Case Report

ISSN (0): 2347-3398; ISSN (P): 2277-7253

Case Report of a Male Breast Schwannoma – A Rare Entity

Vartika Sharma[1], Seema Singh[2]

[1]Senior Resident, Department of Surgical Oncology, Rajiv Gandhi Cancer Institute & Research Centre, Niti Bagh, New Delhi India.

[2]Consultant, Department of Surgical Oncology, Rajiv Gandhi Cancer Institute & Research Centre, Niti Bagh, New Delhi India.

Abstract

Schwannomas or neurilemmomas are benign neoplasms arising from Schwann cells. They usually occur in the head and neck region or upper extremities but may also appear in any nerve in the body. Breast schwannomas are rare neoplasms; however, it is difficult to distinguish them clinically and radiologically from other mammary nodules. They might even simulate a malignant neoplasm. Our report summarises a case of a 52-year-old male with a 4-month history of a right-sided palpable breast mass. This clinical study demonstrates the importance of Intramammary schwannoma as a significant differentiator when evaluating a breast mass in diagnosing a breast tumour.

Keywords: Breast Schwannoma, Mammography, Histopathology.

Corresponding Author: Dr. Seema Singh, Consultant, Department of Surgical Oncology, Rajiv Gandhi Cancer Institute & Research Centre, Niti Bagh, New Delhi India.
Email: seemasingh5jan@gmail.com
ORCID ID: 0000-0003-1622-3850

Received: 24 November 2022 **Revised: 02 January 2023** **Accepted: 16 January 2023** **Published: 30 March 2023**

Introduction

Schwannomas are the most common peripheral nerve tumours. It is the most common nerve sheath tumour of the upper extremity. More than 95% of nerve sheath tumours are benign neurilemomas or neurofibromas.[1] Although schwannomas are common, palpable breast lumps that manifest as intramammary schwannomas are extremely rare, with only 1-2 cases reported in the literature.[2] Breast schwannomas account for only 2-3% of all schwannomas, whereas only about 0.2% of all breast tumours are schwannomas.[3] We reported a case of a male patient who presented with a palpable breast mass and underwent an ultrasound-guided biopsy, which demonstrated atypical findings consistent with a breast schwannoma.

Case Report

A 52-year-old male patient diagnosed with a painless lump in the right breast for four months that was incidentally felt during self-examination. The patient never had a notable medical or family history of such a case. On physical examination, a 2x1 cm firm nodule was palpable at the 2 o'clock position of the right breast. Other than physical examination, we performed an ultrasound on the right breast and found a hypoechoic lesion in the retro areolar region, measuring 34 x 20 mm, showing smooth margins. On Chest computerised tomography (CT), we found a lobulated lesion of size 3.7 x 2.3 cm in the right breast with no evidence of significant axillary lymph nodes. The visualised sections of the upper abdomen revealed a hypodense lesion in the liver, likely simple cysts. A small hypodense lesion was noted in the right lobe of the thyroid- suggesting USG TIRADS characterisation. No active parenchymal/interstitial abnormality was present in the lungs. The patient underwent fine needle aspiration cytology in which cytosmears examined were hypercellular and comprised a cluster of spindle cells in a hemorrhagic background s/o mesenchymal lesion. On FNAC Review, there was no evidence of calcification in internal vascularity or any other obvious focal lesion in the right breast, and the bilateral axillae also appeared normal.

The patient was advised to have a breast lump biopsy for further evaluation. We performed an ultrasound-guided core needle biopsy with a 14-gauge needle. Four specimens were obtained using an Achieve automated firing device and were dispatched to the laboratory for pathologic analysis. The above sections showed spindle cell lesions of hypo and hypercellular areas, Veruca bodies and areas of degeneration. Mitosis was rare, no necrosis was observed and no breast parenchyma was included. Pathology confirmed the diagnosis of a spindle cell lesion. Based on the above findings, a provisional diagnosis of a Spindle cell lesion suggestive of Schwannoma was given.

