Axillary Schwannoma Mimicking Lymphadenopathy: Two Different Case Reports

Lenfadenopatiyi Taklit Eden Aksiller Schwannoma: İki Farklı Olgu Sunumu

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ABSTRACT Schwannomas are essentially benign tumors originating from schwann cells of peripheral, cranial or sympathetic nerves. They are not aggressive, encapsulated and grow slowly. Malignant transformation can rarely be seen. Even though they can be localized in any where in the body, cutaneous nerves of the head-neck region and flexor parts of the extremities are most commonly involved. Schwannomas are usually solitary, however multiple schwannomas can rarely be seen in the peripheral nervous system including cranial nerves, spinal nerve roots, brachial-lumbosacral plexus and peripheral nerves. In these two cases, we aimed to report ultrasonography (US), magnetic resonance imaging (MRI) and pathology findings of different axillary schwannomas mimicking lymphadenopathy, and discuss the differential diagnosisin the light of the literature. In these patients, the lesions were noted to be in direct continuity with a cord-like structure resembling a nerve. US and MRI findings were compatible with the literature. Radiologic findings were confirmed by pathologic examination. As seen in our cases, a detailed differential diagnosis should be considered in every axillary lesion including frequently seen axillary lymphadenopathies.

Key Words: Neurilemmoma; ultrasonography; magnetic resonance imaging; nerve sheath neoplasms

ÖZET Schwannomlar periferik, kranial ve sempatik sinirlerin schwan hücrelerinden köken alan, esasında benign tümörlerdir. Agresif değillerdir, kapsüllüdürler ve yavaş büyürler. Malign dönüşüm nadiren görülebilir. Vücudun herhangi bir bölgesinde yerleşebilmekle birlikte en sık baş boyun bölgesinin kutanöz sinirleri ve ekstremitelerin fleksör kısımları etkilenir. Schwannomalar genellikle tektir ve nadiren çoklu schwannomlar kranial sinirleri, spinal sinir köklerini, brakial-lumbosakral pleksusları ve periferik sinirleri kapsayan periferik sinir sisteminde görülebilir. Biz bu iki olguda ultrasonografi (US) manyetik rezonans (MR) görüntüleme ve patolojik bulguları ile lenfadenopatiyi taklit eden farklı aksiller schwannomaların patolojik bulgularını bildirmeyi ve schwanommun ayırıcı tanısını literatür eşliğinde tartışmayı amaçladık. Bu olgularda, lezyonların sinir e ait kord benzeri yapı ile direkt devamlılık içinde olduğu gözlendi. US ve MR görüntüleme bulguları literatür ile uyumluydu. Radyolojik bulgular, patoloji ile doğrulandı. Bizim olgularımızda görüldüğü üzere her aksiller lezyonda ayrıntılı ayırıcı tanı uygulanmalı ve basit aksiller lenf nodu olarak değerlendirilmemelidir.

Anahtar Kelimeler: Nörilemmom; ultrasonografi; manyetik rezonans görüntüleme; sinir kılıfı tümörleri

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Schwannomas are well-capsulated and usually benign tumors. They originate from schwann cells of peripheral nerve sheath. Most of these tumors are as large as 10 cm in diameter at the time of diagnosis. Symptoms of schwannomas include pain, but they are usually nonspecific. Characteristic ultrasonography (US) findings include a large hypoechoic

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mass and sharply demarcated contours.[1,2] In these two cases, we aimed to report US, magnetic resonance imaging (MRI) and pathology findings of different axillary schwannomas mimicking lymphadenopathy and discuss the differential diagnosis of schwannoma in the light of the literature.

CASE REPORT

Our first case was a 52-year-old woman referred to our breast imaging center from the surgery clinic with mammography and ultrasound results obtained at a different imaging center reporting clustered malignant microcalcifications (BIRADS 5) and a malignant axillary lymph node. The mammography results were reevaluated, breast and axillary US examinations were repeated. The patient had another mass located at her right leg. This mass was also investigated by US.

After reevalution of the mammogram, it was regarded as normal, and the previous lesions reported as "microcalcifications (BIRADS 5)" in the right breast were regarded as artifacts consistent with fingerprints (Figure 1).

Breast US was evaluated as normal. There was a 15x25 mm, solid, hypoechoic mass lesion with clear borders in the right axillary region. The internal echo was homogenous. The palpable lesion in the right leg of the patient was also examined by US. The lesion measured 17x28 mm and had the same sonographic findings with the axillary mass. Both lesions were noted to be in direct continuity with a cord-like hyperechogenic structure consistent with a neuralstructure, which is pathognomonic for a peripheral nerve sheath tumor. In Doppler US examination, a to and fro arterial waveform was detected (Figure 2).

