CASE REPORT

A Rare Peripheral Nerve Tumour 'Schwannoma' In The Breast

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Abstract

Schwannoma arising within breast parenchyma is very rare. This report describes such a case in a 52 year old woman. This tumor, which measured 3.5cmx2.5cm, was painless mobile, smooth and elastic. At ultrasonography, it appeared as a hypoechoic solid mass. Fine needle cytology revealed several clusters of spindle cells indicative of a neoplasm of mesenchymal origin. Histological examination evidenced the characteristic morphological appearance of a Schwannoma with Antoni A and Antoni B areas.

Key Words

Breast , Schwannoma, Neurilemoma

Introduction

A benign tumour of Schwann cells of the peripheral nerve sheath called Schwannoma, also called neurilemoma or neurinoma (1), is mostly found in the head, neck, extensor and flexor surfaces of extrimeties, mediastinum, retroperitoneum and posterior nerve spinal roots (2,3). Iit is rarely found in the breast or stomach (4). They may arise from either parasympathetic or sympathetic nerves of the autonomic nervous system. On persusing the available literature, about 27 cases of breast Schwannoma (5), ranging in size from 0.7cms to 11cms have been confirmed.

Mammographical studies have revealed Schwannomas to be non-specific, well defined, rounded or oval, dense entities. Sonographically more variations have been reported, but the most common one reported is as a solid, hypoechoic, well defined mass with variable posterior acoustic enhancement(2,6) also seen in the present case.

Fine Needle Aspiration Cytology (FNAC) has been conducted only in a few cases and it has been reported that similar cytological characteristics are seen in some mesenchymal neoplasms with smooth cells and fibromatous features. Microscopically a classic Schwannoma is an encapsulated neoplasm having two components known as Antoni A and Antoni B in variable proportions. Antoni A tissue is cellular and consists of monomorphic spindle shaped Schwann cells with poorly defined Eosinophilic cytoplasm and pointed Basophilic nuclei set in a variable collagenous stroma (2). These cells show nuclear palisading and parallel allays of such palisades with intervening Eosinophilic cytoplasmic processes, which are known as Verocay bodies (7). Antoni B is hypocellular component (4).

In the present study a case report of Schwannomas arising in right breast and right upper arm of a 52 year old woman without Von-Recklinghausen's disease is presented.

Case Report

A 52 year old female presented with a palpable mass in the right breast and right upper arm. The patient, about a year back, had detected an ill defined mass in her right breast and in the right upper arm, but she did not get it diagnostically evaluated. The masses at two specified different places eventually increased in size during the said year. Physical examination revealed a painless, mobile, smooth and elastic soft mass at both the places. The patient had no previous history of radiation therapy. Axillary lymphadenopathy was not observed.

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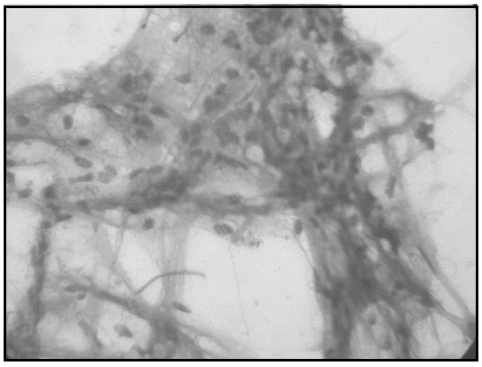

Fig 1. FNAC Showing Interlacing Spindle Cells with Ill Defined Cytoplasmic Borders

Fig 2. Grossly, Well Circumscribed Tumor with Focal Cystic and Haemorrhagic Areas

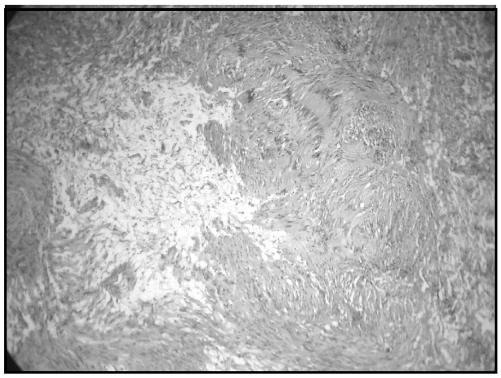

Fig 3. Low Power View Showing Mixture of Two Growth Patterns, "Antoni A and Antoni B"

