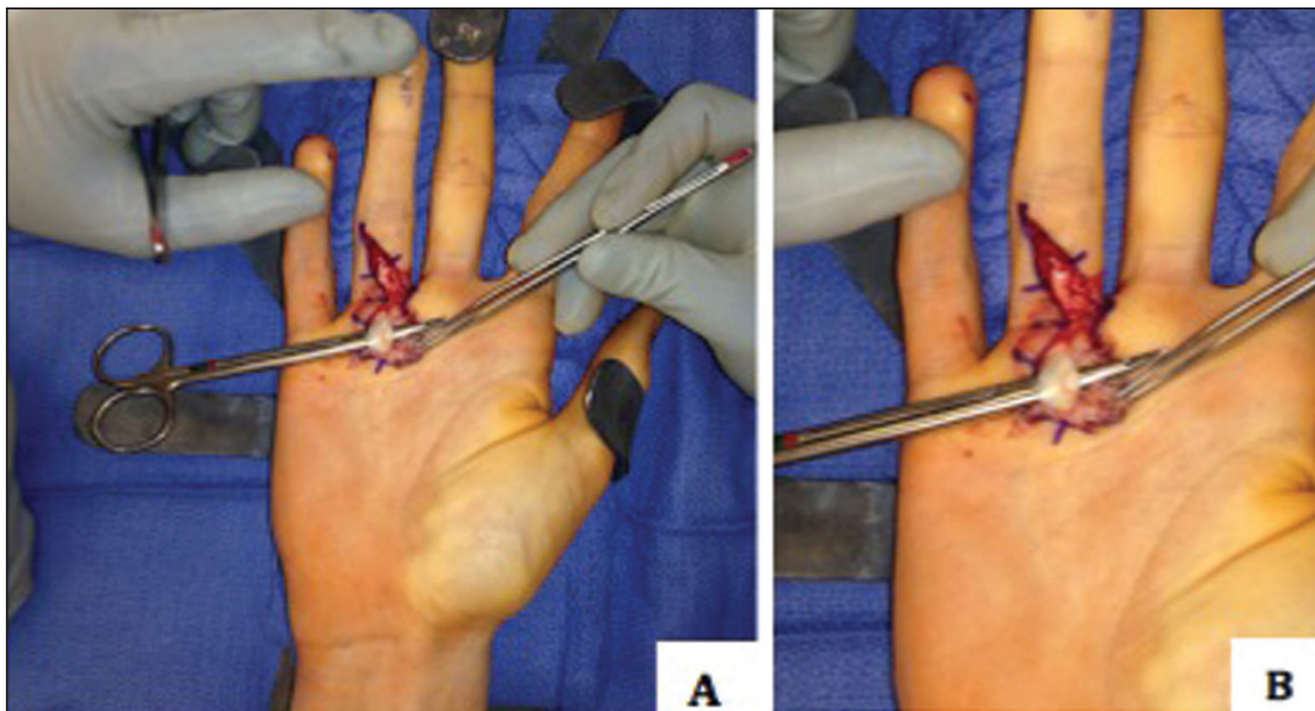


Figure 2:
Intraoperative setup (A). Mass of the right ring finger flexor digitorum superficialis tendon (B).

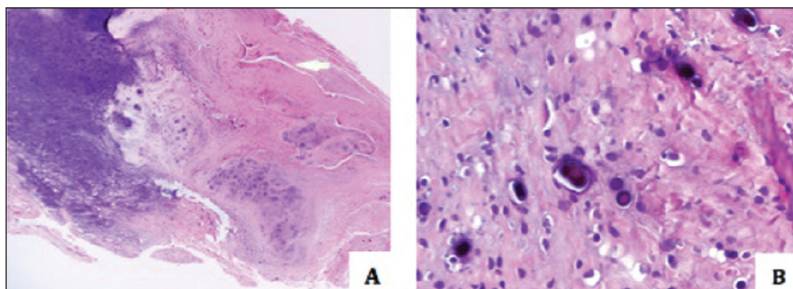


Figure 3:
Low-power view of the lesion. There was fibrosis with fibrocartilaginous metaplasia. The arrow points to a collapsed cystic space (hematoxylin-eosin, original magnification ×40) (A). Numerous calcified psammoma bodies were present within the dense fibrous tissue (hematoxylin-eosin, original magnification ×400) (B).

After excision of the mass from the flexor digitorum superficialis tendon and release of both the A1 and palmar aponeurosis pulleys, the patient's triggering was alleviated. Intraoperatively, the decision was made not to excise the ulnar slip of the flexor digitorum superficialis (as is typically recommended for pediatric trigger digits) because the mass itself was clearly causing the triggering when it encroached on the A1 and palmar aponeurosis pulleys. The skin was closed with 3-0 nylon. A postoperative splint was applied.

