Lateral Band Subluxation: An Unusual Case of Pseudotrigger

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Introduction

Trigger finger is a common hand condition with the commonest underlying pathology being a stenosing tenovaginitis at the first annular pulley (A1) that results in the restriction of movement of the flexor tendon. The severity of trigger finger is staged under the Green's classification [1] which ranges from Grade I pretriggering stage with tenderness over the A1 pulley, Grade II which has demonstrable catching but with the ability to actively extend the digit maintained, Grade IIIA which has demonstrable locking in which passive extension is required, Grade IIIB in which the patient is unable to actively flex fully and finally Grade IV for which a fixed flexion contracture has already set in. The commonest complaints a patient has are triggering, clicking or pain.

Uncommon causes of triggering have been described in literature. As such, attention must be paid to diagnosis and treatment as various etiologies can result in similar clinical presentation [2]. We present a case of post-traumatic volar subluxation of the radial lateral band over the proximal phalanx condyle in a patient that resulted in a clinical picture similar to a Grade IIIA trigger finger. Surgical management resulted in a good clinical outcome.

Case Report

A 74 year old male patient was referred to us from his primary physician with a clinical diagnosis of left middle finger trigger. The patient fell on his left hand three months prior to presentation but was not able to recall the exact mechanism of injury to the left middle finger. Two days after the fall, his left middle finger started locking every time he flexed the digit and required passive unlocking of the digit. The locking of the digit was accompanied by severe pain.

The physical examination demonstrated locking of the digit every time the patient flexed the digit. Actively, the patient was unable to extend the digit; passively, he was able to. The initial clinical appearance was therefore similar to a Grade IIIA trigger. However, around the A1 pulley region, there was no tenderness, palpable clicking, or nodule; these are features that are commonly observed in the typical trigger digit. There was also no subluxation of the extensor tendon over the metacarpal head observed either; this was noted to rule out sagittal band insufficiency, which also causes a clinical picture similar to triggering (Fig. 1, Vid. 1, 2)

Inspection of the radial aspect of the proximal interphalangeal joint (PIPJ) showed the radial lateral band subluxing volarly over the radial proximal phalangeal condyle on flexion of the left middle finger. On passive extension of the digit, the radial lateral band relocated to its position dorsal to the proximal phalangeal condyle. The ulnar lateral band was not noted to subluxate volarly on digital flexion. The clinical impression was that of a traumatic radial lateral band volar subluxation causing locking of the digit, a 'pseudotrigger' (Vid. 3)

Surgery was performed under regional anaesthesia (brachial plexus blockade) of the upper limb with a forearm tourniquet and a dorsal longitudinal approach to the proximal interphalangeal joint was made. Consistent with the preoperative assessment, the radial lateral band subluxed volarly upon flexion of the proximal interphalangeal joint. Gentle passive

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Fig. 1 Pre-operative photographs**PRE OPERATIVE PHOTOGRAPHS**

extension of the joint demonstrated resistance to dorsal relocation of the band at the level of the proximal phalangeal radial condyle; using greater force to extend resulted in the band snapping back to its location dorsally. Also, significant scarring was noted over the triangular ligament (Fig. 2).

The radial lateral band was freed from scar tissue radially and ulnarly from mid-proximal phalanx to mid-middle phalanx. This band was relocated dorsally and secured to the central slip using interrupted polydioxanone 4/0 sutures (Fig. 3). Passive examination under anaesthesia ensured no volar subluxation of the radial lateral band on flexion of the proximal interphalangeal joint. Skin closure was followed by placement of a volar trough splint to keep proximal interphalangeal joint in extension.

The surgical wounds healed uneventfully. After three weeks of continuous PIPJ splinting, the patient was started

on intermittent active mobilization of the PIPJ with a resting volar trough splint. There was no locking of the PIPJ noted postoperatively.

Six weeks after surgery, the splint was removed completely. The patient was continued on mobilization therapy with additional passive exercises as well. Three months postoperatively, the patient had a painless, non-locking PIPJ with an active range of motion of 10–100 degrees (Fig. 4, Vid. 4). Passively, an additional five degrees of extension was achieved.

