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Spindle Cell Lipoma of the Posterior Axilla:
A Case Report[1]

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Spindle cell lipoma is characterized by different cell components, mature adiopocytes, spindle cells and collagen bundles, and it presents as a well-defined benign fatty mass on the posterior neck or upper back of middle aged men. As a result of the various ratios of non-adipose tissue, it is difficult to differentiate spindle cell lipoma from liposarcoma. To the best of our knowledge, the imaging features of spindle cell lipoma have not been reported in Korea. We report here on the imaging findings of a histologically confirmed spindle cell lipoma in the subcutaneous layer of the posterior axilla.

Index words : Lipoma
Neoplasms
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Ultrasonography
Magnetic resonace (MR)
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Spindle cell lipoma is a benign lipomatous lesion, and it was first introduced by Enzinger and Harvey (1). The three principal components of spindle cell lipoma are mature adipocytes, small, undifferentiated spindle cells and short bundles of brightly eosinophilic collagen that are associated with the spindle cells. The relative proportion of these three elements within a given lesion varies quite markedly, with the spindle cell areas accounting for anytwhere from 1% to 90% of the examined surface area. The imaging findings of this spindle cell lipoma are also variable according to the proportion of the non-adipose components (2). This non-adipose component within a spindle cell lipoma can make it challenging to differentiate lipoma or other benign lipomatous lesions from liposarcoma (3, 4). We report here on a case of spindle cell lipoma of the posterior axilla and we discuss what findings could be helpful to differentiate it from liposarcoma. We also review the relevant literature.

Case Report

A 71-year-old man presented with an incidentally detected painless mass in the posterior axilla, and he had been aware of this lesion for the previous one month. He complained that the mass seemed to be growing. His past medical history was unremarkable. Physical examination demonstrated a well circumscribed palpable mass the size of an adult fist without overlying skin discoloration. Initial MRI for the soft tissue tumor work-up

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demonstrated a 7 cm sized, well-defined fatty mass in the subcutaneous layer of the right posterior axilla and it indented the triceps and latisimus dorsi muscle (Fig. 1A - 1C). The superficial portion of this fatty mass showed elongated tubular-shaped non-adipose tissue that had iso-signal intensity compared to that of muscles on the T1-weighted images; bright high signal intensity was seen on the fat-suppressed T2-weighted images and it showed intense, homogeneous enhancement similar to that of vessels. Linear or septum-like signals traversed the fatty portion that composed most of the mass and the fatty portion also showed linear or patchy enhancement. Any other findings of central necrosis or cystic degeneration and dystrophic calcifications were not noted. Based on the non-adipose component, the mass was thought to be a liposarcoma or an unusual lipoma variant rather than lipoma. When considering that most liposarcomas occur in deep soft tissue and they have a less intense, irregular enhancing component, the diagnosis of a lipoma variant would be the first choice for

