Trigger finger due to phalangeal osteochondroma of an adult: A case report

Hoi Young Kwon and Hong Je Kang

Abstract
Trigger finger is stenosing tenosynovitis that occurs in A1 pulley. It usually occurs idiopathically in patients’ 40s and 50s. On the other hand, pediatric trigger finger usually occurs before 8 years old in pediatric patients. Even though being rare, a tumor occurred in the soft tissue or bone near flexor tendons can cause a trigger finger. Trigger finger due to osteochondroma is very rare. Furthermore, most cases of trigger finger due to osteochondroma occur in pediatric patients with hereditary multiple osteochondromatosis (HMO). The authors report this case of a trigger finger caused by a solitary osteochondroma that occurred in the proximal portion of the proximal phalanx of the left middle finger, of a 21-year-old patient. The symptoms were relieved after excision of the osteochondroma. If a patient with unusual demographics visits, the cause of trigger finger may not be idiopathic. Evaluation methods such as x-rays and ultrasonography can be helpful to rule out other causes, such as tumors.

Keywords
osteochondroma, phalangeal osteochondroma, secondary trigger finger, trigger finger

Introduction
Trigger finger is stenosing tenosynovitis that occurs in A1 pulley. It usually occurs idiopathically in middle aged patients. However, it can also rarely occur in A2 or A3 pulley, or due to the injury of the flexor tendon or tumors adjacent to tendons. Osteochondroma is a relatively common bone tumor that usually occurs in the metaphysis of long bones, with rare incidence of occurring in the hand. Trigger finger due to osteochondroma is very rare, with only four cases reported, all of them in pediatric patients. Most of the cases occurred in pediatric patients with hereditary multiple osteochondromatosis (HMO). We report a case of a trigger finger of the left middle finger, caused by a solitary osteochondroma, which occurred in the proximal portion of the proximal phalanx in a 21-year-old patient, with literature review.

Case report
A 21-year-old male patient visited our hospital’s outpatient clinic complaining of the pain and locking symptom during flexion-extension of the left middle finger, which had started since 8 weeks before the visit. He had no traumatic or disease history of the left hand. In physical examination, there were pain and locking symptom during flexion-extension movement. Also, there was 10 degrees of flexion contracture at the PIP joint. We could palpate a round-shaped, hard mass of 1.5 cm × 1.5 cm size on the volar side of the base of the proximal phalanx of the left middle finger (Figure 1). In magnetic resonance imaging...
(MRI), at the volar side of the base of the proximal phalanx of the left middle finger, there was a bony mass which had sessile base and was protruded into the direction away from the joint space. The tumor was connected to the normal medullary space and was surrounded by thin cartilaginous cap. The tumor pressed adjacent flexor tendon and was causing hypertrophy of the flexor tendon and fluid collection of the surrounding tissue (Figure 2). Therefore, we considered it to be trigger finger caused secondarily by an osteochondroma and decided to perform surgical treatment.

We removed the bone tumor with osteotome with being cautious of injuring adjacent neurovascular structures. We loosely repaired A1 and A2 pulley with Z-plasty lengthening (Figure 3A-C). In histopathological evaluation, endochondral ossification which was covered with dome-shaped cartilaginous cap was found and it was diagnosed as osteochondroma. The locking phenomenon disappeared immediately after the surgery. As the patient had no flexion contracture after the surgery, we suggested that the contracture was due to bowing of the flexor tendon by the osteochondroma. There was no sign of recurrence of the osteochondroma in the x-ray that was taken 1 year after the surgery.

Discussion

Trigger finger occurs in the metacarpophalangeal joint, due to narrowing of A1 pulley caused by increase in the size of flexor tendons or other reasons, resulting in interference of the sliding movement of the tendon. A bimodal incidence, the first peak being before 8 years old and the second one being 40s and 50s, is seen in trigger fingers. Pediatric trigger finger most commonly occur in the thumb. In adults, the dominant hand is most often affected, more in women than men. Certain comorbid diseases in adult patients are associated with trigger fingers, such as diabetes, thyroid disease, rheumatoid arthritis, amyloidosis, and gout. The patient of this case was a 21-year-old male. He was relatively younger than the second peak patients of trigger finger, which was 40’s and 50’s. He
was also relatively older than the first peak patients. Also, he did not have any other comorbid diseases or traumatic history. Therefore, we suspected this as a trigger finger case caused secondarily by other condition. We performed imaging examination and diagnosed it as a trigger finger caused by an osteochondroma.

