



Neurofibroma Arising in Ectopic Breast Tissue: A Unique Case Report

Cammarata Roberto^{1*} and Cammarata Antonio¹

¹Department of Surgery "P. Valdoni", University of Rome "Sapienza", Rome, Italy.

Authors' contributions

This work was carried out in collaboration between both authors. Author RC designed the study, wrote the first draft of the manuscript and managed the literature. Author AC supervised the entire work. Both authors read and approved the final manuscript.

Article Information

Editor(s):

- (1) Dr. Yasushi Shibata, University of Tsukuba, Japan.
- (2) Dr. Luis Ricardo Martinhao Souto, Universidade de Marília (UNIMAR), Brazil.
- (3) Dr. José Francisco de Sales Chagas, Sao Leopoldo Mandic Medical School, Brasil.

Reviewers:

- (1) Swati Tandon, Delhi University, India.
 - (2) Mesli Smain Nabil, University of Tlemcen Aboubekr Belkaid, Algeria.
 - (3) O. L. T. Serdar, Adiyaman University, Turkey.
- Complete Peer review History: <http://www.sdiarticle4.com/review-history/62131>

Case Study

Received 25 August 2020
Accepted 01 November 2020
Published 21 November 2020

ABSTRACT

Neurofibromas are benign nerve sheath tumours which occur in the dermis or subcutis with a variable distribution on the body surface. Accessory breast tissue results from incomplete involution of the embryologic mammary ridge. We report a case of a 63-year postmenopausal multiparous woman who presented to our department with a lump in the lower left abdominal quadrant near a supernumerary nipple. An abdominal ultrasound confirmed the presence of a 20mm mass and describes it as a hypo-anechoic neoformation below the accessory nipple in the context of likely breast parenchyma. A large local excision of the lesion was therefore planned. A final histologic diagnosis of neurofibroma arising in accessory breast tissue was made. This case report describes for the first time a case of a neurofibroma arising on ectopic breast tissue.

Keywords: Neurofibroma; breast; ectopic breast tissue.

1. INTRODUCTION

Accessory breast tissue results from incomplete involution of the embryologic mammary ridge, also known as the milk line, which extends from the axilla (most common location) to the groin. As a result, ectopic breast tissue can develop anywhere along this ridge. Neurofibromas are benign nerve sheath tumours and represent 5% of all benign soft tissue neoplasms. Nearly 10% of cases are found in association with neurofibromatosis type 1 (NF-1), therefore, most of them occur in a solitary form. The NF-1 and solitary neurofibromas (SN) are regarded as two different disease processes, although present the same pathologic features, histologically. Most neurofibromas occur as solitary lesions; [1] solitary neurofibroma of the breast independent of neurofibromatosis is extremely rare and only a few cases have been reported [2–6]. There is no evidence in the literature of neurofibroma cases arising in accessory breast tissue.

2. PRESENTATION OF CASE

A 63-year-old postmenopausal multiparous woman presented to our department with a lump in the lower left abdominal quadrant near a supernumerary nipple that the patient reports to be present from the first pregnancy. On examination a 2 cm irregular mass, of likely belonging to the abdominal wall, was palpable. The abdominal lump was slowly increasing in size with no other associated symptoms. She had no medical comorbidities or family history of