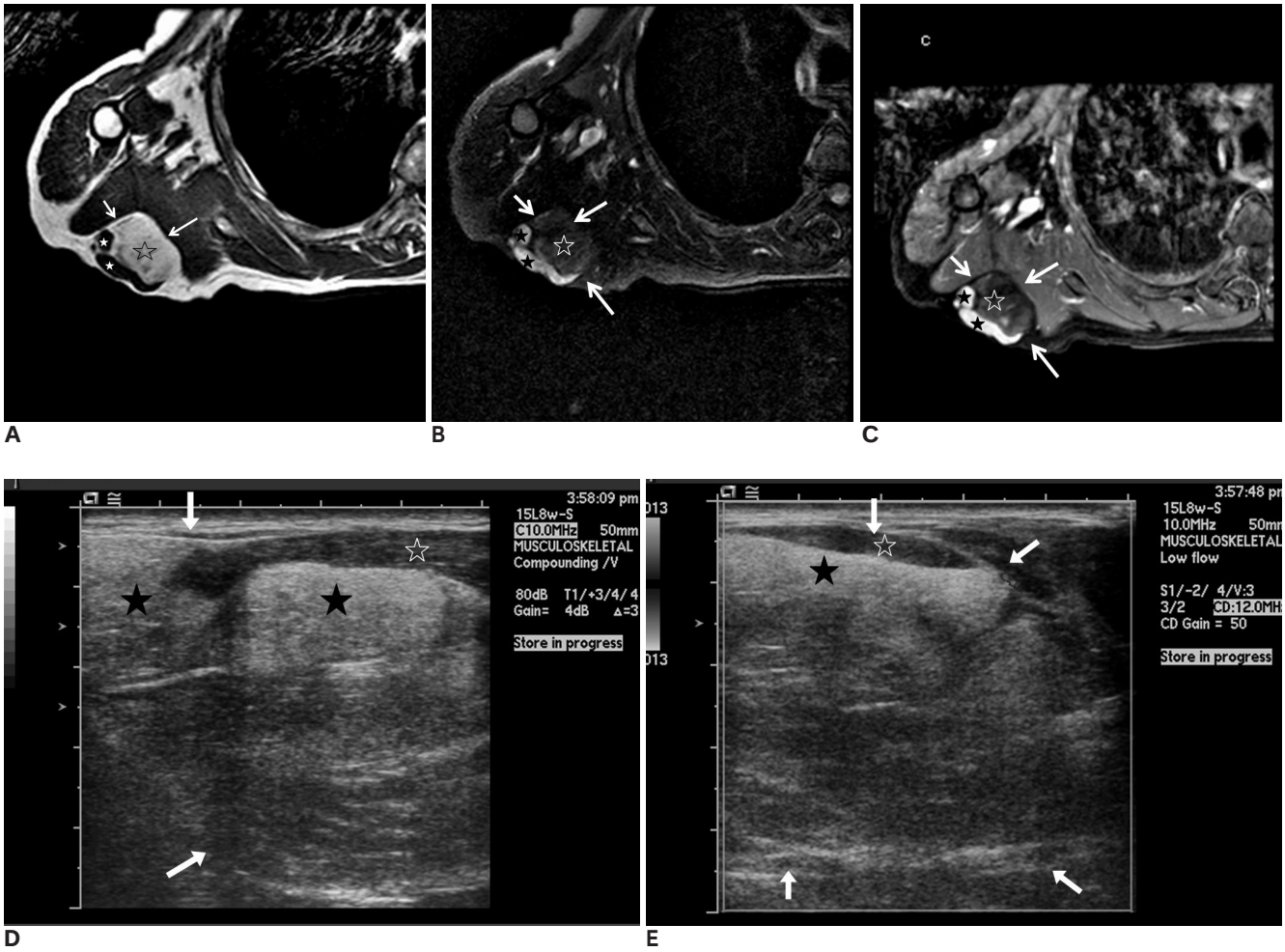


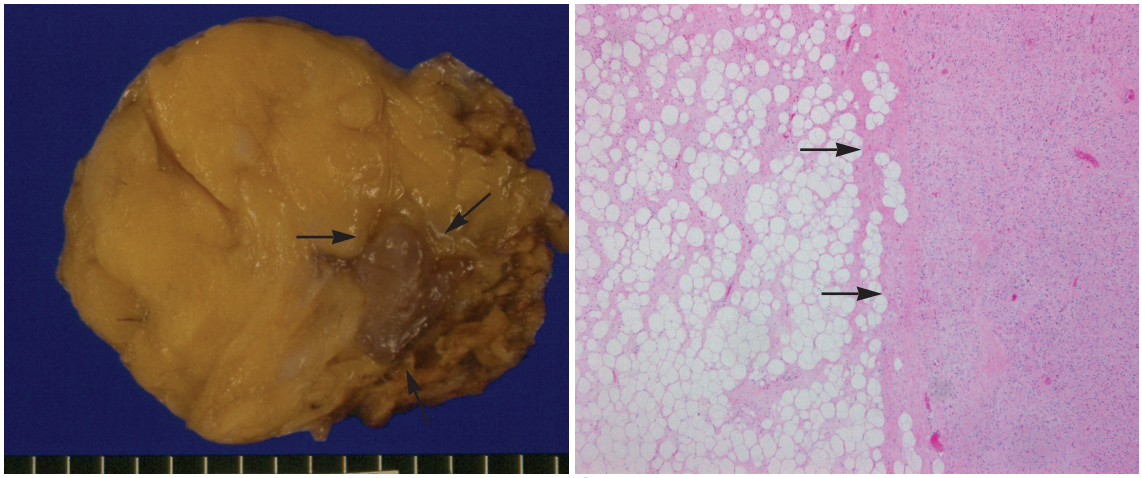
Fig. 1. Spindle cell lipoma of the posterior axilla in a 71-year-old man.

