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Schwannoma of the Breast – A Rare Case Report

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Abstract: Schwannomas or neurilemmomas are the benign neoplasms that arise from Schwann cells of the peripheral nerve sheath. These are slow growing, well-encapsulated tumors and occur commonly in the head and neck region and on the extremities. Schwannoma arising in breast parenchyma is very rare as evidenced from review of literature. We report such a case in a 61 year old woman.
Keywords: Schwannoma, breast, benign, very rare.

INTRODUCTION

Schwannomas are benign tumors of nerve sheath origin and are also called as neurilemmoma or neurinoma [1]. They are commonly seen in the head and neck region, extremities, retroperitoneum and posterior mediastinum. Intramammary schwannomas are quite rare [1, 2]. Usually benign schwannomas present as solitary nodules. Multiple lesions are seen in Von Recklinghausen's disease. Radiological imaging studies like ultrasonography and mammography may aid in diagnosis. We report such a rare case of breast schwannoma which was initially diagnosed clinically as fibroadenoma.

CASE PRESENTATION

A 61 year old female presented with lump of 6 months duration. It gradually increased in size. On examination there was a mobile, firm, smooth, non-tender lump in the upper outer quadrant of right breast with no axillary lymphadenopathy. The patient did not present any features of Von Recklinghausen's disease. There was no significant family history. Ultrasnography showed well-circumscribed, hypoechoic lesion measuring 4x3cm within right breast parenchyma. Other laboratory tests were normal. Clinical diagnosis of Fibro adenoma was considered.

FNAC showed scant cellularity with few clusters of spindle shaped cells and no ductal epithelium. Surgical excision was done and specimen was sent for histopathological examination. We received a well-encapsulated mass measuring 5x4cm. Cut-section was grey-white with focal hemorrhagic areas. Microscopic examination revealed well-defined fibrocollagenous capsule with tumor tissue composed of interlacing bundles of spindle shaped cells, wavy nucleus arranged in hyper and hypocellular areas, peripheral palisading with verocay body formation, marked secondary changes showing microcystic change, hyalinised blood vessels and hemosiderin laden macrophages in the stroma (Figure 1 & 2). There is no atypia and no mitotic figures. Immunohistochemical study - the tumor cells showed strong nuclear and cytoplasmic positivity for S100 protein (Figure 3). Cytokeratin (CK) and smooth muscle actin (SMA) were negative. Based on the Antoni A and Antoni B patterns and strong expression of S100 protein final diagnosis of Schwannoma was given.

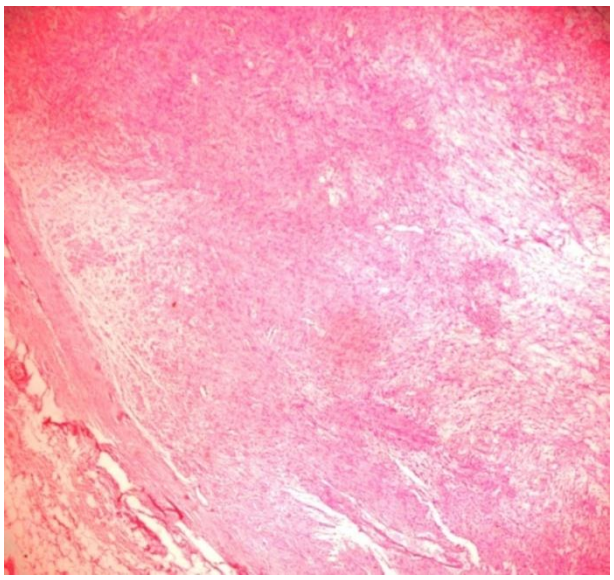

Fig 1: 4X, H&E; Well-encapsulated tumor tissue

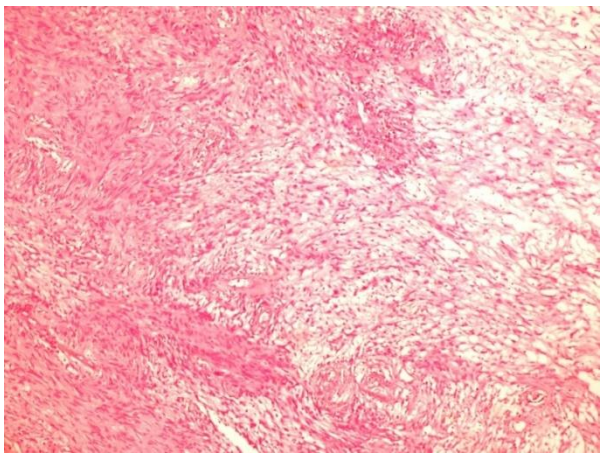

Fig 2: 10X, H&E; Tumor showing cellular and hypo cellular areas (Antoni A and Antoni B patterns)