The patient underwent Nipple and Skin Sparing Simple mastectomy through a periareolar incision under general anaesthesia. Intra-operative findings of a well-defined, oval-shaped firm mass measuring 5 cm × 3 cm × 1cm was confirmed. The patient's postoperative course was uneventful but went well and the patient was discharged in a stable condition. On follow-up, we found that the scar tissue was healthy. Hereby we share the image of the area after two years of the surgical removal of Schwannoma [Figure 1].

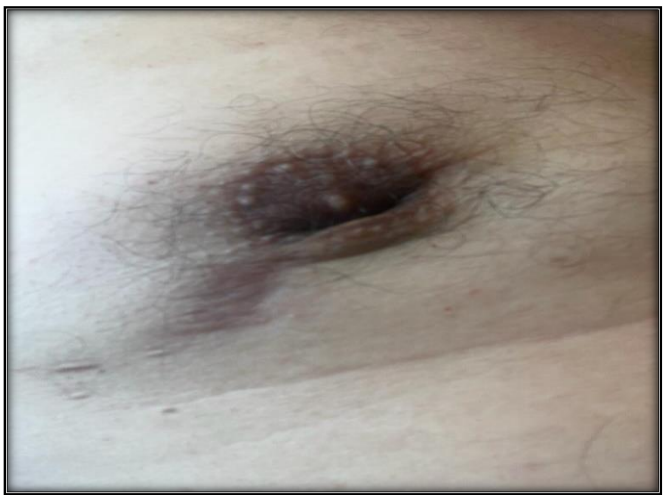

Figure 1: Post-Operative Image of Incision Site After 1 Year

The mass was then sent for histological examination. On gross review, the tumour mass was well-circumscribed, lobulated and shiny. It was situated 0.6cm anteriorly, 0.8cm from the deep surgical margin (posteriorly) (formed by fascia), superiorly 0.6cm, inferiorly 3.5cm, medial (with tumour) 0.5cm and laterally 1cm from normal breast parenchyma. The margins obtained were superior (with tumour) 7mm, inferior 8mm, medial (with tumour) 9mm, lateral 10mm, deep surgical margin 11mm, and anterior (with tumour) 12mm, respectively.

On microscopic examination, the excised specimen of the lesion from the right breast section showed a capsulated circumscribed spindle cell tumour, composed of myxoid hypo and compact hypercellular areas. [Figure 2 and Figure 3]

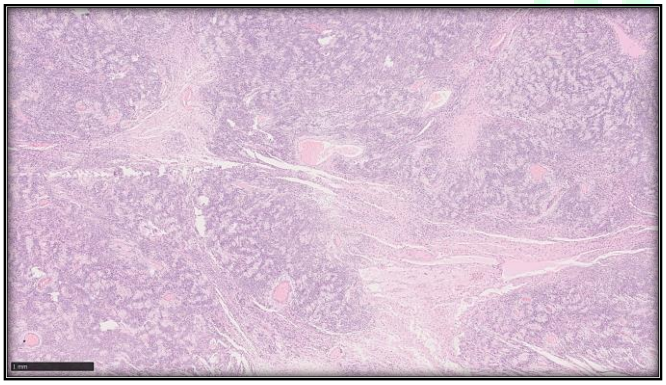

Figure 2: Biphasic Tumours Composed of Well-Differentiated Schwann Cells with Alternating Compact Antoni A and Loose Antoni B Areas (H&E;20x)