A. An axial T1 weighted spin echo image shows a well-defined fatty mass (arrows) at the posterior aspect of the right axilla. Most of the fatty lesion (black asterisk) has iso-signal intensity comparable to subcutaneous fat and the non-adipose component (small white asterisks) has iso-signal intensity comparable to the adjacent muscle.

B. An axial fat-suppressed T2 weighted fast spin echo image shows that the lipomatous component (white asterisk) has low signal intensity and the non-adipose component (small black asterisks) has high signal intensity.

C. An axial fat suppressed T1-weighted spin echo 500/12 (repetition time msec/echo time msec) image with gadolinium enhancement shows homogeneous, intense enhancement of the non-adipose component (small black asterisks).

D, E. The ultrasonography shows a well defined complex echoic mass (white arrows) with a low level solid mass area (white asterisks) and an echogenic fatty area (black asterisks), and the mass was located in the subcutaneous layer, superficial to the triceps and latisimus dorsi muscles. Clear, sharp demarcation was noted between the non-adipose component with a superficial location and the adipose component with a deep location. The deeper portion of the fatty area showed more decreased echogenicity compared to the bright high echoic portion (black asterisks) in the superficial fatty portion.



F G

Fig. 1. F. The gross specimen showed a yellowish lipomatous tumor containing an eccentric nodular portion (black arrows) with a sharply defined border.
G. The microscopic findings, including the transition zones, showed different features depending on the relative amounts of mature fat and spindle cells (hematoxylin-eosin, ×40). The more cellular zone on the left side of the photomicrographs showed densely arranged spindle cells and it also showed diffuse, strong immunoreactivity for CD34 (not shown here). The cellular portion had prominent vascular channels containing the blood cells. The adjacent, less cellular zone showed sparse spindle cells dispersed within mature adipocytes.

the diagnosis. Ultrasonography showed sharper demarcation of this fatty mass from the adjacent normal subcutaneous fatty layer and there was also an eccentrically located low echoic solid non-adipose component (Fig. 1D). The remained fatty component showed various degrees of increased echogenicity compared to that of the surrounding subcutaneous fat. There was sharp demarcation between the adipose and non-adipose components similar to that seen on MRI. Surgical exploration revealed a well-circumscribed yellowish mass with eccentric brownish nodular foci (Fig. 1E). The microscopic findings confirmed it was a spindle cell lipoma that consisted of spindle cells, collagen fibers and lipocytes (Fig. 1F). In addition, immunohistochemical study showed positive staining for CD 34. There were no lipoblasts or any mitotic activity within the specimen.