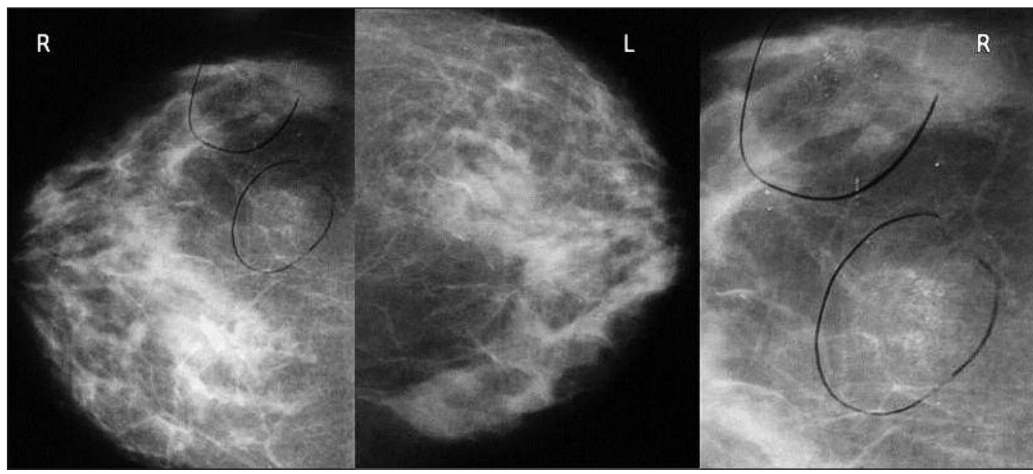

FIGURE 1: Mammograms show finger prints in the right breast which were evaluated as malignant microcalcifications (BIRADS 5) in another center (in the circles, the circles were drawn in the other center).

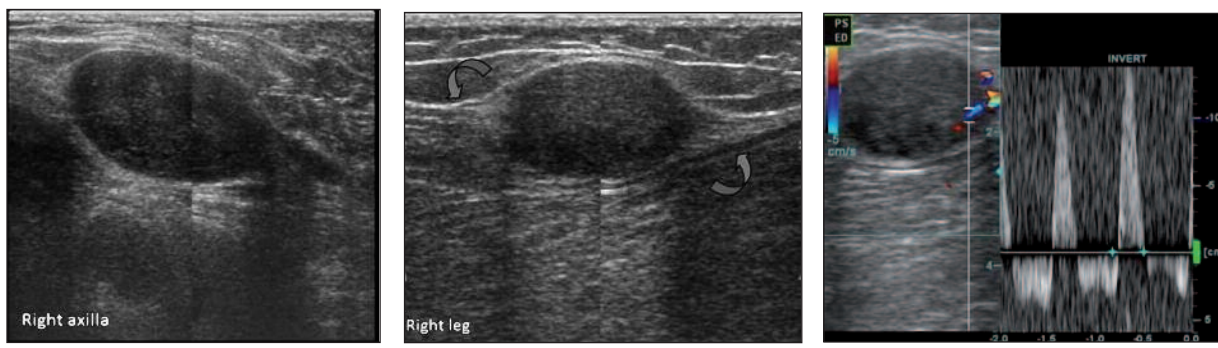

FIGURE 2A-C: Ultrasonographic (US) images of the right axillary mass **(A)**, right leg mass **(B)** and Doppler US **(C)** demonstrating fusiform hypoechoic masses in continuity with 'cord-like' structures (curved blue arrows) and to-and-fro arterial Doppler flow patterns.
(See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