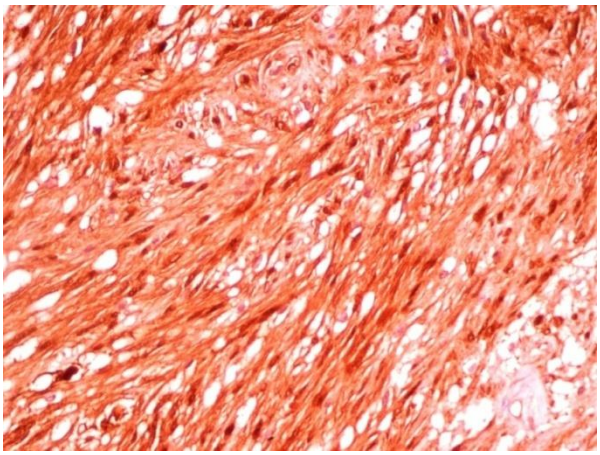

Fig 3: 40X; Tumor cells show strong positivity to S100 protein.

DISCUSSION

Schwannomas are most common benign neoplasms of peripheral nerves or spinal roots. Schwannoma is first described by Verocay and is also called as neurilemmoma or neurinoma. They arise from supporting cells of peripheral nerve sheath called Schwann cells. They arise from either parasympathetic or sympathetic division of autonomic nervous system. They are commonly seen in the head and neck region, extremities, retroperitoneum and posterior mediastinum. Schwannomas affect any part of the body but breast is considered to be one of the exteremely rare locations of schwannoma from the fact that <30 cases have been reported in literature till now [3]. Intramammary schwannomas accounted for 2.6% of schwannomas in one series. These are slow growing tumors. They occur most commonly in third decade of life. Schwannomas have also been reported in the male breast [4]. Schwannomas are associated with Von Recklinghausen's disease.

Most authors reported solitary schwannoma in the breast. Schwannomas are well encapsulated and commonly seperable from breast parenchyma [5]. Radiologic imaging studies may aid in the diagnosis. On Ultrasonography, these lesions appear as well-cicumscribed, hypoechoic solid lesions which show variable posterior acoustic enhancement. Mammographically, they appear as circumsribed, round-oval and dense nodule without micro calcifications.

On FNAC diagnostic findings include clusters of interlacing bundles of spindle cells which are arranged in palisading fashion. However an excised biopsy is required to differentiate it from other spindle cell tumors like phyllodes tumor, fibroadenoma with minor epithelial component, fibromatosis, neurofibroma, myoepithelioma, myofibroblastoma and metaplastic carcinoma. Macroscopically, breast schwannomas are described as grey-white, tan or pink well encapsulated masses. The tumor ranges in size from few millimeters to more than 20 cm. histologically; classic schwannomas show Antoni A and B areas [6]. Antoni A areas are organised cellular components and are composed of long bipolar spindle cells that form palisading pattern known as verocay bodies. Antoni B areas are hypocellular which consist of loose stroma, microcystic tissue and myxoid change with large irregularly spaced thick walled blood vessels.

Schwannomas show strong and uniform S100 expression which helps to differentiate it from neurofibroma. Malignant schwannoma of the breast is rare but have been reported [7]. These are associated with neurofibromatosis. Schwannomas have also been reported to develop at the site of previous radiation therapy. Treatment consists of simple enucleation of the tumor as it is well-encapsulated. Recurrence after the surgical excision has not been reported.

CONCLUSION

In breast most common tumors are of epithelial origin. Stromal and myoepithelial cell tumors are less frequent and nerve sheath tumors are even rare. In conclusion, we present a rare case of intramammary schwannoma that could present diagnostic difficulties and is required to distinguish it from other spindle cell lesions.

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