ASYMPTOMATIC ACCESSORY SOLEUS MUSCLE WITH DUAL INSERTION A CASE REPORT

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SUMMARY

Although accessory soleus muscle is a very rare condition, it has been well described. Even though it could be symptomatic, approximately one fourth of the patients are asymptomatic. In the literature, debate has been focused "why symptomatic". In this report, we have presented a case of asymptomatic accessory soleus muscle with dual insertion and discussed "why asymptomatic". We hypothesized the effects of newly described plantar insertion on the pain producing mechanism.

Key Words: *Accessory Soleus Muscle, Anatomic Variation, Compartment Syndrome.*

ÖZET

ÇİFT İNSERSİYOLU ASEMPTOMATİK SOLEUS KASI (OLGU SUNUMU)

Aksesuar soleus kası çok nadir görülen bir durum olmasına karşılık, kaynak kitaplara girmiş anatomik bir varyasyondur. Semtomatik olabilecği gibi olguların yaklaşık dörtte birinde semptom yaratmaz. Literatürde daha çok neden semptomatik olduğu tartışılmıştır. Bu sunumda, çift insersiyosu bulunan ve semptomu olmayan bir aksesuar soleus olgusunda neden semptomun olmadığı tartışıldı. Yeni tanımladığımız ve plantar bölgeye uzanan insersiyonun ağrı yaratma mekanizması üzerine etkisi irdelendi.

Anahtar Kelimeler: *Aksesuar Soleus Kası, Anatomik Varyasyon, Kompartman Sendromu.*

INTRODUCTION

The presence of accessory soleus muscle has been described early in the 19th century[1-2], it preserves the currency because of the mimicking potential of the soft tissue tumors. The most common reported symptom is pain which is exacerbated with activity level[3]. None of the reported patients have pain during resting[4]. About twenty five percent of the cases are asymptomatic and they complain only for a mass at the posteromedial side of the ankle[5].

CASE REPORT

A 23-year-old male admitted with a 3-year of history of swelling at his ankle with no pain. Physical examination revealed a subcutaneous mass of 6x3 cm, at the posteromedial side of the left ankle (Fig. 1). This mass got firm with dorsiflexion and disappeared with plantar flexion of the ankle. When the extension of the toes were combined with the dorsiflexion of the ankle, the mass became firmer (Figure 2). When toes were flexed, with the ankle was in the same position, the tension of the mass decreased. The ankle and foot were otherwise normal.

Fig. 1. The mass of the posterolateral side of the left ankle.

Plain radiographs showed a soft tissue mass filling that region. MRI (magnetic resonance imaging) revealed an accessory soleus muscle originating

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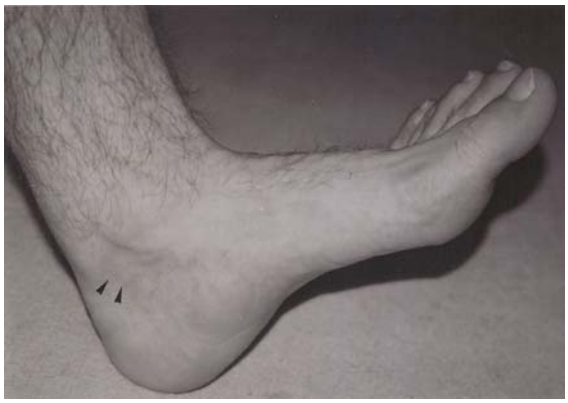

Fig. 2. Active extension of the ankle. The mass become firmer with this motion. Second bundle become palpable with this motion (arrow heads).

from the soleus proper, and extending distally. At the level of the ankle joint, the muscle divided into bundles, one inserting to the posteromedial aspect of the calcaneus and, the other extending to the plantar aspect of the calcaneus and inserting to the soft tissue on the sole of the foot. Insertion of the both bundles were identical to muscle structures on MRI (Figure 3a).

Fig. 3a. Insertion of the second bundle to the soft tissues structures on the sole of the foot (arrow).

DISCUSSION

In the most of previously published cases had shown that the mass became firmer with plantar flexion of the ankle. In contrast, in this case the mass became firmer with dorsiflexion and disappeared with plantar flexion of the ankle. The accessory muscle reached to maximum tension, when extension of the toes combined (Figure 3b). Because of this distinct clinical finding, we examined the detailed anatomy by MRI and observed a variation with double muscular slip at the insertion point of the muscle. Review of the literature revealed no detailed description of dual insertion of accessory soleus muscle and its relation to the toe movements. As demonstrated by MRI in this case (Figure 3b) the second insertion of accessory soleus muscle is to the plantar structures and maximum tension can be achieved only the extension of the toes are combined with dorsiflexion of the ankle.

Fig. 3b. Dual insertion of the accessory soleus muscle; second bundle extending (arrow head), insertion to calcaneus (asterix).

Although precise cause of the pain is not clear, it has been postulated that postexercise swelling of the engorged muscle inside the fascial sheath might be the pain-producing mechanism, like a compartment syndrome[3,5-7]. On the other hand it is not yet explained why some patients experience pain, while the others are asymptomatic. Though the pain producing mechanism is not clear, the most acceptable theory is the vascular one. According to vascular theory, excessive muscle contraction produce high pressure in the fascial sheath and like a compartment syndrome, high pressure triggers ischemia and pain[3,5,6]. In our case, the symptoms of the compartment syndrome are observed only after repeated simultaneous extension of ankle and toes. For this kind of activity has no place or little place in daily activities or even in sports, as the patient is asymptomatic.

As a result we suggest that, dual insertion of the accessory soleus muscle may explain why the some of the patients are asymptomatic and dual insertion may prevent compartment syndrome like symptoms. MRI examination of such cases should be extended to the sole of the foot, in order to predict whether the mass will be symptomatic or not.

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