

IMAGING FINDINGS OF A SANDGLASS-SHAPED SUTURE GRANULOMA IN HAND

ELDE KUM SAATI ŞEKLİNDEKİ SÜTÜR GRANÜLOMUNUN GÖRÜNTÜLEME BULGULARI

Nurten Turhan-Haktanır¹,
Bumin Değirmenci²,
Önder Şahin³,
Yavuz Demir¹

Afyon Kocatepe Üniversitesi, Tıp Fakültesi, Plastik,
Rekonstrüktif ve Estetik Cerrahi¹, Radyoloji², ve Patoloji³
Anabilim Dalları, Afyonkarahisar, Türkiye

J Surg Arts, 2008;1(2):37-41.

ABSTRACT

We present clinical and radiological features of a sand glass shaped suture granuloma on the dorsum of the hand and discuss the diagnostic imaging characteristics as well as the difficulties in the differential diagnosis. The shape of the granuloma seems to be an exceptional characteristic of the case. Granulomatous masses must be kept in mind as an alternative diagnosis in patients with previous trauma complaining tumor like masses in hand.

Key words: Suture granuloma, foreign body reaction, magnetic resonance imaging.

ÖZET

Bu yazımızda el dorsumunda kum saati şeklinde bir suture granulomu vakasının klinik ve radyolojik bulgularını sunmayı ve radyolojik görüntüleme bulguları ile ayırıcı tanıdaki güçlükleri tartışmayı amaçladık. Granülomun şekli olgunun istisnai bir özelliği olarak öne çıkmaktadır. Travma öyküsü olan ve tümör benzeri şikayetlerle başvuran hastaların ayırıcı tanısında granülatöz kitleler akılda tutulmalıdır.

Anahtar kelimeler: Suture granulomu, yabancı cisim reaksiyonu, manyetik rezonans görüntüleme.

INTRODUCTION

Suture granulomas in hand are seen in outpatient clinics rather frequently; however, to the best of our knowledge, magnetic resonance imaging (MRI) findings have not been adequately described previously. We present here radiological findings of a sand glass shaped suture granuloma in the left hand and we discuss the diagnostic imaging features as well as the difficulties in the differential diagnosis. Furthermore, the shape of the granuloma seems to be an exceptional characteristic of the present case.

CASE

A 17 years old boy has been admitted for a soft tissue mass over the second metacarpophalangeal joint of his left hand. He defined the "mass" as it had grown in last few months. No complaint including pain or limitation of movement other than localized soft tissue swelling was present. In the patient's anamnesis, a penetrating hand trauma occurred one year ago was explicated. He described that the wound in his hand had been primarily sutured. Two adjacent, painless, hard, and fixed subcutaneous masses, which were approximately 1x1 cm in size, were observed in the physical examination. The overlying skin was not thinned or discolored (Figure 1). Laboratory investigations disclosed no abnormality.

Because the incision scar matched the traces of bilateral digital nerves, we considered the diagnosis of postoperative neuroma as a possible alternative. Therefore, a radiological work up was performed. Sonographic examination revealed a single 17x12 mm subcutaneous soft tissue mass having moderate echogenicity. On magnetic resonance imaging (MRI), well demarcated subcutaneous neighboring lesions which was hypointense on both T1 and T2 weighted sequences, and has no relation to adjacent articulation was seen. Contrast enhancement in patches was seen within the masses after the administration of contrast agent (Figure 1).

Surgical resection was performed. Two well-defined masses, which were connected to each other with a narrow neck, were seen in exploration. Each mass was approximately 1 cm in diameter. Both masses had dark reflections and were extended towards the adjacent joint (Figure 1). However, relation with the joint did not exist. No invasion of adjacent tendon or soft tissues was present.

In gross section of removed specimen, silk sutures were found within both masses (figure 1). Histopathologic examination revealed pathologic tissue with granulomatous change suggesting marked foreign body reaction. Characteristic histological features of granulation tissue including formation of new small blood vessels (angiogenesis), red cells in the

extravascular space, and the proliferation of fibroblasts were seen.

