Atypical Triggering at the Wrist due to Intratendinous Infiltration of Tophaceous Gout

Kazufumi Sano · Yoshitake Kohakura ·
Kazumasa Kimura · Satoru Ozeki

Received: 3 May 2008 / Accepted: 11 June 2008 / Published online: 3 July 2008
© American Association for Hand Surgery 2008

Abstract This is a report of a 41-year-old male with triggering of the long finger flexor digitorum superficialis tendon at the wrist secondary to tophaceous gout. The tophus was severely infiltrating the tendon, and a tenotomy of the FDS tendon was performed. Preoperatively, the lesion could not be distinguished from a neoplasm.

Keywords Triggering · Tophaceous gout · Intratendinous infiltration · Flexor digitorum superficialis tendon

Introduction

It is well-known that long-lasting hyperuricemia can cause the formation of tophi [2]. We report a rare case in which intratendinous tophaceous gout within the flexor digitorum superficialis (FDS) tendon could not be distinguished from neoplasm preoperatively because it was seen in a well-controlled hyperuricemia patient.

Case Report

A 41-year-old man was referred to our department with a 2-month history of snapping of the FDS at the wrist and a rapid growing mass on the volar aspect of the wrist. The patient had no other subjective symptoms. The patient has a 2-year history of medication for hyperuricemia which has been well-controlled. On physical examination, an elastic

hard mass 2×3 cm in size migrated longitudinally along with motion of the middle finger with snapping occurring in both extension and flexion (Fig. 1). Magnetic resonance imaging (MRI) showed that the mass was within the FDS to the middle finger and was isointense with muscle on T_1 -weighted images and heterogeneously hypointense or hyperintense on T_2 -weighted images (Fig. 2a,b). With presumptive diagnosis of intratendinous soft tissue tumor including possibility of neoplasm, surgical exploration was performed. A tumor-like mass filled with a white chalky substance was identified within the FDS to the middle finger through extensive zigzag incision from the palm to

Figure 1 Migration of the mass with middle finger movement.

K. Sano (✉) · Y. Kohakura · K. Kimura · S. Ozeki
Department of Orthopaedic Surgery, Dokkyo Medical University,
Koshigaya Hospital,
2-1-50 Minami-koshigaya,
Koshigaya, Saitama 343-8555, Japan
e-mail: prssano@nifty.com

Figure 2 MRI showed that the mass in the FDS to the middle finger was isointense on T_1 -weighted images and heterogeneously hypointense or hyperintense on T_2 -weighted images. **a** T_2 -weighted image, coronal view. **b** T_2 -weighted image, sagittal view.

the distal forearm. Although intraoperative diagnosis of tophaceous gout was obtained, tenotomy of the FDS to the middle finger was performed because of heavy intratendinous infiltration of the tophus and destruction of the tendinous tissue (Fig. 3). Cytology of a chalky white substance demonstrated needle-shaped monosodium urate crystal that was negatively birefringent, and histopathological examination confirmed the diagnosis of tophaceous gout. The postoperative course was uneventful with no remarkable functional deficit from the removal of the superficialis to the middle finger.

Discussion

Although tophaceous gout is caused by poorly controlled long-lasting hyperuricemia, there have been only a few case reports of intratendinous infiltration of tophaceous gout

affecting tendons of the hand [4–6]. In the past reports, all intratendinous infiltrations of tophaceous gout occurred at the wrist and existed with carpal tunnel syndrome [4–6]. In our case, since the main torus of the tophus existed proximally to the flexor retinaculum in resting position of the hand, triggering of the torus against the flexor retinaculum occurred in extension of the middle finger instead of carpal tunnel syndrome. Since self-regression can be achieved when hyperuricemia is treated properly and serum concentration of uric acid is maintained below 5.6 mg/100 ml [2], tophaceous gout is seldom seen in a well-controlled hyperuricemia patient. It was, therefore, very difficult to achieve preoperative diagnosis of intratendinous tophi in our case. MRI without clinical diagnosis of gout may mislead clinicians to more pessimistic diagnosis because signal intensity in the T_2 -weighted images may be heterogeneous due to urate crystal or calcium deposition, making distinction from neoplasm difficult (Fig. 2a,b) [2]. On the other hand, the development of a malignant fibrous histiocytoma in a tophus occasionally occurs [1]. Fine-needle aspiration biopsy prior to surgical exploration is the most reliable means for the diagnosis of intratendinous infiltration of tophaceous gout [3]. Since the torus of the intratendinous infiltration of tophaceous gout at the wrist easily shows median nerve compression and/or functional deficit by triggering of tendon(s), surgical intervention like both tenotomy and tenosynovectomy are useful treatment options in addition to conventional medication for gout.

Figure 3 Resection of the flexor superficialis tendon of the middle finger.

References

1. Carnero S, Terán P, Trillo E. Malignant fibrous histiocytoma arising in a gouty tophus at the second metacarpophalangeal joint. *J Plast Reconstr Aesthet Surg*. 2006;59:775–8.
2. Gentili A. The advanced imaging of gouty tophi. *Curr Rheumatol Rep*. 2006;8:231–5.
3. Liu K, Moffatt EJ, Hudson ER, Layfield LJ. Gouty tophus presenting at a soft tissue mass diagnosed by fine-needle aspiration: a case report. *Diagn Cytopathol*. 1996;15:246–9.
4. Mackford BJ, Kincaid RJ, Mackay I. Carpal tunnel syndrome secondary to intratendinous infiltration by tophaceous gout. *Scand J Plast Reconstr Surg Hand Surg*. 2003;37:186–7.
5. Pai CH, Tseng CH. Acute carpal tunnel syndrome caused by tophaceous gout. *J Hand Surg*. 1993;18A:667–9.
6. Weinzwieg J, Fletcher JW, Linburg RM. Flexor tendonitis and median nerve compression caused by gout in a patient with rheumatoid arthritis. *Plast Reconstr Surg*. 2000;106:1570–2.