

Cystic schwannoma of the axillary region: imaging findings of a rare disease. Case report.

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Abstract

Schwannomas are well capsulated, benign, and slowly growing tumors which originate from Schwann cells of peripheral nerve sheath. The incidence of schwannomas in the axillary region is not common. This rarity causes misdiagnosis at the radiological evaluation. In this case we present the imaging and histopathological findings of a cystic schwannoma located in the axillary fossa of a 47-year-old female patient mimicking complex cyst, lymphadenopathy or hydatid cyst in radiological evaluation. Although lymphadenopathy, lymphatic malformation, lipoma, cyst, hidradenitis suppurativa or dermatofibroma are the most frequent lesions to be considered, peripheral nerve sheath should also be kept in mind in the differential diagnosis of axillary masses.

Keywords: cystic schwannoma, ultrasound, computed tomography

Introduction

Schwannomas, also known as neurilemmomas, are well capsulated, benign tumors that originate from Schwann cells of peripheral nerve sheath which are frequently seen in third and fourth decades of life [1]. They often appear as solitary lesions yet sometimes they can be multiple and related to neurofibromatosis. They are invariably plexiform lesions [1,2]. Malignant transformation of schwannomas is extremely rare [3]. They are most frequently located at the head and neck (25%) with only 5% of the lesions seen in the axillary region [4].

In this case study, we report a cystic schwannoma case in which ultrasonography and computed tomography findings were suggestive of a complex cyst, lymphadenopathy or hydatid cyst.

Case report

A 47-year-old female patient presented with mastalgia and a palpable mass in her right axillary fossa for 20 days. Palpable breast lesion or neurological deficit was absent in physical examination. In bilateral mammography there wasn't a mass, distortion, asymmetry or microcalcification in the breast. In the right mediolateral oblique (MLO) view axillary lymph nodes with a short axis smaller than 1 cm and fatty hilum, which were considered reactive were detected (fig 1). Axillary ultrasound (US) of the right axillary fossa demonstrated a semisolid lesion with cystic components and septa measuring 26x20 mm, without vascularisation in color flow Doppler US (fig 2). The presumptive diagnosis were complex cyst, lymphadenopathy, or hydatid cyst since the patient was living in an rural endemic area. Patient's indirect hemagglutination test was negative for hydatid disease. Hepatobiliary US was reported to be normal. Prior to excisional biopsy computed tomography (CT) was carried out to exclude pulmonary pathologies. CT revealed a fusiform hypodense cystic mass, measuring 26x24x22 mm, located in the right axillary fossa posterior to pectoralis major muscle (fig 3).

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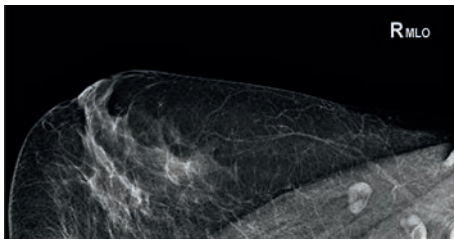


Fig 1. In the right mediolateral oblique view mammography, a paraneoplastic pattern of heterogeneous fibroglandular density and axillary lymph nodes with fatty hilum are noted.

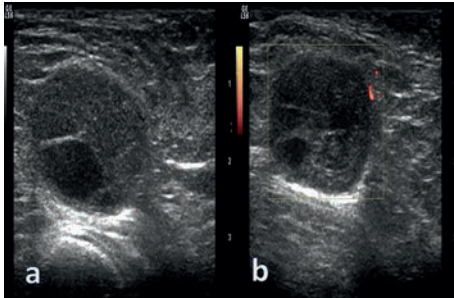


Fig 2. a) In gray-scale sonography a semisolid lesion with cystic components and septa, measuring 26x20 mm, was detected in the left axillary fossa; b) the lesion did not show vascularisation in color flow Doppler sonography.

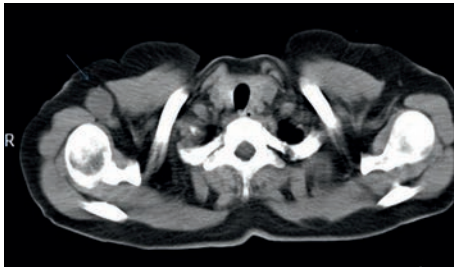


Fig 3. In mediastinal window settings of non contrast enhanced axial thorax CT image a fusiform hypodense cystic mass (18 Hounsfield Units) measuring 26x24x22 mm is detected in the right axillary fossa (arrow).

The lesion was dissected from the axillary tissue under general anesthesia upon the patient's request (fig 4). Lesion was located under the axillary vein and was surrounded with vascular tissue. After dissection a neurogenic tumour was found and resected. Pathological diagnosis was achieved when fusiform bundles of schwann cells were demonstrated with hematoxylin and eosin staining. Hypocellular areas and hypercellular areas with 'verocay bodies' were detected in the tumour. Immunohistochemical staining for protein S100 was strongly positive.



Fig 4. Surgical excision of the tumor

Discussions

Schwannomas are slow-growing tumors causing eccentric displacement of nerve fibers. Patients can present with a palpable mass, swelling, with or without pain and neurologic symptoms [5].

On cross sectional imaging schwannoma is seen as a fusiform mass in a typical nerve distribution. A rim of fat surrounding the lesion termed as 'split-fat sign' suggests origin in the intermuscular space. On CT the tumors are isodense or hypodense to muscle. On MRI they have intermediate signal intensity on T1 weighted imaging. On T2 weighted imaging they are moderately hyperintense and may display a hypointense rim representing capsule, and central hypointensity to isointensity due to fibrocollagenous tissue and peripheral hyperintensity due to myxomatous tissue defined as 'target sign' in most of the cases. Schwannomas show intense and usually homogeneous contrast enhancement. Heterogeneous appearance due to haemorrhage and necrosis are common in larger lesions [6].

In the retrospective evaluation of our case the patient was not referred to MRI since schwannoma was not considered in the differential diagnosis of the axillary mass. The lesion was also not visualised in the mammographic evaluation since the positioning of the patient was inadequate. MLO view is one of the standard mammographic views and the presentation of the pectoralis muscle is valuable in evaluating the adequacy of the film. The amount of visible pectoralis muscle determines the amount of breast tissue included in the image which is important to reduce the number of false negatives and to increase the sensitivity of the mammography. In this sense pectoralis muscle should be seen until the level of the posterior nipple line which is drawn tangentially posteriorly from the nipple towards the pectoral muscle on the MM [7].

Pathological diagnosis is attained when fusiform bundles of schwann cells are demonstrated with hematoxy-

lin and eosin staining. Immunohistochemical analysis is essential for the diagnosis of schwannomas and a positive reaction to protein S100 is typical [8]. Pathologists classify schwannomas into 7 subtypes; classical, cellular, plexiform, cranial nerve, melanotic, degenerated, and granular cell schwannoma [9].

Surgical treatment is the tumoral excision which can usually spare the parent nerve because the schwannoma is generally separable from the underlying nerve fibers. The complete resection of these tumors results represent the cure [10].

The low incidence incidence of schwannomas in the axillary region often leads to misdiagnosis in the radiological evaluation [11,12]. According to the published papers the lymphadenopathy is the most common cause of an axillary mass. Although most lymphadenopathies end up to be benign, biopsy is usually employed to eliminate the possibility of malignancy. Lymphatic malformation, lipoma, cyst, hidradenitis suppurativa or dermatofibroma are the other lesions to be considered. Schwannoma and other lesions of the nerve sheath should also be kept in mind in the differential diagnosis of axillary masses.

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