breast cancer. Systemic examination was unremarkable. Abdominal ultrasound was done, which confirmed the presence of a 20 mm mass and describes it as a hypo-anechoic neof ormation below the accessory nipple in the context of likely breast parenchyma. In relation to the dubious ultrasound characteristics a large local excision of the lesion was planned. Macroscopically, the sample consisted of a 3.8 x 1.8 cm skin lozenge containing a supernumerary nipple with underlying mammary tissue containing an irregular oval form of 1.6 cm of elastic consistency, a gray-white complexion and a cut collated appearance. Microscopically, benign neoplastic proliferation is appreciated, well delimited by the surrounding tissue, formed by cells with an elongated nucleus immersed in a fibrous stroma. No atypical mitoses were observed. The neoplastic cell population was positive for the reactions prepared with S100 anti-protein, anti-CD34, anti-BCL2 and anti-vimentin antibodies while it was negative for anti-CD117 antibody, smooth muscle anti-actin, anti-desmin, anti-CD45RB and anti-pancytokeratin. The determination of nuclear receptors for estrogen and progesterone hormones carried out using monoclonal antibodies gave a positive result (Er 75%, PgR 50%). The cell proliferation index evaluated with anti-Ki67 antibody gave positivity in 5% of neoplastic cells. A final histologic diagnosis of neurofibroma was made.

The patient did not relapse at 1 year of follow-up and the surgical scar is well re-epithelialized.