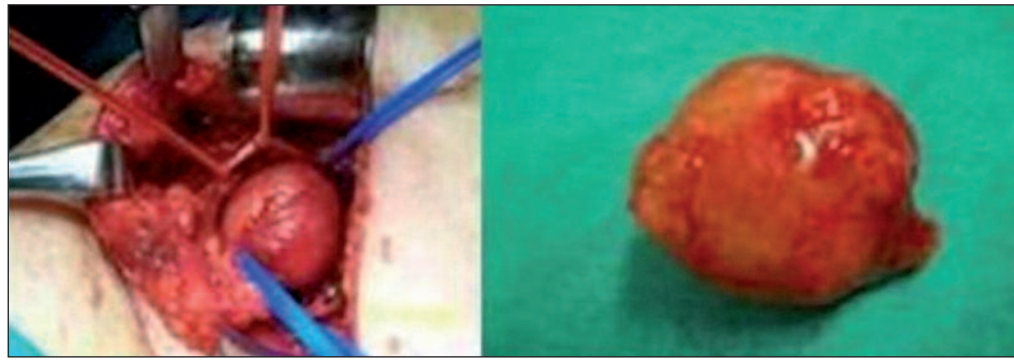

FIGURE 3: Macroscopic findings of the axillary lesion.
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With these findings, the lesions were determineds as a peripheral nerve sheath tumor and the patient was referred to the surgery clinic. The patient had surgery and the histopathologic diagnosis was schwannoma (Figure 3).

Our second case was a 26-year-old woman applied to orthopedics clinic with shoulder pain and a palpable axillary mass. Enhanced shoulder MRI, breast and axillary US were ordered.

In this second case, MRI was performed prior to US examination. There were two ovoid, well bordered, millimetric, solid lesions adjacent to each other. The lesions were hypointense on T1-weighted (W) images, and hyperintense in STIR sequences. Secondary to prominent enhancement, the lesions and the involved nerves were hyperintense in postcontrast fat saturated T1-W images (Figure 4).

The breast US examination was normal, axillary US-examination demonstrated two well circumscribed, hypoechoic, millimetric solid lesions next to each other just like the ones in MRI. Doppler examination revealed arterial vascularity pattern (Figure 5). The lesions were also continuous with superficial nerve structures and evaluated as peripheral nerve sheath tumors. Following surgery and histopathologic examination, the diagnosis of schwannoma was established, similar to the first case.

DISCUSSION

Peripheral nerve sheath tumors are divided into two major benign categories as neurofibroma and schwannoma, and a malignant form, malignant pe-

