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대둔근에 발생한 근육 내 신경초종
- 증례 보고 -

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— Abstract —

Intramuscular Schwannoma Arising from the Gluteus Maximus Muscle
- A Case Report -

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Intramuscular schwannomma is unusual and rare cases were reported in the literature in the gluteus maximus muscle. We present a case of an intramuscular schwannoma arising from the gluteus maximus muscle in a sixty-five-year-old woman. An oval in shape and well encapsulated tumor was found embedded with the gluteus maximus muscle, and then the lesion was excised surgically. Two years following excision of the lesion, the patient remained asymptomatic, with no evidence of local recurrence.

Key Words: Intramuscular schwannoma, Gluteus maximus

A Schwannoma is a benign tumor of the nerve sheath which arises from Schwann cells. Schwannomas most frequently involve the head and neck area, and the major nerve trunks. They usually appear on the flexor aspects of the limbs, especially near the elbow, wrist and knee. Consequently, the spinal roots and the cervical plexus, the vagus, peroneal and ulnar nerves are most commonly affected[1]. Schwannomas occur at all ages but most commonly between the ages of 20 and 50 years and represent approximately 5% of benign soft-tissue tumor[2]. Clinically, most lesions are solitary and present as a slowly growing painless soft-tissue mass with occasional neurological symptoms such as altered sensation or motor weakness. Schwannomas may occur in the subcutaneous, intramuscular, intermuscular, or intraosseous planes[3]. When they occur in the

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intramuscular plane the clinical features may differ from those in other planes, because they arise only from motor branches. Intramuscular schwannomma is unusual and rare cases were reported in the literature in the gluteus maximus muscle[3,4].

We present a case of an intramuscular schwannoma arising from the gluteus maximus muscle in a sixty-five-year-old woman.

CASE REPORT

A sixty-five-year-old woman presented to us with two months history of palpable mass in the right buttock. She had noticed a intermittent radicular pain in the posterior aspect from thigh to lower leg at squatting or sitting position. No complaint in active daily living and other activities.

On physical examination, she displayed approximately 2 cm × 2 cm movable soft tissue mass without tenderness in the right buttock. She had no motor weakness, Tinel-like sign and sensory disturbance. Radiographic evaluations, including lumbar spine and pelvis were unremarkable. On magnetic resonance image, 1.8 cm × 1.9 cm × 2.4 cm sized tumor was located in the gluteus maximus muscle, with low signals intensity in T1-weighted images (Fig. 1A, B) and high signal intensity in the T2-weighted image (Fig. 2). Post-contrast image showed partially enhancement (Fig. 3). A clinical history and imaging findings were consistent with intramuscular schwannoma.

Surgery was performed through a direct

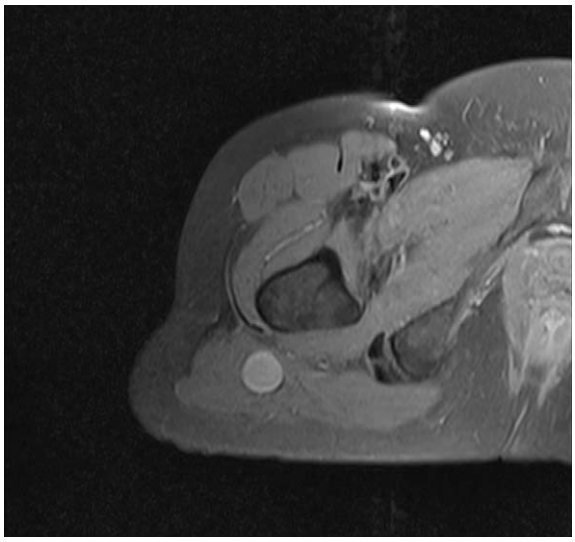

Fig. 2. Axial T2-weighted magnetic resonance image shows high signal intensity with peripheral rim in the gluteus maximus muscle.