The initial postoperative course was unremarkable. The splint was removed 2 weeks postoperatively. Clinically, at 7-month follow-up, the patient had no digital locking and had full range of motion without pain of the right ring finger.

Discussion

The pediatric trigger finger represents a distinct clinical entity from the adult trigger finger. In fact, the pediatric trigger finger is 10 times less common than trigger thumb in infants and children and presents later, mostly between infancy and 4 years of age.^{1,2} Furthermore, some patients may not present until 10 to 12 years of age.^{1,2} In addition, the differential diagnosis of a pediatric trigger finger includes a variety of underlying anatomic causes; other pathological processes such as fracture, tumor, or traumatic soft tissue injuries must be excluded.³⁻⁵

Tenosynovitis secondary to a peritendinous soft tissue mass consisting of psammomatous calcification without an inciting event has not been well described in the adolescent population. In 1983, Gravanis and Gaffney⁶ initially described tenosynovitis with psammomatous calcification as a distinctive clinicopathologic variant of calcific tendonitis. One case report presented digital locking secondary to a tendon injury from a pencil tip resulting in an intratendinous calcification.⁴

In 2010, Shon and Folpe⁷ presented a case series reviewing the clinical and pathologic features of tenosynovitis with psammomatous calcification. For all 6 cases studied, tenosynovitis with psammomatous calcification occurred in females (mean age, 48 years; range, 16–83 years) with a history of occupation- or sports-related repetitive trauma to the affected region. Cases involved the tendons, peritendinous soft tissue, and adjacent synovium of the distal extremities. Two cases involved adolescent patients (16 and 19 years old) with right foot peritendinous soft tissue masses. Of the 3 cases involving fingers, 1 involved the right ring finger tendon.

In all cases, surgical excision was performed. At the time of excision, the lesions were described as firm and whitish yellow with dystrophic calcification and occasional cyst formation. The cases were strikingly similar histologically. Low-power magnification revealed intratendinous or peritendinous soft tissue masses with fibrous pseudocapsules and partially cystic, basophilic centers with variable cellularity. High-power magnification showed that the centers of the lesions were composed of degenerating tendinous tissue with an accumulation of homogeneous basophilic matrix and that innumerable psammomatous calcifications had formed. Tenosynovitis with psammomatous calcification was adequately treated with simple excision alone.⁷

Conclusion

The current patient presented with a rare cause of digital triggering and at an uncommon age. The patient was treated with mass excision from the flexor digitorum superficialis tendon and release of both the A1 and palmar aponeurosis pulleys. At the most recent follow-up, 7 months postoperatively, the patient had no signs of triggering and had returned to all activities.

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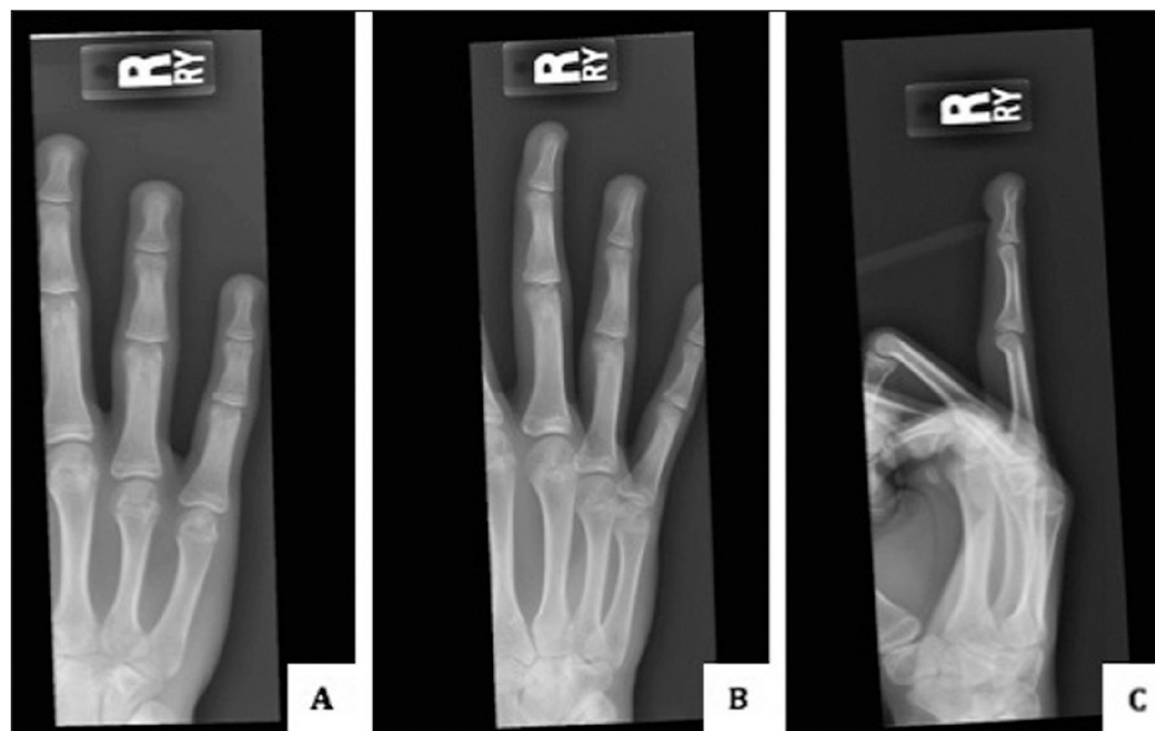