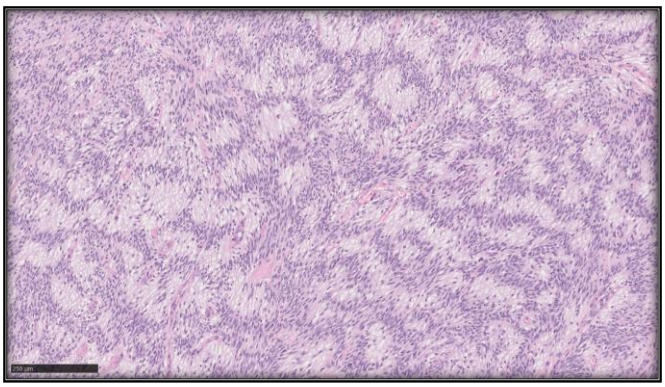

Figure 3: Nuclear Palisades (Verocay Bodies) Are Noted in The Antoni Area (H&E; 100x)

In examination, Verocay bodies were noted. The spindle cells were elongated & wavy with tapered ends interspersed with collagen fibres. Few dilated vessels invested by haemorrhage were registered. Mitotic figures were rare, and no necrosis was seen. Features were consistent with schwannoma. Breast parenchyma was not involved in the analysis, and all margins showed zero signs of tumours in fibrofatty tissue. However, there was no scope for Immunohistochemical examination in this case.

Discussion

Schwannomas are benign tumours of peripheral nerves and arise from Schwann cells, which form myelin in peripheral nerves. Most cases of schwannomas are likely to appear in the third-decade of life.[4] Nerve sheath tumours commonly occur in the head and neck region. It was observed that most of these Intra-mammary schwannomas were more common in women with a mean age of 47 years.[5] While they account for 20% of all mediastinal tumours, only 2.6% of cases are found to be intramammary in location.[6] Patients with Neurofibromatosis type 1 (NF-1) or type 2 (NF-2) may develop multiple schwannomas involving large peripheral nerve trunks or bilateral acoustic schwannomas, respectively. While only 3% of Schwannomas are seen in patients of NF-2, the patients who present with multiple Schwannomas are more likely to have NF-2.[6,7] These benign tumours are firm and well-encapsulated. They grow slowly and eccentrically on parent nerves and rarely undergo malignant transformation.[8] The risk of malignancy within the schwannomas is higher in patients with neurofibromatosis.[8,9,10]

A schwannoma usually presents on clinical examination or incidentally on imaging. On Mammography, most of these tumours can be seen as round to dense oval masses with circumscribed margins. Occasionally non-specific or even normal findings are seen on mammography.[11] On the Breast imaging reporting and data system (BI-RADS) scale, Breast Schwannoma are categorised as BI-RADS 4a lesions with a shallow risk of malignant change.[12]

On Ultrasonography, hypoechoic lesions with cystic spaces are seen.[11] An MRI should be obtained before surgery to confirm that the tumour is not located within the nerve (i.e., a neurofibroma) and is consistent with a schwannoma.[1] In

our case report, ultrasonographic findings revealed hypoechoic lesions with smooth margins, which were suggestive of schwannoma.

The final diagnosis of schwannomas are usually based on the histopathologic examination report. Two distinct histologic components are Antoni type A and Antoni type B regions. Antoni type-A regions contained compact spindle cells having twisted nuclei and nuclear palisading. Antoni type B regions contain loose and myxoid connective tissue with haphazard cellular arrangement [Figure1,2,3]. These characteristics distinguish neurilemoma from malignant and fibrosarcomatous tumours, which lack encapsulation and have no Antoni features.[1,8] In our case report, the last specimen after the excisional biopsy was subjected to analysis. Pathology revealed findings consistent with that of a benign nerve sheath tumour; hence, the final diagnosis of Schwannoma was confirmed.

Breast schwannomas, even though rare neoplasms, are difficult to distinguish clinically and radiologically from benign to malignant mammary masses such as fibroadenomas, phyllodes tumours, other mesenchymal tumours, or breast carcinoma.