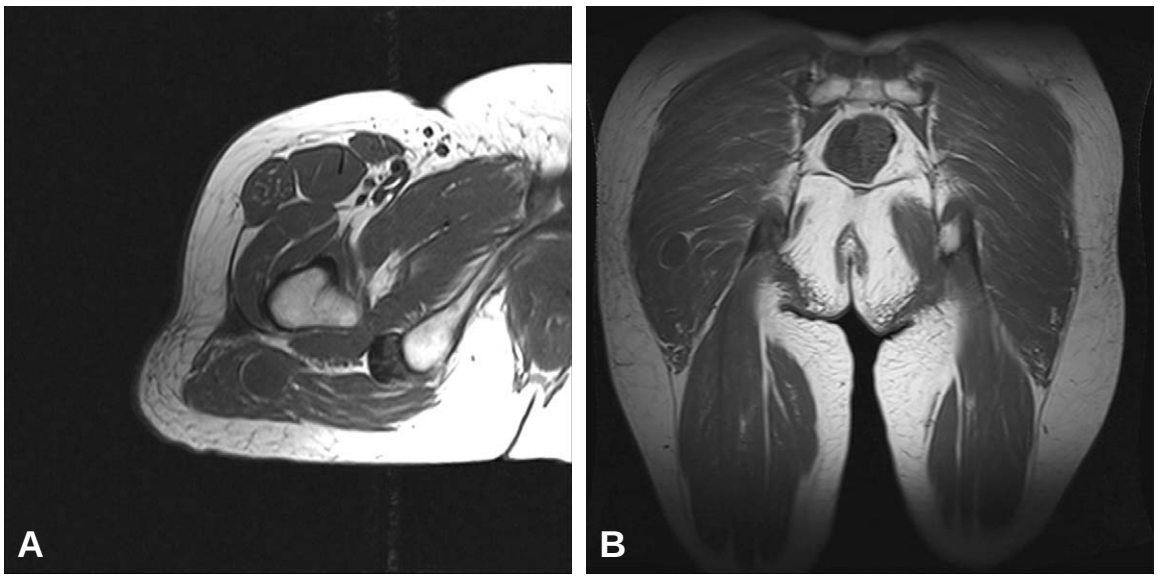

Fig. 1. (A, B) Axial and coronal T1-weighted magnetic resonance images show a well-circumscribed round mass with low signal intensity in the gluteus maximus muscle.

approach. An oval in shape measuring 2.5 cm × 1.8 cm × 1.6 cm and well encapsulated tumor was found embedded with the gluteus maximus muscle. Its origin was unclear and the lesion was excised surgically. After surgery, presenting symptoms disappeared. Histopathologic examination revealed intramuscular schwannoma (Fig. 4, 5). Two years following excision of the lesion, the patient remained asymptomatic, with no evidence of local recurrence.

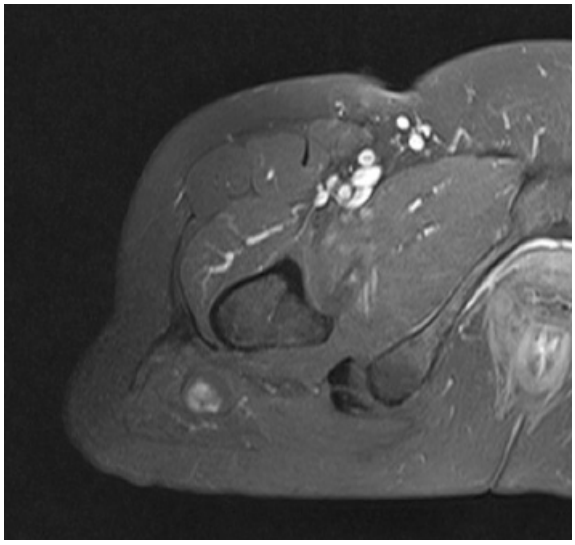

Fig. 3. Axial T1-weighted enhanced magnetic resonance image shows partially enhancement at central and posterolateral aspect of the tumor in the gluteus maximus muscle.

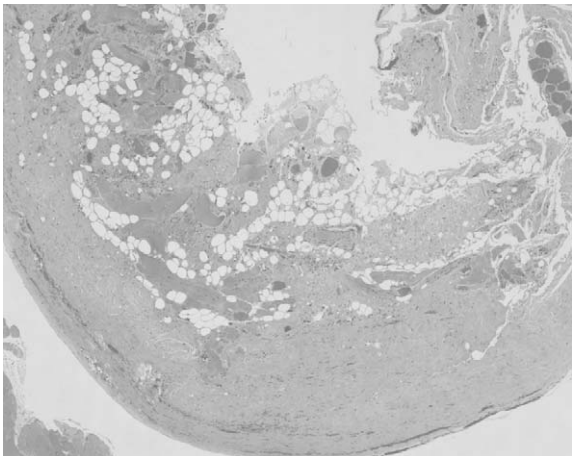

Fig. 4. Photomicrograph (hematoxylin and eosin stain; original magnification, x40) shows more cellular Antoni-A regions centrally and more myxoid Antoni-B areas peripherally.

DISCUSSION

Schwannomas are benign tumors that arise from nerve sheath cells but rarely from with muscle tissues. The clinical features of the intramuscular schwannoma were quite different from those of schwannoma occurring in other planes. Intramuscular schwannomas seldom produce symptoms such as pain at rest, tenderness, the Tinel-like sign, sensory disturbance, and motor weakness, because they usually consist of a few bundles of motor nerve fibers. Muscle weakness may be negligible since the muscle usually has many motor branches[3]. In the patient described in this article, the specific clinical symptoms were absent, although she experienced mild tingling sensation at squatting or sitting position.

