



Trigger finger at the carpal tunnel level: three case reports

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Although trigger finger occurs mostly due to a problem at the A1 pulley various other causes have also been reported. We present three patients with different tumors at the carpal tunnel as a cause of triggering. All patients were treated with local excision.

Key words: A1 pulley; carpal tunnel; stenosing tenosynovitis; trigger finger.

Trigger finger is a common hand disorder. Stenosing tenosynovitis of the flexor tendons leads to blocking of tendon movements at the A1 pulley, resulting in characteristic symptoms of the disorder. However, attention must be paid to diagnosis and treatment as various etiological factors may rarely cause similar manifestations. The surgical treatment method is the release of the A1 pulley. A soft tissue mass in the carpal tunnel level may also result in trigger finger.

We present 3 patients with a soft tissue tumor in the carpal tunnel. All patients were treated with surgical excision of the mass.

Case reports

Case 1

A 28-year-old female patient presented with triggering and pain in the fifth digit of the dominant right hand and pain in the wrist during flexion and extension of the finger for two months. A mass of 1×0.6×0.3 cm was detected over the fifth deep digital flexor tendon during exploration of the carpal tunnel (Fig. 1). The mass caused

locking of the fifth digit under the flexor retinaculum, in full flexion. The tumoral mass could pass under the retinaculum by pushing. The locking was released by resection of the mass and tendon movement was achieved with no problems. No recurrence was seen in the post-operative period. Histopathological examination revealed the mass to be a mixed type hemangioma.

Case 2

A 52-year-old female patient presented with locking on the third finger of the right hand for 7 months. Tenderness to palpation over the A1 pulley was noted. No additional pathology was detected at the clinical examination. Release of the A1 pulley was performed under local anesthesia. When the patient was asked to actively move her fingers during the surgery, it was observed that the pathology continued. After obtaining patient approval, the carpal tunnel was explored with a pneumatic tourniquet for hemostasis with axillary block. The locking disappeared following the excision of a mass of 2.5×2×1 cm, originating from the deep

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Fig. 1. The mass originating from the deep flexor tendon of the fifth digit is shown. [Color figure can be viewed in the online issue, which is available at www.aott.org.tr]

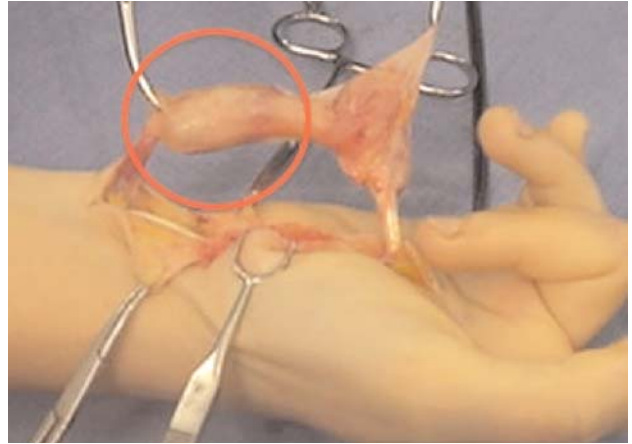


Fig. 2. Areas with tenosynovitis were also excised in addition to the mass shown in the circle. [Color figure can be viewed in the online issue, which is available at www.aott.org.tr]

tendon of the third digit (Fig. 2). Histological examination of the mass was consistent with a ganglion cyst.

Case 3

A 55-year-old male patient presented with a painful locking on the fourth finger of his non-dominant left hand for four months. His symptoms mimicked those of “trigger finger”. He also had a mass on the wrist which was mobile with the movements of the fingers. Magnetic resonance imaging (MRI) findings showed that the mass originated from the deep flexor tendon of the fourth digit and the patient was offered surgery (Fig. 3). Symptoms disappeared following the excision of the mass of 4×1.5×1 cm, with the exploration of the carpal tunnel under axillary block and pneumatic tourniquet (Fig. 4). The mass was defined as schwannoma upon histopathological examination. No sensory or motor problems of the median nerve were detected at follow-up.

In addition to above findings, no recurrence was observed in the patients’ follow-ups at the ninth, fourth and third years, respectively.

Discussion

Trigger finger is one of the most frequently seen disorders of the upper extremity.^[1] It presents itself with the trapping of the flexor tendons by the degenerated and thickened A1 pulley, usually as a result of stenosing tenosynovitis. The size mismatch between the flexor tendon and the pulley above is the most important and common cause.^[2] Inflammation of the tendon sheath secondary to thickening of the A1 pulley leads to swelling in the flexor tendon.^[2] Tenderness over the A1 pulley, a palpable nodule, triggering, and locking are common findings in physical examination. Despite its rather easy clinical diagnosis, probable issues other than

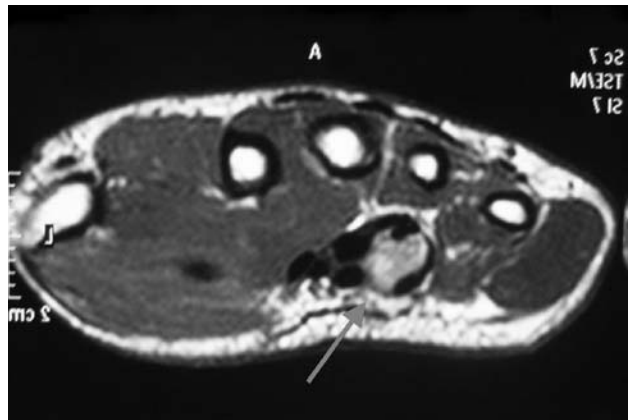


Fig. 3. The space-occupying lesion originating from the flexor tendons and detected at the wrist level is seen in axial MRI section.

