

# A Case of Bilateral Trigger Thumbs Secondary to Aromatase Inhibitor

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To the Editor:

A 49-year-old woman visited our department due to painful bilateral trigger thumbs, which were characteristically locked in flexion (Fig. 1A). Both thumbs showed passively correctable locking and the patient did not perform an extension of both thumbs because it was very painful. There were no palpable nodules in either thumb. The patient had no history of previous trauma or familial history. Laboratory tests were normal, including blood sugar, erythrocyte sedimentation rate, C-reactive protein, renal function, thyroid function, and rheumatoid factor. Radiographs of the hands were also normal. Three years ago, the patient underwent a total abdominal hysterectomy and bilateral salpingo-oophorectomy due to endometrial adenocarcinoma. One year later, treatment with pelvic radiotherapy and anastrozole (Arimidex<sup>®</sup>, AstraZeneca, Seoul, Korea) was started due to iliac lymph nodes metastases. Since then, the patient experienced tolerable arthralgias, myalgia, and mild triggering during the treatment with anastrozole. After 2 years of treatment with anastrozole, the patient developed severe triggering and locking in both thumbs. Conservative management with local steroid injections was not effective and further aggravated the triggering.

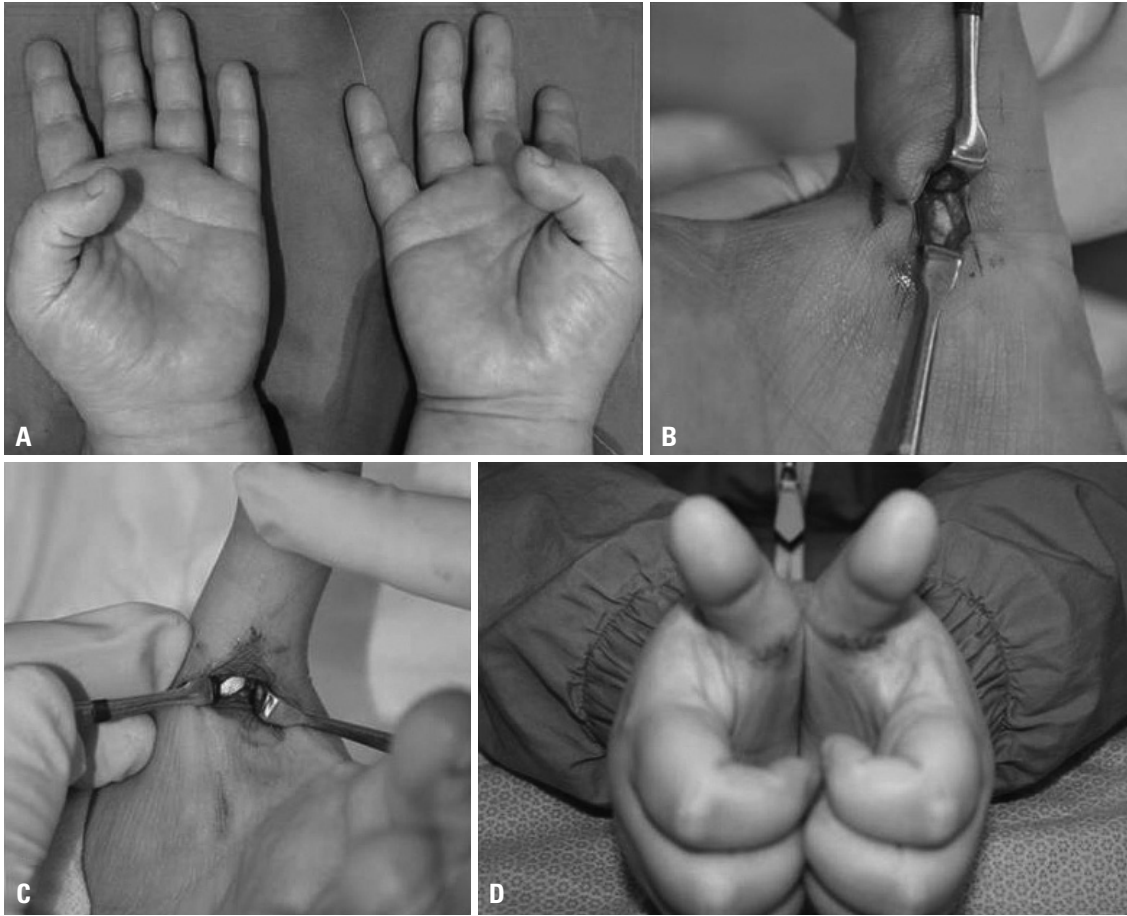
We performed surgical intervention on both thumbs. During surgery, we found thickening of the A1 pulley of both thumbs, and the flexor pollicis longus tendon was caught at the A1 pulley. A1 pulleys of both thumbs were released and partial excised (Fig. 1B and C). Thereafter, the patient was able to actively move both thumbs, and complete relief of both locking thumbs was confirmed. The symptoms completely disappeared at one month after the surgery (Fig. 1D).

