

Utility of Ultrasonographic Evaluation in Orthopedic Surgery

— A Case of Schwannoma —

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Abstract : A 52-year-old female came to our sonographic laboratory complaining of right leg mass lesion. Sonography showed a 16×12×20mm hypoechoic solid mass lesion in the right leg. The patient underwent surgery in the diagnosis of Schwannoma. Preoperative diagnosis of Schwannoma is difficult by imaging examination showed the origin of Schwannoma. However, the lesion was noted to be in a direct continuity with the cord-like echogenic structure consistent with a nerve by echography. We prefer to conduct preoperative examination by sonography in patients with Schwannoma.

Key words : Schwannoma, ultrasonography

INTRODUCTION

Schwannoma is a well-capsulated essentially benign tumor¹⁾. It is not rare, more than two hundred cases have been reported in Japan. Most of these tumors were large, about 10cm in diameter²⁻³⁾. Symptoms of Schwannoma include pain but are usually non-specific. Characteristic sonographic findings include large size, sharply demarcated contour and hypoechoic mass. Two main histologic patterns of Schwannoma are recognized Antoni type A and B²⁾. Here, we have reported a case of non-invasive diagnosis of a Schwannoma by ultrasonography.

CASE REPORT

A 52-year-old female with right leg mass lesion was referred to our hospital. On physical examination, blood pressure was 130/76mmHg, her pulse was beat 80 per minute. Laboratory examination did not show the abnormal data. The commercially available Toshiba SSA-340A 2-dimentional imaging system and a 8.0-MHz transducer was used in this examination.

Sonography showed a 16 × 12 × 20mm lowechoic

small mass lesion in the right leg of this patient. This lesion was lowechoic mass with homogenous of internal echo. As a further important finding, the lesion was noted to be in a direct continuity with the cord-like echogenic structure consistent with a nerve by echography (Figure 1). Accordingly, preoperative echography demonstrated a Schwannoma in the right psoas muscle in this patient.

The tumor was well-capsulated with the cord-like echogenic structure consistent with a nerve by operation.

Microscopically, the tumor was composed of compactly arranged spindle-shaped cells, and the histologic appearance was consistent with a benign Schwannoma largely composed of Antoni type A (Figure 2).

DISCUSSION

The Schwannoma is a well-capsulated essentially benign tumor¹⁾. Two main histologic patterns of Schwannoma are recognized: Antoni type A, with interlacing bundles of bipolar cells in a palisading

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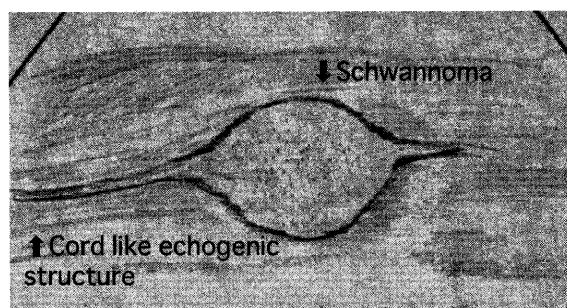
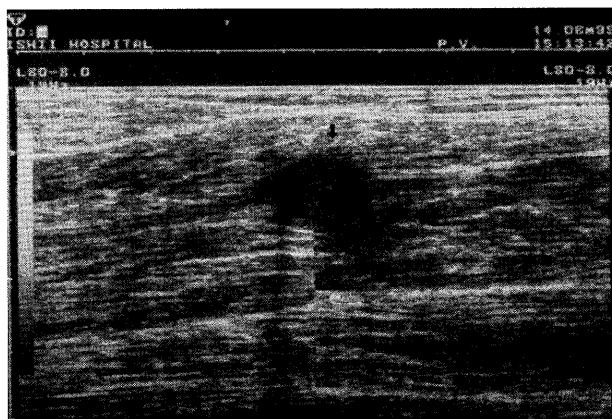


Figure 1

Ultrasonogram showed a $16 \times 12 \times 20$ mm Schwannoma (an arrow) in the right psoas muscle. The Schwannoma was noted to be in a direct continuity with the cord-like echogenic structure consistent with a nerve by echography.

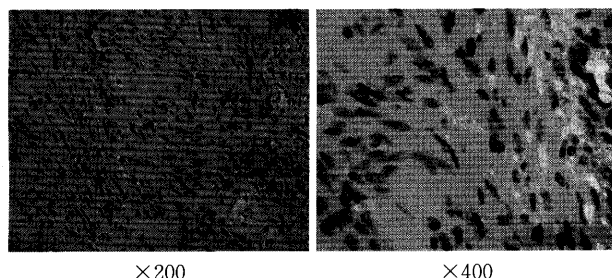


Figure 2

Histologic findings showing Schwannoma of Antoni type A tissue. Hematoxylin-eosin staining, magnification $\times 200$ and $\times 400$.

pattern; and Antoni type B, with loose textured pleomorphic cells²⁾. It may be presumed that the Schwannoma was Antoni type A in this patient. Because ultrasonographic images show a round hypoechoic mass that produced a homogeneous internal echo pattern in this case. The tumor often contains cystic changes, which are one of the hallmarks of Schwannoma¹⁾. Schwannoma usually occur in the head, neck and extremities. However that in the psoas muscle was very rare⁴⁻⁹⁾. A preoperative diagnosis by

ultrasonography seems to be possible with reference to the finding of the head, neck and extremities¹⁰⁾. The pathological spectrum of tumor in the head, neck and extremities is very diverse, and the differential diagnosis includes lipoma, hemangioma, sarcoma and other mass lesions¹⁰⁾. Lipoma and hemangioma are common tumors. Lipomas are well-circumscribed and show increased echogenicity. Hemangiomas show a wide spectrum of echography finding, however, very rarely show central cystic areas. Sarcomas usually appear as ill-demarcated irregular-shaped masses¹⁰⁾. Although the final diagnosis of Schwannoma can be made only by histological analysis, a preoperative diagnosis of Schwannoma is available with echography.

In conclusion, we have reported a case of Schwannoma in the psoas muscle. Preoperative diagnosis of Schwannoma is not easy by clinical examination, computed tomography and magnetic resonance imaging. However, echography gives information about the anatomy and pathology of the Schwannoma in this patient. The lesion was noted to be in a direct continuity with the cord-like echogenic structure consistent with a nerve by echography. This examination enabled us to detect and characterize the Schwannoma.

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整形外科領域における超音波検査の有用性

— 神経鞘腫の一例 —

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要旨：神経鞘腫は神経細胞に発生し、病理学的に Antoni A 及び B 型に分類される腫瘍性病変である。従来、本疾患の診断には CT や MRI などの画像診断が用いられてきた。今回、我々は超音波検査によって診断された神経鞘腫の一例を経験したので報告する。超音波検査は、本病変部と神経繊維の関係を明確に描出し診断価値の高い検査法であった。また、高周波超音波検査プローブは軟部組織に発生する腫瘍性病変に対して詳細な像を得ることができる。このことから、超音波検査は整形外科領域疾患の診断に応用できる可能性の高い検査法であった。

キーワード：神経鞘腫, 超音波検査

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