Discussion

Spindle cell lipoma is a rare benign musculoskeletal lipomatous lesion among nine different lipomatous lesions, as classified by the World Health Organization's Committee for the Classification of Soft Tissue Tumors in 2002 (5). The incidence of spindle cell lipoma has been reported to be about 1.5% of all the 2,478 primary tumors of adipose tissue reported on over a 25 year period (6). Clinicopathologic studies have described spindle cell lipomas as relatively common, yet they are perceived as rare by contemporary radiologists because lipomas are often excised without imaging. The lesion occurs in a characteristic clinical setting, arising almost always in men 45 - 65 years of age in the subcutaneous tissue of the posterior neck, shoulder and back (4). Because of the non-adipose component of spindle cell lipoma, it is very difficult to distinguish spindle cell lipoma from liposarcoma. The various imaging findings and the slow-growing nature associated with the amount of the non-adipose component may lead to misinterpreting this tumor as liposarcoma and over-treating it. So, the generally accepted principles should be kept in mind when considering the diagnosis of liposarcoma. Most liposarcomas occur in deep soft tissue, in contrast to lipomas, which occur in superficial soft tissue. This implies that subcutaneous well-differentiated liposarcomas are rare and that the diagnosis should be made only after the more common mimics (e.g., spindle cell lipoma, pleomorphic lipoma, chondroid lipoma and angiolipoma) are excluded from the differential diagnosis. On the other hand, when true liposarcomas develop in superficial tissues, they have an excellent prognosis because of their limited morbidity and they lack any significant potential for dedifferentiation. Despite its cellularity, spindle cell lipoma is a slow-growing, solitary painless mass that is readily cured by local excision and there is usually no local recurrence or distant metastasis. Spindle cell lipomas vary in appearance depending on the relative

amounts of mature fat and spindle cells. Immunohistochemically, the spindle cells strongly stain for vimentin. Immunostaining for S-100 protein does not mark spindle cells, but mature lipocytes show strong peripheral immunoreactivity for this antigen. Almost all tumors are strongly positive for CD34. In some cases, scattered multinucleated floret-like giant cells, typical of those found in pleomorphic lipomas, are present and this supports the concept of a histologic spectrum between these tumors. The vascular pattern of spindle cell lipoma is usually inconspicuous, although some tumors have a prominent plexiform vascular pattern, similar to that of myxoid liposarcoma, and a hemangiopericytoma-like vascular pattern or a pseudoangiomatous variant has also been described. This prominent vascularity most likely accounts for the intense enhancement in the nonadipose components of the spindle cell lipomas. Pathologically, liposarcoma or spindle cell liposarcoma showed scattered lipoblasts and only rare cells that may stain for CD34.

In our case, the clinical diagnosis was liposarcoma when considering the patient's history of a recent growing mass and its large size. On the MR images, the well-defined fat-containing mass showed an eccentric non-adipose component with homogeneous iso-signal intensity comparable to muscle on the T1-weighted images and high signal intensity on the fat-suppressed T2-weighted images. This non-adipose lesion showed characteristic intense enhancement equal to that of the adjacent vessels on the gadolinium-enhanced MR images. The radiological features and superficial location of this fat-containing mass made it possible for us to exclude liposarcoma. On ultrasonography, the non-adipose component noted on MR showed diffuse low echogenicity and the fatty area on MR showed variably increased echogenicity compared to that of the surrounding subcutaneous fat. Histological examination revealed an eccentric cellular zone composed of only spindle cells. The remained fatty portion noted on the images showed various degrees of spindle cells dispersed in the mature adipocyte background. The ultrasonographic finding of increased echogenicity with a variable degree of the fatty portion may be explained by the relative proportion of spindle cells within an adipose background. There was good radiologic-pathologic correlation of the spindle cell lipoma in our case.

In conclusion, although spindle cell lipoma is a rare benign lipomatous lesion and the imaging findings of spindle cell lipoma are not pathognomonic, the diagnosis of spindle cell lipoma would be strongly suggested when the non-adipose component shows intense diffuse enhancement within a superficially located fat-containing solid mass.

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견관절의 방추 세포형 지방종: 증례 보고[1]

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방추 세포 지방종은 특징적으로 성숙 지방 세포, 방추 세포, 교원 섬유 같은 서로 다른 세포 구성을 가진(구성을 한) 양성 지방 종괴로 중년의 남자에서 후경부나 등의 피하 지방층에 경계가 좋은 종괴로 발현한다. 비지방성 조직의 비율에 따라 다양한 영상 소견을 보이며, 간혹 지방육종과 감별이 어려운 경우도 있다. 방추 세포 지방종의 영상소견은 국내에 보고된 증례가 없어, 조직학적으로 확진된 후액와부의 피하 지방층에 생긴 방추 세포 지방종의 영상 소견을 보고하고자 한다.