Hyperestrogenism is an important risk factor for the development and progression of endometrial cancer.<sup>1</sup> Aromatase inhibitors (AIs) block the aromatase enzyme, which converts peripheral testosterone and androgens to estrogens, subsequently lowering estrogen-modulated stimulation.<sup>1</sup> Hence, AIs are useful in the management of endometrial cancer. However, musculoskeletal complaints, particularly arthralgia and myalgia, in patients treated with AIs have been reported. It has been suggested that AIs reduce the antinociceptive effects of estrogen by complete estrogen depletion, and therefore, decrease the pain-threshold, resulting in arthralgia.<sup>2</sup> Also, it has been reported that AIs are associated with carpal tunnel syndrome (CTS) and trigger finger. CTS has been reported to be associated with all AIs, anastrozole, exemestane, and letrozole.<sup>2-4</sup> Arthralgia, trigger finger, and CTS were

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**Fig. 1.** (A) A 49-year-old woman visited our department due to painful bilateral trigger thumbs which were characteristically locked in flexion. The flexor pollicis longus tendon was caught at the A1 pulley. (B) The A1 pulley was thickened. (C) A1 pulley was partial excised. (D) The symptoms completely disappeared after surgery.

frequently reported for patients treated with letrozole or exemestane, and most patients showed a severely reduced mobility of the hand or wrist.<sup>2</sup> Patients receiving anastrozole showed a higher incidence of joint symptoms, arthralgia, arthritis, and CTS, as well as of tendinopathy.<sup>3,4</sup> However, severe trigger finger has not been reported yet for cases treated with anastrozole.

The exact mechanism for AI-induced trigger digit is unclear. Morales, et al.<sup>2</sup> showed a thickening of the flexor tendon sheath in all patients treated with letrozole and exemestane. Martens, et al.<sup>4</sup> reported thickening of the abductor pollicis longus tendon in patients receiving anastrozole. These reports provide a feasible reason for the trigger thumbs in patients treated with AI, as thickening of the tendon sheaths of the A1 pulley may lead to severe triggering of the flexor tendon, as was observed in our case.

Conservative treatments, such as splinting, NSAIDs and steroid injection, may be less effective to treat AI-induced CTS or trigger finger, compared with idiopathic CTS or trigger finger.<sup>2,5</sup> Among AIs, anastrozole and letrozole reversibly

bind to aromatase enzyme, while exemestane irreversibly binds thereto. However, the triggering of our patient was not improved after treatment with anastrozole. At first, our patient received local corticosteroid injections in both thumbs; however, the symptoms aggravated in both thumbs and resulted in locking. Thus, surgery was performed. While corticosteroid injections may be effective in treating conventional trigger digits, our findings suggest that AI-associated trigger digit requires surgical treatment.

Unilateral trigger digit is an entity commonly seen by hand surgeons. Even if only one finger is involved in the triggering phenomenon, hand function can be seriously compromised when the digit is locked in flexion. In our patient, there were no predisposing factors present, such as thyroid disease, diabetes, renal disease, or rheumatoid arthritis. Our patient showed locking trigger thumbs in both hands in association with the AI anastrozole (Arimidex®). To the best of our knowledge, no previous reports have suggested an association between anastrozole and bilateral trigger thumbs in the treatment of endometrial cancer. Nevertheless, clinicians should

be aware of possible medication side effects as a potential etiology of trigger thumbs.

## ACKNOWLEDGEMENTS

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