Ultrasonographic and MR Findings of Cysticercosis in Soft Tissue : A Case Report

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We describe an unusual case of cysticercosis in soft tissue. On US, a well-defined oval shaped cystic lesion with an inner central hyperechoic portion was noted. This portion showed high signal intensity on T1-weighted images and equivocal enhancement. On MRI, other portions of the lesion showed their cystic nature. Pathologic examination confirmed the presence of cysticercosis and, in particular, the central portion was found to be a mural nodule with scolex. Cysticercosis in the soft tissue and musculature of patients from endemic areas should thus be considered in the differential diagnosis of an incidental mass, especially when this is cystic and has an inner central nodule.

Index words : Soft tissues, MR Soft tissues, infection Soft tissues, US Parasites

In 60% to 90% of cysticercosis patients, the central nervous and neurogenic system is mainly affected(1). Cysticercosis in soft tissue has, however, been reported only in a calcified nodule after infection. We report a case of cysticercosis occurring in the first web space of the left hand as a cystic lesion, and revealed by ultrasound (US) and magnetic resonance imaging (MRI).

Case Report

A 23-year-old man complained that for three months, a palpable mass had been present in the first web space of the left hand.

A simple radiograph revealed no definite abnormality in this area(Fig. 1A); there were neither systemic nor neurologic symptoms, and on brain CT scans, abnormalities such as cystic lesions or calcification were not noted.

On US performed with a 7.5 MHz transducer, the mass showed a well-defined oval-shaped cystic lesion, about 0.8 × 1.0 cm in size, and with a thick capsule and inner central hyperechoic portion(Fig. 1B).

On MRI, T1-weighted MR images showed a well-defined oval-shaped mass of low signal intensity and with an inner high signal intensity portion. T2-weighted MR images showed a high signal intensity mass, suggesting a cystic lesion. Enhanced T1-weighted images demonstrated equivocal enhancement in the central portion of the cyst and relatively strong enhancement around it(Fig. 1C, D, E).

The mass was subsequently excised, and an oval, straw-colored, thin-walled cyst was removed from the first web space of the left hand. On pathologic examination cysticercosis was confirmed; a mural nodule was present within a fibrous pseudocapsule(Fig. 1F).

Discussion

Radiographically, cysticercosis in the soft tissue and musculature shows linear or oval elongated calcification. The long axis of the calcified cysts lies in the plane of the surrounding muscle bundles(2).

The relationship between humans and the pork tapeworm, Taenia solium, is twofold. Humans are the
only definitive host of the adult tapeworm, the parasite inhabiting the intestine; although the usual intermediate host is the hog, humans may fulfil this role harboring the larval stage, *Cysticercus cellulosae*. In this latter case, deposits of the larval form of the tapeworm may appear in subcutaneous and muscular tissues and in a variety of viscera, including the heart, brain, lung, liver, and eye. When the larvae die, a foreign body reaction may ensue, leading to hyalinization, mineralization, and calcification(2).

Escobar(3) classified the pathologic manifestations of neurocysticercosis into the following four stages: vesicular, vesicular colloidal, granular nodular, and nodular calcified. During the different stages, patients may have multiple lesions.

Cysticercosis in the soft tissue and musculature is,
however, not classified as neurocysticercosis. This is probably because under these circumstances there are no symptoms, but instead, only a mass effect during the early stage. In addition, cysticercosis in soft tissue and musculature is not visible on radiographs, except as calcification during the late stage. In addition, isolated cysticercus lesions can cause diagnostic problems (4, 5), and a cystic mass such as an epidermoid, ganglion, or synovial cyst in soft tissue should thus be differentiated.

This case was found incidentally, due to the effect of the mass, but on MRI and US this is visible as a lesion that at a later stage is classified as the ‘vesicular colloidal’ or ‘granular nodular’ stage of neurocysticercosis. During the vesicular colloidal stage the larva begins to degenerate; the cystic fluid becomes turbid and its capsule thickens. At this stage, because of humoral and tissue responses to cysticercosis, surrounding edema and enhancement are noted on MRI. The enhancement results from an inflammatory reaction caused by the degenerating larva, which is known to release metabolic products (6, 7, 8). During the granular nodular stage, nodular or micro-ring enhancement is noted, but the scolex is calcified. It is, however, difficult to separate later stage cysts radiologically, since there is no clear dividing line between the vesicular colloidal and granular nodular stage (6). Because microscopic examination showed no calcification of the scolex, however, this case was more likely to be at the vesicular colloidal stage.

In conclusion, cysticercosis in the soft tissue and musculature of patients from endemic areas should be considered in the differential diagnosis of an incidental mass, especially when on US, this shows an anechoic peripheral portion with an inner hyperechoic nodule, and on MRI, a cystic mass with a central nodule and surrounding enhancement.

References
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본 자작권에 관한 동의서는 대한방사선의학회지에 출간될 경우 그 저작권을 대한방사선의학회에 이전할 것을 선언하고자 한다.

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본 논문은 과거에 출판된 적이 없으며 현재 타학술지에 제출되었거나 제출할 계획이 없다.

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[분 야 : ]

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