Discussion

The malady trigger finger was first described by Notta [3] in 1850 as being caused by a difference in diameters of a flexor

Fig. 2 Intra-operative photograph showing subluxation of the radial lateral band

Fig. 3 Intra-operative photograph showing the repaired radial lateral band

tendon and its retinacular sheath due to thickening and narrowing of the sheath that progressively restricts the motion of the flexor tendon. There have been various causes of trigger finger proposed though the precise etiology remains largely idiopathic [4]. Other uncommon causes that can lead to a clinical picture similar to triggering include space occupying lesions in the tendon bed such as an exostosis [5], sagittal band insufficiency resulting in subluxation of extensor tendon over the metacarpal head [6] and viral synovitis [7].

In the patient presented here, lateral band subluxation was the cause of the ‘pseudotrigger’. The triangular ligament stabilizes the two conjoined lateral bands over the dorsal aspect of the middle phalanx and prevents volar subluxation of the conjoined lateral bands. In conditions causing Boutonniere’s deformity, attenuation of the triangular ligament causes volar subluxation of the lateral bands [8]. However, the progressive attenuation of the triangular ligament does not result in a clinical picture similar to ours where the lateral band snaps over the proximal phalanx condyle. Furthermore, in chronic attenuation of the triangular ligament, volar subluxation of the lateral bands is reciprocated by a contracture of the transverse

retinacular ligament [8] and therefore the PIPJ does not maintain extension when passively extended.

In our patient, a traumatic rupture of the radial lateral band from the triangular ligament is the likely cause of the radial lateral band subluxation. However, as our patient has been passively extending his PIPJ since the injury for daily function, the contracture of the transverse retinacular ligament has not yet set in at presentation. Due to the delayed clinical presentation, a clear separation between the radial lateral band and the triangular ligament was not visualized intraoperatively as scarring had set in.

We opted for surgical management as we expected the scarring from the three month delay to result in suboptimal outcome. Our surgical approach was similar to that of a surgical correction of Boutonniere’s deformity [8]. We relocated the radial lateral band dorsal to the PIPJ axis of rotation and secured it to the central slip, which was intact [8]. We splinted the PIPJ for three weeks in order to allow healing of this repair before commencing mobilization. The final outcome was a painless, functional range of motion with no locking of the finger.

Fig. 4 Post-operative photographs

POST OPERATIVE PHOTOGRAPHS

Hand in flexion

Lateral view of hand in flexion

Extension of middle finger, reduced flexion contracture

Although a stenosing tenovaginitis at the A1 pulley is the commonest cause of a clinical presentation of a triggering finger, one must be aware of uncommon causes resulting in a similar picture. We have described one such cause here. Careful clinical examination can often diagnose the problem, which can then be treated appropriately.

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References

1. Wolfe SW (1999) Tenosynovitis. In: Green DP, Hotchkiss RN, Pederson WC (eds) Green's operative hand surgery, 4th edn. Churchill Livingstone, New York, pp 2022–2044
2. Parkamakizuo F, Cansu E, Unal MB (2013) Trigger finger at the carpal tunnel level: three case reports. *Acta Orthop Traumatol Turc* 47(1):65–67
3. Notta A (1850) Recherches sur une affection particuliere des gainestendineuses de la main. *Arch Gen Med* 24:142
4. Ryzewicz M, Wolf JM (2006) Trigger digits: principles, management, and complications. *J Hand Surg (Br)* 31:135–146
5. Lee SJ, Pho RW (2005) Report of an unusual case of trigger finger secondary to phalangeal exostosis. *Hand Surg* 10(1):135–138
6. Chillag A, Greenberg S (2011) Images in clinical medicine. An unusual cause of trigger finger. *N Engl J Med* 365 (7)
7. Sharma PR et al (2010) Bilateral trigger finger in a 7-year-old after a viral infection: case report. *J Hand Surg [Am]* 35(8): 1334–1335
8. Coons MS, Green SM (1995) Boutonniere deformity. *Hand Clin* 11(3):387–402