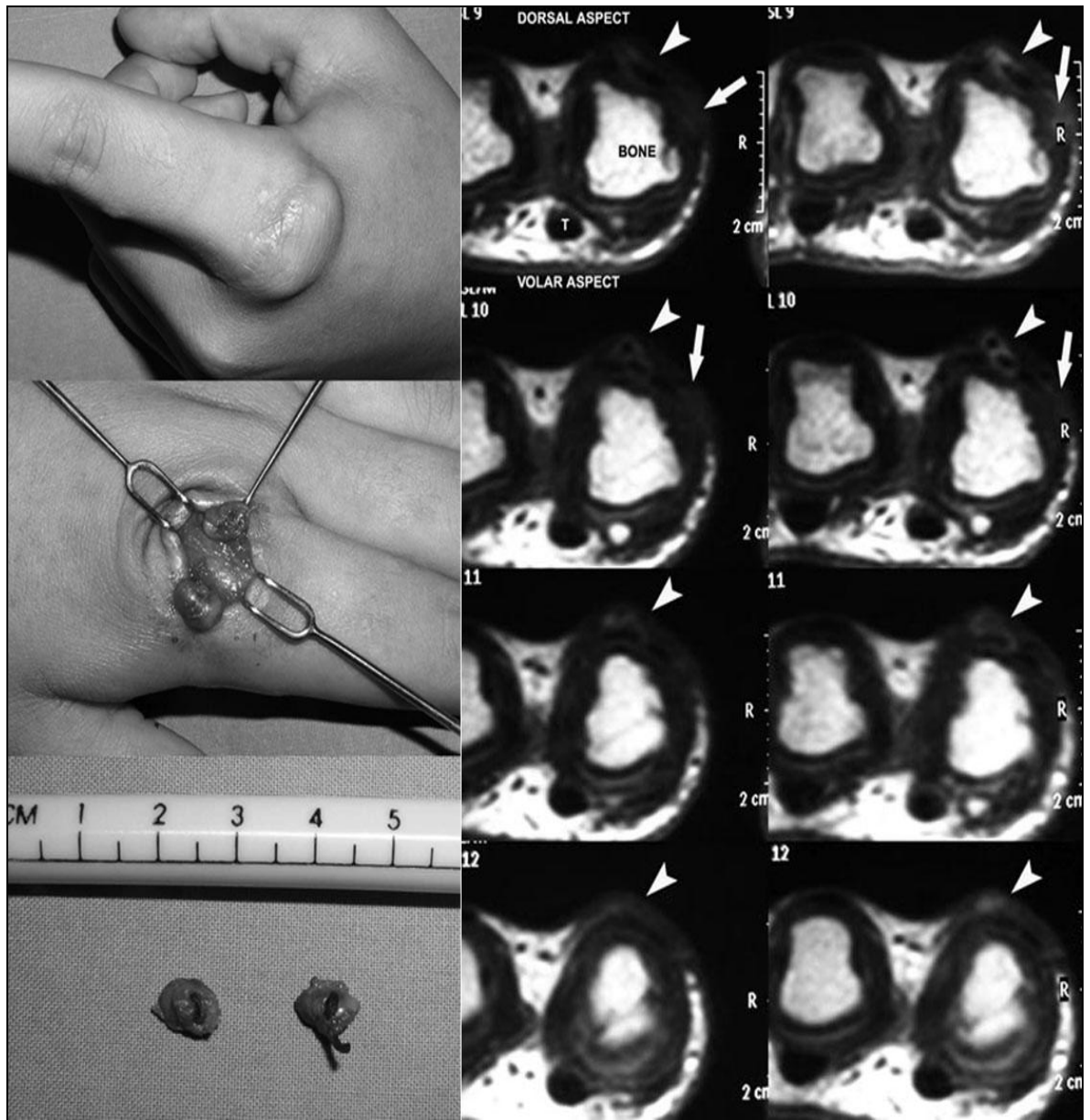


Figure 1. Left: subcutaneous soft tissue masses over the second metacarpophalangeal joint of the left hand (upper); two separate, well defined masses, each was approximately 1 cm in diameter having dark reflections (middle); gross section of removed specimen reveals silk sutures within both masses (lower). Right: corresponding transaxial contiguous T1 weighted unenhanced (left column) and enhanced (right column) MRI slices of second metacarpophalangeal joint of left hand. Arrowheads and arrows indicate the granulomas showing patchy enhancement after intravenous contrast administration. Bone: proximal phalangeal bone, T: flexor tendon.

