Intramuscular Hemangioma Mimicking Myofascial Pain Syndrome: A Case Report

Intramuscular hemangioma, an infrequent but important cause of musculoskeletal pain, is often difficult to establish the diagnosis clinically. This report describes a case of a 32-yr-old woman who presented with severe left calf pain for 10 yr. Initial conservative treatments consisting of intramuscular electrical stimulation, herb medication, acupuncture, and intramuscular lidocaine injection under the diagnosis of myofascial pain syndrome in other facilities, failed to alleviate the symptoms. On physical examination, there was no motor weakness or sensory change. Conventional radiography of the leg revealed a soft tissue phlebolith. Conventional angiography study showed hemangioma. Intramuscular hemangioma within the soleus muscle was confirmed by magnetic resonance imaging. Following surgical excision of the hemangioma, the patient’s symptom resolved completely. Intramuscular hemangioma is a rare cause of calf pain and should be considered in the differential diagnosis if a patient with muscle pain, particularly if associated with a soft tissue mass, fails to respond to conservative treatment.

Key Words: Hemangioma; Intramuscular; Calf; Pain; Myofacial Pain Syndrome

INTRODUCTION

Calf pain is a common problem in the clinical field and is caused by many various conditions. Soft-tissue etiologies include rupture of the gastrocnemius muscle, muscle strain, and myofascial pain syndrome (MPS) of calf muscles, which are all relatively easy to establish the diagnosis and usually resolve with appropriate treatment (1, 2). Among these, the common cause of calf pain in clinical practice is MPS of gastrocnemius and/or soleus muscles (3, 4).

More serious causes are acute or chronic osteomyelitis, peripheral arterial diseases, or peripheral venous diseases (3). As a rare etiology, sural nerve entrapment may also cause chronic calf pain (5). It is very important to find the actual cause in order to relieve the patient’s pain and lessen the effort, time, and money consumed in the workup and management of a patient with severe calf pain.

Intramuscular hemangioma, an infrequent but important cause of musculoskeletal pain, is often difficult to diagnose clinically. The following report demonstrates the importance of considering intramuscular hemangioma in the differential diagnosis of calf pain and discusses the use of surgical excision biopsy for its treatment.

CASE REPORT

A 32-yr-old woman with no relevant or significant medical history presented with severe left calf pain that had persisted for the past 10 yr. The symptom was constant and worsened with menstruation, standing or walking for more than 30 min. The pain was relieved by elevating the leg in the sitting position or massaging the calf muscles. The pain was not associated with any progressive neurologic symptoms or signs. She reported that none of the medications she had tried provided any significant pain relief. Intramuscular electrical stimulation for 4 months and repeated muscle injections with lidocaine were also ineffective. Alternative treatments including acupuncture and Korean herbal medications had been tried many times without much success.

The patient’s pain drawing showed a pain pattern limited to the left calf, especially in the medial side, which indicated a referred pain pattern of medial gastrocnemius or soleus muscle (Fig. 1). Physical examination revealed severe tenderness on the medial side of the left calf muscles. Signs of calf swelling were equivocal. Deep tendon reflexes were normal in both sides. Muscle strength of both lower extremities was normal. Sensation in both lower extremities was intact. The straight leg raising test was normal. Conventional radiography of the left leg showed several mottled calcifications within the mus-
Intramuscular Hemangioma

To rule out a possible vascular deformity, femoral angiography was performed and a hemangioma was suggested in the left calf (Fig. 2B). Magnetic resonance imaging (MRI) of the left lower extremity was performed for further evaluation of these abnormalities and showed an enhancing soft-tissue mass in the medial aspect of the soleus muscle (Fig. 2C, D).

The patient was referred to an orthopedic surgeon and underwent excisional biopsy. Operative findings revealed a mass consisting of several irregular fragments of muscular soft tissue, measuring $6 \times 6 \times 4$ cm. The final pathologic diagnosis was intramuscular hemangioma with fatty overgrowth isolated to the soleus muscle, which was in concordance with the MRI findings (Fig. 3). Within 1 month, the patient reported 90% pain relief and had discontinued all pain medications. Even with prolonged walking of more than 30 min, calf pain did not occur and the subject was able to resume mountain hiking 3 months following the operation.

**DISCUSSION**

Hemangiomas comprise 7% of all benign tumors (6), and are most commonly superficial and easy to establish the diagnosis clinically. However, deep-seated hemangiomas such as intramuscular hemangiomas are relatively uncommon (6, 7), and often pose diagnostic difficulties (8, 9). Age of occurrence of intramuscular hemangioma is most common in the third and forth decades, but occasionally may present earlier (10, 11). Although intramuscular hemangioma have a wide anatomical distribution, it most commonly occurs in the extremities, and all patients present with a growing palpable mass, which may or may not be accompanied by pain or may pre-
sent as pain without a mass (10, 12-15).

For the diagnosis of intramuscular hemangioma, plain radiographs, MRI, angiography, and positron emission tomography (PET) may be helpful. Plain radiographs show phleboliths, particularly phleboliths associated with a soft-tissue mass and cortical or periosteal reaction adjacent to a soft-tissue hemangioma (16). MRI is useful in defining the extent and size of intramuscular hemangiomas and is now routinely used to characterize intramuscular hemangiomas (10). Angiography of a peripheral hemangioma is especially useful for evaluating the extent and degree of vascularity, and vascular supply (17). 18F-fluoro-2-deoxy-D-glucose (FDG)-PET and fluorine-18 alpha-methyltryosine (FMT)-PET may also be useful in the diagnostic workup of hemangioma as well as for differentiation from malignancy (11). Intramuscular hemangiomas that are well localized within a single muscle group, contain thromboses, or are located in specialized muscle groups (such as the intrinsic muscles of the hand), and those causing neurologic impairment or compression syndrome, require surgical excision (18). Although local recurrence is reported to be over 50%, it has no correlation with metastasis, which is possible in cases of incomplete excision (6, 19).