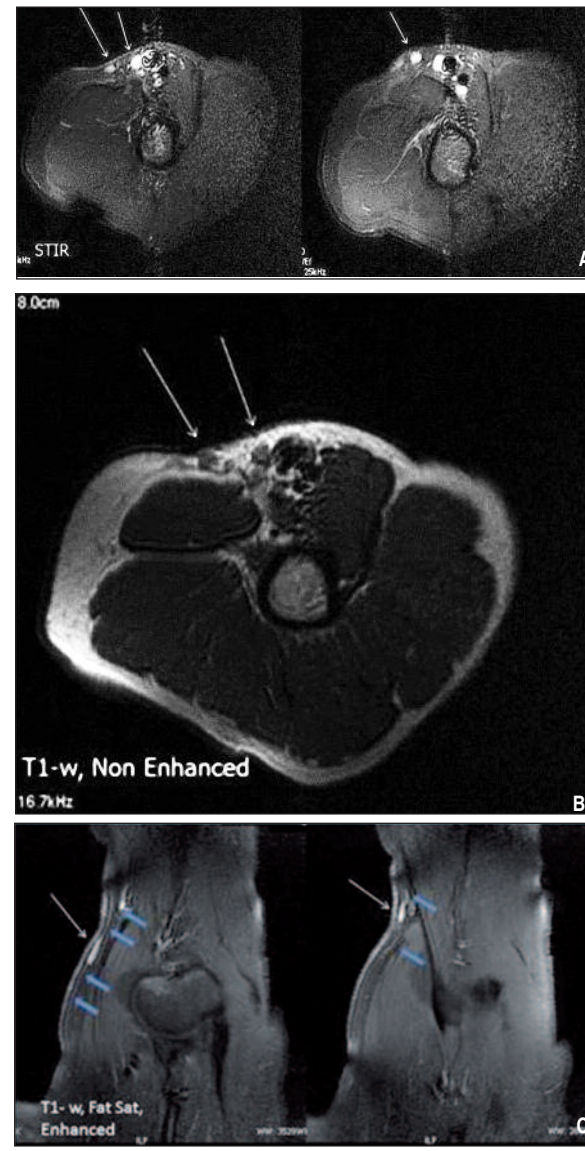

FIGURE 4 A-C: Axial STIR **(a)**, axial non enhanced T1-weighted **(b)**, and coronal fat saturated, T1- weighted, enhanced **(c)** magnetic resonance images show schwannomas (white arrows) and enhanced neural structures (blue arrows).
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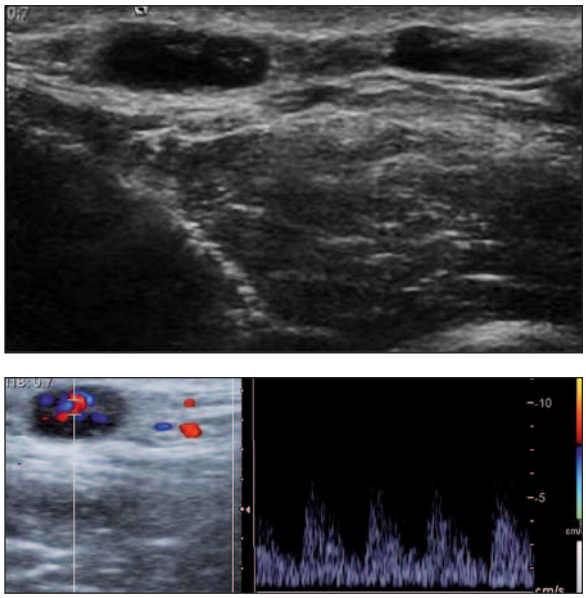

FIGURE 5 A,B: Gray scale ultrasonography (US) **(A)**, color and Duplex Doppler US **(B)** images show well circumscribed solid lesions. The lesions are continuous with superficial neural structures and reveal arterial flow pattern.
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schwannoma, and a malignant form, malignant peripheral nerve sheath tumor. Schwannomas are essentially benign tumors originating from schwann cells of peripheral, cranial or sympathetic nerves. They are not aggressive, capsulated and grow up slowly. These tumors are benign, but can transform into malignant form.[3] They are generally seen in females between the ages of 20-50 years.[4] They can be seen in any part of the body most of the time including head and neck region, cutaneous nerves, autonomic nerves and flexor parts of lower-upper extremities. In addition 3% of schwannomas can be seen in posterior mediastinum and retroperitoneum.[4,5]

Schwannomas are solitary but rarely multiple schwannomas can be seen in some areas including peripheral nerves such as cranial nerves, spinal nerve roots, brachial and lumbosacral plexuses or main peripheral nerves.[6,7]

Symptoms are unusual, unless the mass has become large enough to compress the adjacent nerve where pain can be seen.[1] A preoperative diagnosis by US seems to be possible in lesions located in the head-neck and extremities.[8] Characteristic US findings include large size, fusiform shape, sharply demarcated contour and a hypoechoic mass. The important diagnostic finding is a direct continuity of the nerve structure at two sides of the lesion. The nerve appearing as a cord-like structure is hyperechogenic in US images.[1] When the tumor originates from the nerve in an intermuscular location, a rim of fat surrounding the tumor called as "split-fat" sign is seen.[8] Imaging findings of peripheral nerve sheath tumors are similar, and schwannomas cannot be distinguished from neurofibromas in many cases. When the parent nerve is identified, an eccentrically positioned lesion in relation to the nerve suggests a schwannoma, whereas a centrally located mass suggests a neurofibroma. Heterogeneous appearance with degeneration and cystic cavitation are much more common in schwannomas compared to neurofibromas.[8]

In MRI, schwannomas are hypointense in T1-W images, and hyperintense in T2-W images. Most of them show intense enhancement after intravenous contrast material administration. Small tumors enhance uniformly but large tumors enhance heterogenously.[9]

Although the final diagnosis of schwannoma can only be made by histological analysis, a preoperative diagnosis of peripheral nerve sheath tumor is available with US. In our cases, lesions were located on the courses of neural structures. Both US and MRI findings were compatible with the findings described in the literature.

The axilla may be involved by a wide variety of malignant and benign neoplasms. In addition, an axillary lymphadenopathy secondary to an inflammatory process is not uncommon. Malignant (breast carcinoma, primary head and neck malignancies, lung and kidney malignancies) tumor metastasis and lymphoma must be considered in the differential diagnosis for malignant lesions. Reactive lymph nodes, sarcoidosis, toxoplasmosis are inflammatory lesions, and cystic hygroma, lipoma, desmoid tumors are benign lesions of axilla.[10] Radiological findings help to consider schwannomas in the differential diagnosis of axillary lymph nodes.

As demonstrated in our cases, every axillary

mass should not be evaluated as lymph nodes and rarer mass lesions such as peripheral nerve sheath tumors should be considered in the differential diagnosis, especially when the typical echogenic hilum indicating a lymph node is not seen and direct continuity with the neural structure is de-

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