On magnetic resonance(MR) images of schwannomas, the frequencies of characteristic findings such as the split-fat sign (fat tissue surrounding the involved nerve), entering and exiting nerve, low-signal margin (low-signal rim surrounding the schwannoma), thin hyperintense rim (thin, peripheral hyperintense rim on T2-weighted images), and the target sign (peripheral hyperintense rim and central low intensity on T2-weighted images) have been reported[4,5]. Identification of the entering and exiting nerve

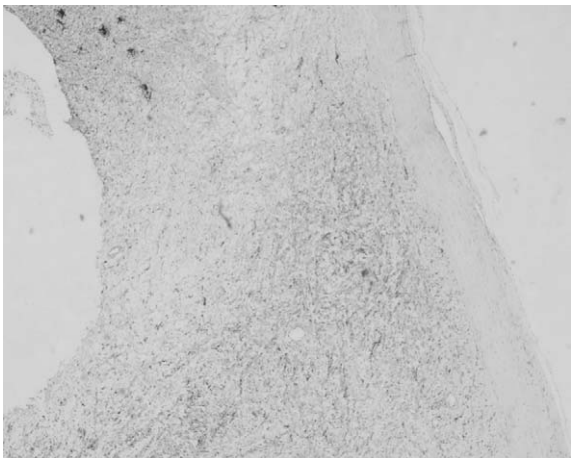

Fig. 5. Immunohistochemical stain (original magnification, x100) shows that the tumor cells have reactivity for S-100 protein.

is the most useful finding for the diagnosis of a neural tumor[5,6]. These findings such as the split-fat sign and low-signal margin denote the presence of the nerve and are more easily detectable in major nerves than in small nerves. On the other hand, the target sign and thin hyperintense rim represent characteristic findings of the tumor itself rather than of the nerve[4]. In intramuscular schwannomas, these characteristic findings are less common, which make diagnosis difficult.

Macroscopically, a schwannoma is a shiny and grayish smooth ovoid mass and is surrounded by a true capsule consisting of the epineurium, since it occurs within the nerve sheath. Because the diagnosis of a schwannoma can be easily defined at the time of surgery by its characteristic macroscopic appearance, a incisional biopsy can be prevented if the preoperative diagnosis is a schwannoma. To confirm the diagnosis, histopathological examination is usually necessary.

Microscopically, the tumor contains varying proportions of two distinctive tissues, Antoni-A and Antoni-B. Antoni-A tissue comprises compact spindle cells with indistinct cell boundaries and buckled or wavy nuclei. The cells are arranged in sheets or bundles and mitoses are sparse but normal. There are areas where nuclei are arranged in parallel rows termed 'nuclear palisading'. Verocay bodies, in which two rows of palisading nuclei are separated by pink fibrillary material, are common. Antoni-B tissue is less cellular and lacks distinctive architectural features. The matrix is more delicate and contains sparse collagen, numerous blood vessels and a mixture of spindle and oval cells. Foci of inflammatory cells including histocytes may be present[7]. Immunohistochemical staining can further support the diagnosis, as benign schwannomas stain characteristically with immunoperoxidase techniques for S-100 protein, which represents a neural protein within the Schwann cell. This can also help distinguish between schwannomas and neurofibromas, since the latter react poorly to S-100 protein staining, due to their perineural origin[8]. Histologically, the central hypercellular Antoni-A area and the peripheral hypocellular Antoni-B area were found, and S-100 protein was positive in our case.

Surgical excision of the tumor is curative and provides immediate and permanent relief of symptoms. However, there have been several reports of a significant incidence of neurological complications such as new or worsening pain and motor weakness after excision of a schwannoma[5,9,10]. Usually, there are several motor branches to a muscle, and the resection of one branch may not cause weakness. In our patient, surgical excision was performed and she was symptom free and displayed no clinical or radiographic evidence of recurrence of the tumor after 24 months of postoperative follow-up.

Intramuscular schwannoma arising from the gluteus maximus muscle is relatively rare. In intramuscular schwannoma, the characteristic clinical findings such as pain at rest, tenderness, the Tinel-like sign, sensory disturbance, and motor weakness are less common, which make diagnosis difficult. A detailed clinical history, physical examination and magnetic resonance imaging with a high index suspicion can allow for a presumptive diagnosis to be made. Adequate surgical excision of the tumor lesion is curative, providing immediate and permanent remission of symptoms without neurologic complication.

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