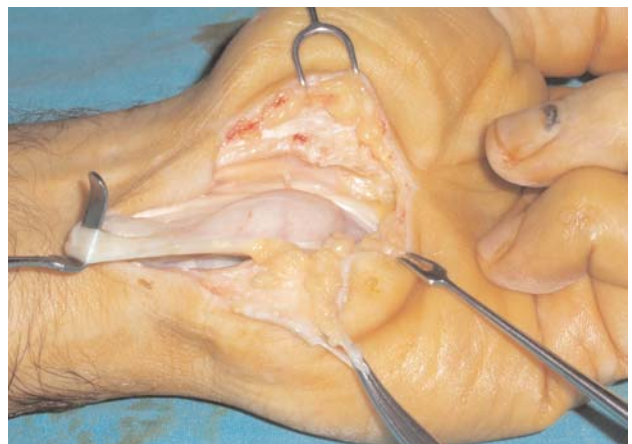


Fig. 4. The mass originating from the deep flexor tendon of the fourth digit is viewed following the exploration of the carpal tunnel. [Color figure can be viewed in the online issue, which is available at www.aott.org.tr]

the A1 pulley should also be considered among the reasons behind triggering. Sesamoid bone,^[3] finger exostosis,^[2] calcific tendonitis,^[4] abnormal insertion of the lumbrical muscles^[5] and post-traumatic lesions^[6] have been reported in the literature as causes of trigger finger. Other pathologies should be considered in the absence of pain and/or nodule over the A1 pulley in physical examination, requiring additional evidence by X-rays, computed tomography (CT) and MRI.

In a case reported by Lee and Pho,^[2] no signs of trigger finger was present. However, radiography and CT findings revealed exostosis in the flexor tendon bed, performed due to local tenderness over the proximal phalanx. The complaints disappeared after the excision of the exostosis.

Some pathologies at the carpal tunnel level may also cause triggering by locking the flexor tendons under the flexor retinaculum during movement of the flexor tendons. This pathology in the wrist is defined as “trigger wrist” by some authors. However, according to Giannikas et al., this definition is controversial.^[7] No consensus has been reached as it is still debated whether triggering due to wrist movements or triggering of the finger should be defined as “trigger wrist” when the pathology is in the wrist. According to Desai et al., the term “trigger wrist” should be used only when a triggering due to wrist movements is present.^[8] Lemon and Engber^[9] and Koob and Steffens^[10] reported “true” trigger wrist cases and stated that the term is generally misused to mean the triggering of the fingers at the wrist level. As the triggering is not initiated by wrist but finger movements, a more accurate definition would be “trigger finger at the wrist”.^[9] Our cases were of trigger fingers not wrists, although the triggering was due to pathology at the wrist level.

Lemon and Engber^[9] reported an example of “true” trigger wrist. Triggering developed due to the displacement of the nodule at the extensor carpi radialis longus tendon into the second dorsal compartment by wrist movements and was treated with excision of the nodule. The authors pointed out that several intra-articular pathologies may cause restriction of movement of the wrist and painful click, and that extra-articular pathologies may present with similar symptoms. In addition to stenosing tenosynovitis, tumoral masses preventing the sliding of the tendons by forming a block is another cause of triggering at the fingers. Although several authors have reported tumors of different histopathological character, these tumors rarely cause trigger finger.^[11-15] As they may usually be located in the proximal of the A1 pulley (in the palm and the carpal tunnel), they are not always possible to detect at the physical examination and be distinguish from typical trigger finger.

Other rare causes of trigger finger should also be considered in the preoperative period to avoid missing probable cases that do not present with classical symptoms and findings, and further tests should be performed in case of uncertainty.

Even in patients with positive results of A1 pulley examination, more proximal regions, such as the palm and the carpal tunnel should also be examined. Despite the diagnosis of stenosing tenosynovitis at the A1 pulley, it should be kept in mind that an associated pathology may also be present in the more proximal region, e.g. the carpal tunnel, as seen in Case 2.

When A1 pulley release due to stenosing tenosynovitis is performed, we recommend surgery be done with local anesthesia. In this manner, it will be possible to determine if the locking still exists when the patient is asked to actively move his/her fingers during the surgery. Furthermore, the presence of other probable pathologies in the more proximal region can be observed and, thus, treated within the same session.

Conflicts of Interest: No conflicts declared.

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