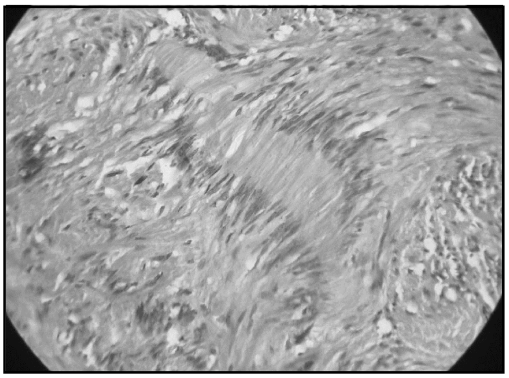

Fig 3. High Power View Showing Organoid Arrangement Forming 'Verocay Bodies'.

Ultrasonography (USG) of the breast revealed a nodule in the right upper outer quadrant measuring 3.5cms. It was a well defined, vascular, complex, hypoechoic mass within the breast.

FNAC was conducted on both lesions, the smears showed several clusters of oval, elongated and interlacing spindle shaped cells with ill defined cytoplasmic borders (*Fig.1*). Naked nuclei were found in the background, no ductal epithelium was seen in smears taken from the breast lesion. They were diagnosed as benign spindle cell lesions and surgical excision and subsequent histological examination was recommended.

Surgical excision was done and a well encapsulated mass measuring 3.5 x 2.5 cms was excised from the breast. It was creamy white in colour with focal cystic and haemorrhagic areas (*Fig.2*).

Microscopic examination on low power confirmed their encapsulated nature with a mixture of two growth patterns (*Fig.3*), cellular Antoni A and less densely cellular with a loose meshwork Antoni B pattern. It was observed that the spindle cells were arranged in a palisading fashion or in an organoid arrangement forming Verocay bodies (*Fig.4*), interspersed with small areas, where neoplastic cells were scattered in an abundant myxiod background . No atypia and no mitotic figures were observed. The tumour cells showed strong immunoreactivity for S-100 proteins, consistent with the diagnosis of Schwannoma.

Discussion

It is known that Schwann cells of peripheral nerve sheath may in certain cases develop into benign tumours, referred to as Schwannomas. Their usual locations of development have been reported to be the head and neck (2,3). Other common locations reported are extensor surfaces (2) and flexor surfaces (3) of the extremities. However, in the present study multiple Schwannomas are being reported from two different sites of the same patient one from right female breast which is considered to be the most rare location of Schwannoma (2,3,5,6,8,9) and another from right upper arm considered usually a common sites. Its uncommon intra mammary location is confirmed from the fact that during the past one year from June 2010 - June 2011, in our clinic we have come

across a single case of Schwannoma of breast out of 30 breast nodules studied for the different pathological conditions and only one present case of two schwannomas at two different sites of the patient. Earlier only a few cases of such occurrences of multiple Schwannomas have been reported(10). Breast Schwannomas have not only been reported from females but in certain cases from elderly men also (4). The other rare sites also include the wall of stomach (4).

They are usually slow growing (2,3,4) which has also been observed in the present case. In the present case the Schwannoma were painless as is also reported by Yegane *et al*.(2009) and Geido Bellezza-(2007). However, Yegene *et al* (2009) have also expressed about Schwannomas that, "the most characteristic presentation is a mass lesion with point tenderness and shooting pain on direct palpation".

The age at which Schwannomas usually occur is known to be from thirties (4) onwards. Most usual age being fifties (3) and sometimes sixties (2). Schwannomas have always been found to be completely separable from the breast parenchyma by being well encapsulated (3,4.5), which is being confirmed by the present study.

Most of the authors have reported solitary Schwannoma in the breast (3), same is the case in present study except one more was observed at a different sites. Structural, differentiation into Antoni A and Antoni B regions with S-100 proteins as the diagnostic features of Schwannoma's (3,4,5) were also clearly observed in the present histological examinations.

According to Dialani V. *et al*.(5), 10 % Schwannomas have been reported to develop at the site of previous radiation therapy even after the delay of twenty years but in the present case the patient had no previous history of getting any radiation therapy.

Conclusion

Ultrasonography, Mammography and FNAC are insufficient tools for diagnosis. Excision biopsy differentiates benign from malignanant breast spindle cell tumours in more than 50% of cases. If required, Immunohistochemistry can be done for confirmation. Awareness of different types of breast spindle cell tumours prevents unnecessary therapeutic regimes.

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