DISCUSSION

Suture granulomas have been reported several months to 25 years after a variety of procedures (1). A previous work has shown that, although the tissue reaction to absorbable sutures subsides within 60 days, silk sutures cause a persistent inflammatory reaction (2). In comparison to natural sutures, synthetic absorbable sutures are much less likely to cause a foreign-body reaction (3). When silk suture is used, it can become a latent nidus of infection and, thus, forward the development abscess or granulomas (4). Therefore, its removal is mandatory for definitive treatment in case of complication.

Some diagnostic troubles may arise subsequent to surgical interventions because of suture granulomas. They may not be distinguished from neoplasm or infection by physical examination alone. Imaging studies occasionally show certain characteristic properties of fibrous tissue, which may suggest suture granulomas when considered with patients' operation history.

Persistent hypointensity on all MRI sequences is one of these features. Fibrous tissue appears as low signal intensity on T1-weighted images and variable signal on T2-weighted images, depending on the activity of the process. On T2-weighted images, it may appear hyperintense when active inflammation is present and hypointense in end-stage fibrosis. Inhomogeneous signal intensity on T2-weighted MRI images suggests malignancy. The majority of malignancies exhibit high signal intensity on T2-weighted images; therefore, distinguishing the early stage of granulomatous reaction from malignancy may not be possible. Although the heterogeneity of signal on T2-weighted sequences suggests malignancy, the diagnosis cannot be certain based on MRI appearances alone. Combined positron emission tomography/computed tomography (PET/CT) imaging can be helpful in differentiating a recurrent or residual malignant process from suture granulomas especially in localizations difficult to reach as abdominal cavity. However, false positive results on this modality have been reported resulting from inflammatory granulomas months after surgery (5). When MRI features (hypointensity of the lesion on both T1 and T2 weighted sequences) and histopathological findings are considered together, the lesion of our patient shows characteristic features of end stage fibrosis.

In our case, two neighboring lesions could not be discriminated and reported as one single mass in sonographic examination. Because of noninvasiveness and inexpensiveness, sonography can be considered in the diagnosis of such lesions; however, MRI with its excellent soft tissue resolution capability seems to be the most superior imaging modality in verifying the correct diagnosis and find out the extent of the pathology.

The suture granuloma in our patient was probably related to use of relatively thick silk sutures for securing the bleeding vessels. Silk sutures, especially thick ones must not be preferred for bleeding control. The sandglass-shape of the granuloma in the present case made the correct pre-surgical diagnosis harder. Granulomatous masses may not be discriminated from postoperative neuroma clinically, and may require additional imaging studies.

REFERENCES

1. Ichimiya M, Hamamoto Y, Muto M. A case of suture granuloma occurring 25 years after an appendectomy. J Dermatol, 2003;30: 634-636.
2. Gear MWL, Dowling BL. Suture line ulcer after gastric surgery caused by non-absorbable suture materials. Br J Surg, 1970;57:356-358.
3. Moy RL, Lee A, Zalka A. Commonly used suture materials in skin surgery. Am Fam Physician, 1991;44:2123-2128.
4. Imamoglu M, Cay A, Sarihan H, Ahmetoglu A, Ozdemir O. Paravesical abscess after inguinal hernia repair. J Urol, 2004;171:1268-1270.
5. Lim JW, Tang CL, Keng GH. False positive F-18 fluorodeoxyglucose combined PET/CT scans from suture granuloma and chronic inflammation: report of two cases and review of literature. Ann Acad Med Singapore, 2005;34:457-460.

İletişim:

Dr. Nurten Turhan-Haktanır
Kocatepe Üniversitesi Tıp Fakültesi
03120 Afyonkarahisar, Türkiye
Telefon: +902722130116 / 2028
Fax: +902722133066
e-mail: nurth70@yahoo.com

Bu makale 20-23 Eylül 2006 tarihleri arasında Sheraton Otel-Ankara'da yapılan 28. Türk Plastik, Rekonstrüktif ve Estetik Cerrahi Ulusal Kongresinde poster olarak sunulmuştur.