Even though a trigger finger usually occurs idiopathically, it can also be caused by other conditions such as trauma of flexor tendon. Rayan and Elias reported a case of trigger finger due to partial rupture of the flexor digitorum superficialis tendon. Rarely, a tumor occurred in the soft tissue or bone adjacent to flexor tendons can cause a trigger finger. Rankin and Reid reported a case of the triggering of the middle finger due to giant cell tumor of the tendon sheath in carpal tunnel. Schwaiger et al. reported a trigger finger due to extraskeletal chondroma between the annular ligament and the flexor tendon. Osteochondroma usually occurs in the metaphysis of the long bones, with rare incidence in the hand, which only accounts for 4%. Even though it is usually asymptomatic, it can cause symptoms irritating surrounding soft tissue. Trigger finger caused by osteochondroma is very rare, and when we reviewed the literature only four cases in three reports were detected in pediatric patients with hereditary multiple osteochondromatosis (HMO). HMO, unlike solitary osteochondroma, involves hand lesions in 80%, occurring in younger age. Karr et al. reported a case of locking phenomenon of the middle finger caused by osteochondroma in the proximal portion of the proximal phalanx, in an 18-month-year-old patient with HMO. De Oliveira et al. reported trigger finger cases of 9 and 13-year-old patients with HMO, that were caused by osteochondroma in the proximal phalanx of middle and ring finger, respectively. On the other hand, Al-Harthy and Rayan reported a case of a 5-year-old patient, with trigger finger in the 4th finger caused by a hidden mass in the proximal phalanx, which was not found in the x-ray but was later diagnosed as osteochondroma. In all above cases in the literature, they performed resection of osteochondroma and incision of the pulley. Triggering disappeared in all patients. In one case, however, flexion deformity of 20 degrees remained. We report a case of 20 years old male with solitary osteochondroma in the proximal phalanx of his left middle finger, which is a condition that is usually diagnosed in the age of 20’s. He experienced a relief of locking phenomenon after resection of the osteochondroma and was able to perform normal range of motion of the joint. Also, we loosely repaired the pulley with Z-plasty lengthening to prevent secondary trigger finger caused by repairing A1 and A2 pulley which were incised. It is thought that repairing A1 pulley is not essential, as it does not affect the function.

Conclusion

Trigger finger is a relatively common disease that can be seen in outpatient hand clinic. In most adult trigger finger cases, imaging examinations such as x-rays, ultrasonography or MRI are often not necessary. However, in this case, he was relatively younger than most of adult trigger finger patients and did not have any comorbid diseases. This suggested the possibility of secondary trigger finger developed by other causes. Awareness of these symptoms in this age group of patients may lead to accurate diagnosis and early recognition of the pathology. Evaluation of x-rays, ultrasonography or MRI can help perform appropriate treatment.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by grant from Wonkwang University, 2020.

ORCID iD

Hong Je Kang https://orcid.org/0000-0002-1218-2070

References

1. De Oliveira RK, Delgado PJ, and Geist JG. Pediatric trigger finger due to osteochondroma: a report of two cases. Hand 2017; 12: 99–105.
2. Jeanmonod R, Harberger S, and Waseem M. Trigger finger. Treasure Island, FL: StatPearls, 2020.
3. Rankin EA and Reid B. An unusual etiology of trigger finger: a case report. J Hand Surg 1985; 10: 904–905.
4. Schwaiger K, Ensaf F, Neureiter D, et al. Trigger finger caused by extraskeletal chondroma. J Hand Surg 2017; 42: e51–e55.
5. Rayan GM and Elias L. “Trigger finger” secondary to partial rupture of the superficial flexor tendon. Orthopedics 1980; 3: 1090–1092.
6. Al-Harthy A and Rayan GM. Phalangeal osteochondroma: a cause of childhood trigger finger. Br J Plast Surg 2003; 56: 161–163.
7. Karr MA, Aulicino PL, DuPutte TE, et al. Osteochondromas of the hand in hereditary multiple exostosis: report of a case presenting as a blocked proximal interphalangeal joint. J Hand Surg 1984; 9: 264–268.
8. O’Connor MI and Bancroft LW. Benign and malignant cartilage tumors of the hand. Hand Clin 2004; 20: 317–323, vi.
9. Suster D, Hung YP, and Nielsen GP. Differential diagnosis of cartilaginous lesions of bone. Arch Pathol Lab Med 2020; 144: 71–82.
10. Mnif H, Koubaa M, Zrig M, et al. Peroneal nerve palsy resulting from fibular head osteochondroma. Orthopedics 2009; 32: 528.