In our case, it took 10 yr to establish the correct diagnosis of the intramuscular hemangioma. Pain drawing was suggestive of the pattern of MPS in medial gastrocnemius or soleus muscle. Physical examination revealed severe tenderness in the calf, but no palpable mass. Such vague symptoms and signs lead to the misdiagnosis of MPS and inappropriate treatments by many health care providers. However, upon our diagnosis of a well-circumscribed intramuscular hemangioma within the soleus muscle, local excision was successful in obliterating the patient’s symptoms and signs.

In conclusion, this case demonstrates that when a patient presents with a painful soft tissue mass of the leg, severe intractable calf pain, or when muscle pain fails to respond to conservative treatment, intramuscular hemangioma or other soft tissue tumors should be included in the differential diagnosis. The appropriate imaging and consultations should be performed, in order to arrive at the correct diagnosis and management, accordingly.

REFERENCES

1. Prateepavanich P, Kupniratsakul V, Chaorassak T. The relationship between myofascial trigger points of gastrocnemius muscle and nocturnal calf cramps. J Med Assoc Thai 1999; 82: 541-9.
2. Travell JG, Simons DG. Myofascial pain and dysfunction Volum 2, first edition. Baltimore: Williams & Wilkins, 1992.
3. Bonica JJ, Sola AE. Other painful disorders of the lower limbs. In: Bonica JJ, editor. The management of pain, second edition. Malvern: Lea & Febiger 1990: 1621-34.
4. Walsh NE, Dumitruc D, Schoenfeld LS, Ramamurthy S. Treatment of the patient with chronic pain. In: Delisa JA editor. Physical Medicine and Rehabilitation: Principles and practice. 4th ed. Philadelphia: Lippincott Williams & Wilkins 2005; 493-529.
5. Fabre T, Montero C, Gaujard E, Gervais-Dellion F, Durandeau A. Chronic calf pain in athletes due to sural nerve entrapment. A report of 18 cases. Am J Sports Med 2000; 28: 679-82.
6. Enzinger FM, Weiss SW. Benign tumors and tumorlike lesions of blood vessels. In: Enzinger FM, Weiss SW, eds. Soft tissue tumors. third ed. St Louis: Mosby 1995; 579-626.
7. Engelstad BL, Gilula LA, Kyriakos M. Musculo-skeletal haemangiommas: radiologic and pathologic features. Skeletal Radiol 1980; 5: 35-40.
8. Greenspan A, McGahan J, Vogelsang P, Szabo RM. Imaging strategies in the evaluation of soft tissue hemangiomas of the extremities: correlation of the findings of plain radiography, angiography, CT, MRI, and ultrasonography in 12 histologically proven cases. Skeletal Radiol 1992; 21: 11-8.
9. Hawnaur JM, Whitehouse RW, Jenkins JP, Isherwood I. Musculo-skeletal haemangiommas: comparison of MRI with CT. Skeletal Radiol 1990; 19: 251-8.
10. Kim EY, Ahn JM, Yoon HK, Suh YL, Do YS, Kim SH, Choo SW, Shoo IW, Kim SM, Kang HS. Intramuscular vascular malformations of an extremity: findings on MR imaging and pathologic correlation. Skeletal Radiol 1999; 28: 515-21.
11. Hatayama K, Watanabe H, Ahmed AR, Yangawa T, Shinozaki T, Oriuchi N, Aoki J, Takeuchi K, Endo K, Takagishi K. Evaluation of hemangioma by positron emission tomography: role in a multimodality approach. J Comput Assist Tomogr 2003; 27: 70-7.
12. Jones KG. Cavernous hemangioma of striated muscle. J Bone Joint Surg Am 1935; 33: 717-28.
13. Conners JJ, Khan G. Hemangiomas of striated muscle. South Med J 1977; 70: 1423-4.
14. Kim SH, Shin HH, Rho BK, Lee ES, Back SH. A case of intramuscular hemangioma presenting with large-angle hypertropia. Korean J Ophthalmol 2006; 20: 195-8.
15. Wu JL, Wu CC, Wang SJ, Chen YJ, Huang GS, Wu SS. Imaging strategies in intramuscular haemangiommas: an analysis of 20 cases. Int Orthop 2006; 30: [Epub ahead of print].
16. Sung MS, Kang HS, Lee HG. Regional bone changes in deep soft tissue hemangioma: radiographic and MR features. Skeletal Radiol 1998; 27: 205-10.
17. Levin DC, Gordon DH, McSweeney J. Arteriography of peripheral hemangiomas. Radiology 1976; 110: 625-30.
18. Hein KD, Mulliken JB, Kozakewich HP, Upton J, Burrows PE. Venous malformations fo skeletal muscle. Plast Reconstr Surg 2002; 110: 1625-35.
19. Beham A, Fletcher CD. Intramuscular angiomia: a clinicopathological analysis of 74 cases. Histopathology 1991; 18: 53-9.