Once an accurate diagnosis of Schwannoma is confirmed, excisional biopsy is the mainstay treatment in managing these tumours. Complete surgical removal with maximum preservation of residual neurologic function is the most appropriate intervention for benign peripheral nerve sheath tumours. These tumours have a good prognosis with rare reports of recurrence if removed and encapsulated.[13]

Conclusion

Most cases presented as asymptomatic incidental findings and are usually benign masses to begin examination. They may occur in any part (nerve) of the body, and the breast is the rarest site. Sometimes they may be misdiagnosed as malignant breast masses due to their clinical and radiological similarities to other breast masses. Therefore, breast Schwannoma, a rare entity though, forms an elementary differential while evaluating breast masses.

References

1. Venissac N, Leo F, Hofman P, et al. Mediastinal neuro- genic tumors and video-assisted thoracoscopy: always the right choice? Surg Laparosc Endosc Percutan Tech. 2004; 14:20.
2. Tan Q.T., Chuwa E.W.L., Chew S.H., Hong G.S. Schwannoma: an unexpected diagnosis from a breast lump. J Surg Case Rep. 2014;2014(9):4.
3. T.D.-N. Ravelomihary, N.N.M. Razafimanjato, L. Nomenjanahary, A.F. Rakototiana, H.J.-L. Rakotovao, H.N. Rakoto-Ratsimba Schwannoma of the breast: a report of rare location and a brief literature review [cited 2022 Jul 8]Ann. Breast Surg., 3 (0) (2019 Aug 26)17–17.
4. Shin S., Rabban J. Elsevier; Philadelphia, PA: 2012. Breast Pathology: Mesenchymal Neoplasms of the Breast; p. 31.
5. Bellezza G, Lombardi T, Panzarola P, Sidoni A, Cavaliere A, Giansanti M. Schwannoma of the breast: a case report and review of the literature. Tumori 2007; 93:308–311 [Crossref] [Medline] [Google Scholar]
6. Lerwill MF, Koerner FC. Benign mesenchymal neoplasms. In: Hoda SA, Brogi E, Koener FC, Rosen PP, eds. Rosens breast pathology. Philadelphia, PA: Lippincott Williams & Wilkins, 2014:1019–1094 [Google Scholar]
7. Goldblum J.R., Folpe A.L., Weiss S.W., Enzinger F.M. 6th ed. Vol. xiv. Saunders/Elsevier; Philadelphia, PA: 2014. p. 1155. (Enzinger and Weiss's soft tissue tumors)
8. Nayler S.J., Leiman G., Omar T., Cooper K. Malignant transformation in a schwannoma. Histopathology. 1996;29(2):189–192
9. Q.T. Tan, E.W.L. Chuwa, S.H. Chew, G.S. Hong Schwannoma: an unexpected diagnosis from a breast lump [cited 2022 Jul 8] J. Surg. Case Rep., 2014 (9) (2014 Sep 1)rju085–rju085. Available from: /pmc/articles/PMC4150249/Google Scholar
10. M. Duehrkoop, B. Frericks, C. Ankel, C. Boettcher, W. Hartmann, B.M. Pfitzner Two case reports: breast schwannoma and a rare case of an axillary schwannoma imitating an axillary lymph node metastasis Radiol. Case Rep., 16 (8) (2021 Aug 1), pp. 2154-2157
11. Dialani V, Hines N, Wang Y, Slanetz P. Breast schwannoma. Case Rep Med 2011; 2011:930841 [Crossref] [Medline] [Google Scholar]
12. M. Niknejad, Y. Weerakkody Breast imaging-reporting and data system (BI-RADS). Radiopaedia.org [cited 2022 Jul 8] (2010 Jun 6) rju085–rju085. Available from: /pmc/articles/PMC4150249/Google Scholar
13. V. Dialani, N. Hines, Y. Wang, P. Slanetz Breast schwannoma Case Rep. Med., 2011 (2011) Google Scholar.

How to cite this article: Sharma V, Singh S. Case Report of a Male Breast Schwannoma – A Rare Entity. Asian J. Med. Res. 2023;12(1):1-5.

DOI: dx.doi.org/10.47009/ajmr.2023.12.1.1

Source of Support: Nil, **Conflict of Interest:** None declared.