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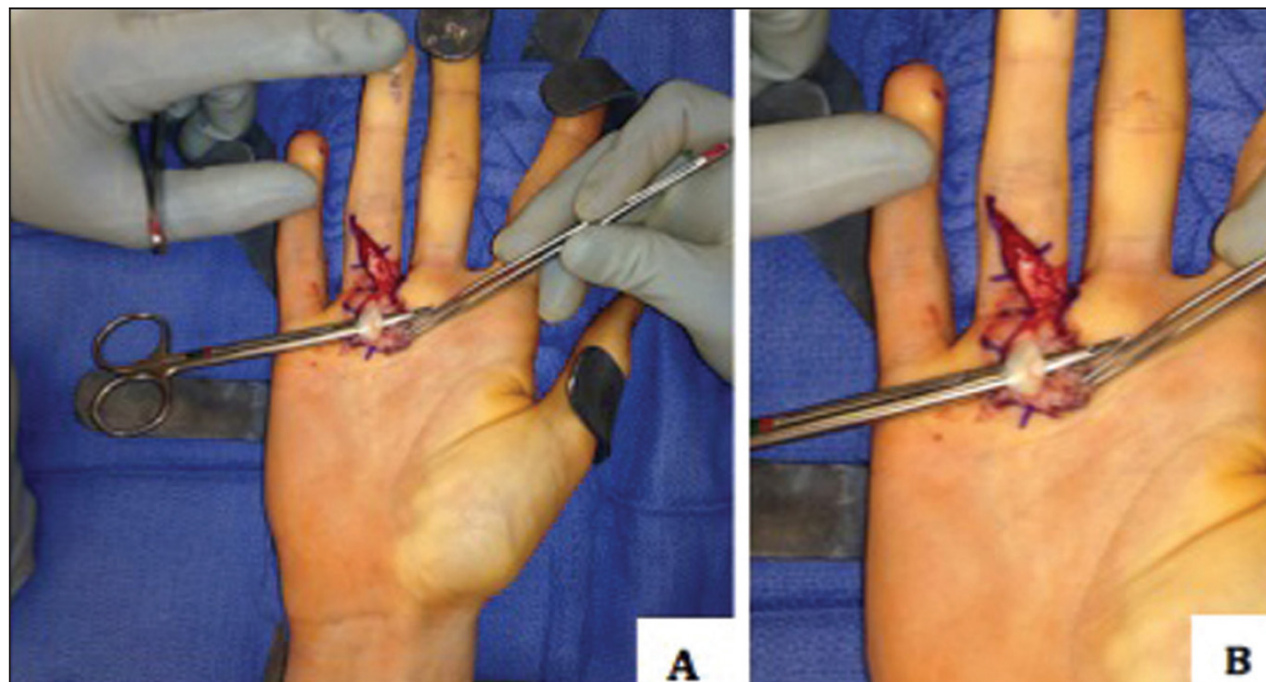


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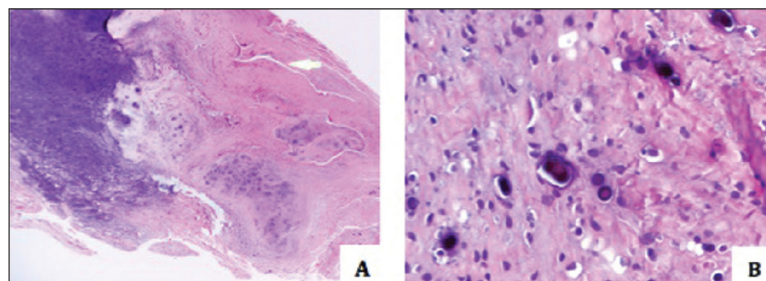


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