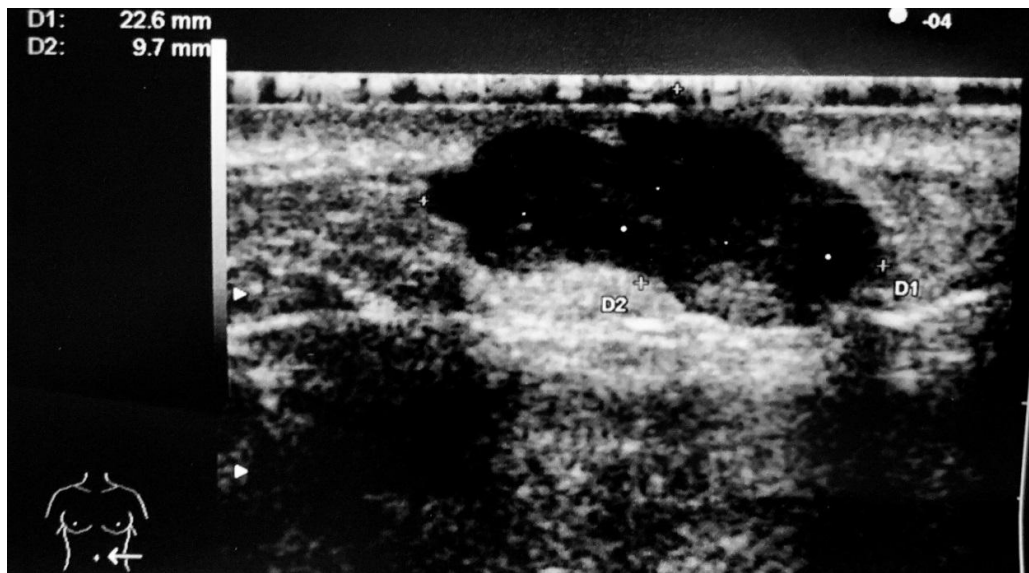


Fig. 1. Ultrasonic image showing position of lump



Fig. 2. Lump in the lower left abdominal quadrant near a supernumerary nipple



Fig. 3. Morphology of the lump



Fig. 4. Morphology of the lump showing its characteristics

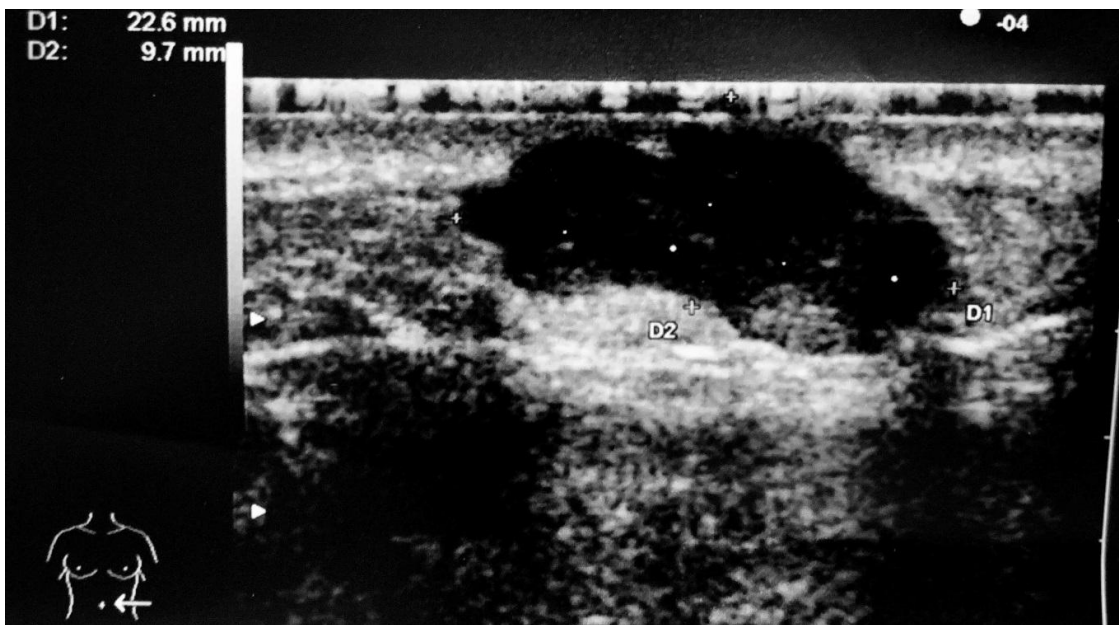


Fig. 5. Ultrasonic image



Fig. 6. Side view of the lump



Fig. 7. Lateral view of the lump

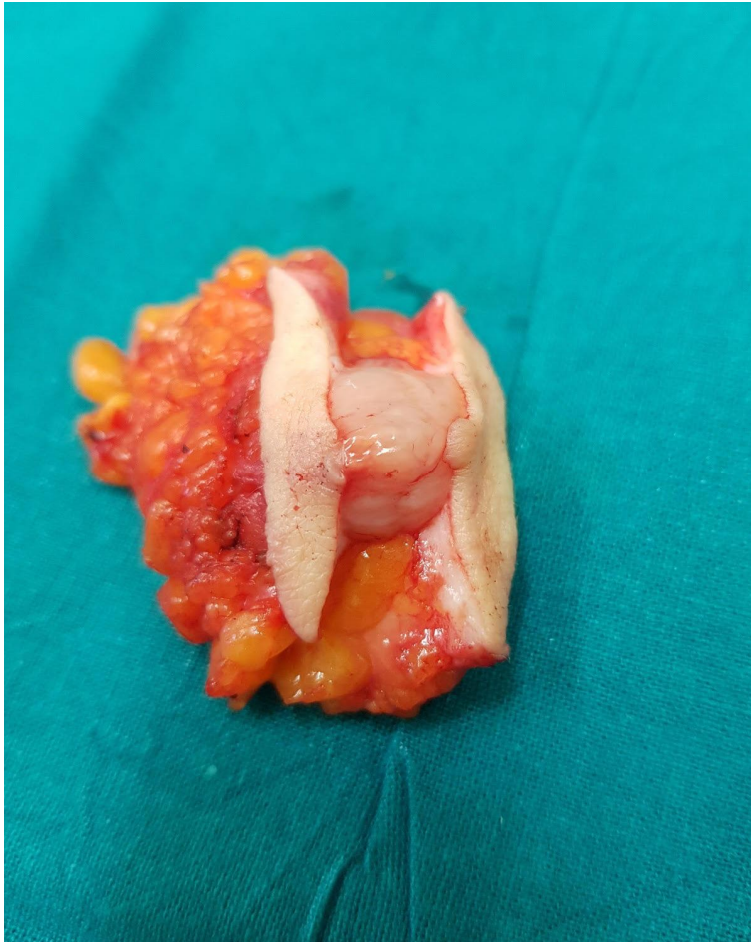


Fig. 8. Lump after operative phase

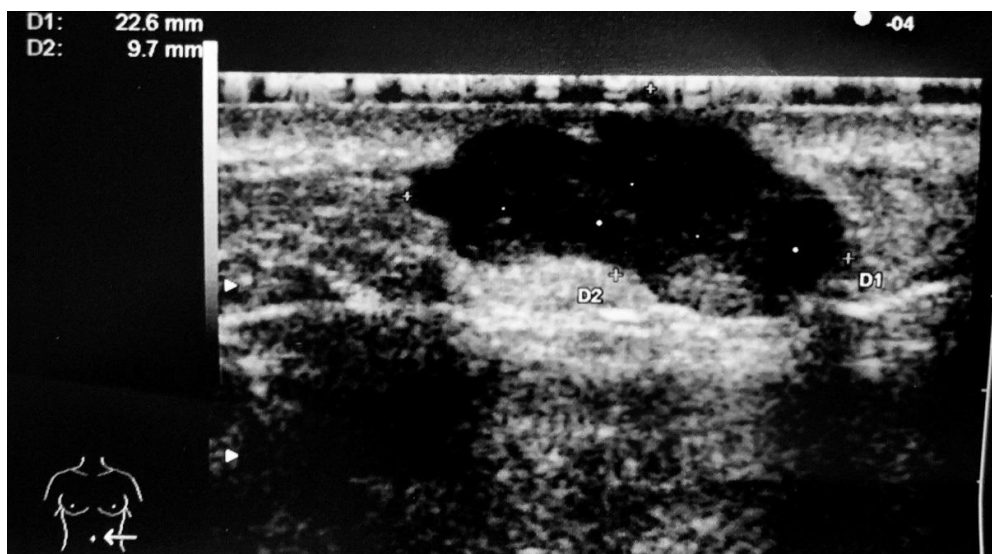


Fig. 9. Ultrasonic image after operation

3. DISCUSSION

Breast development begins during the fifth or sixth week of gestation; mammary crests form from the anterior axillary fold to the inside of the inguinal folds. Physiologically, mammary ridges disappear shortly after their formation, with the exception of a small portion that persists in the pectoral region, where only one pair of mammary glands typically develop [7]. So if this regression fails, accessory nipples (polythelia) or accessory mammary glands (polymastia) can develop along the mammary ridges [8]. Accessory breast tissue, also known as ectopic breast tissue, is caused by the non-regression of primary breast tissue, except at the pectoral breast site. According to Kayaka's classification, supernumerary breast is defined, as in the case reported here, the presence of mammary gland associated with its components (nipple, areola, ducts) [9]. Multiple locations of accessory breast are reported, where the most frequent sites are the axilla and the infra-mammary region, but a location in the lower left abdominal quadrant is not described [10]. In the context of the accessory parenchyma, various types of lesions have been described such as fibroadenomas, [11] phyllodes tumors [12] and malignant tumors [10], but no cases of neurofibroma have been described at present. Neurofibromas are benign nerve sheath tumours which were first described by Smith in 1849 and later by von Recklinghausen in 1882 [3]. These are relatively frequent tumours that can occur in both sexes and at any age. Most neurofibromas are solitary lesions (SN) which occur in the dermis or subcutis with a variable distribution on the body surface. [1] With regard to SN of the breast, Anglo-Saxon literature considers them as rare neoplasms. SN of the breast typically arise in the skin or near the nipple-areola complex [13]. In the context of the breast parenchyma, descriptions of such lesions are even rarer than typical sites. There is currently no work describing cases of neurofibroma originating in ectopic breast tissue.

4. CONCLUSION

To our knowledge this is the first description of a case report of a neurofibroma arising on ectopic breast tissue. The uniqueness of this finding underlines the importance of this description and lays the foundation for a thorough review of this tumor pathology.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

ACKNOWLEDGEMENT

The authors would like to thank Tina Antonietta Panepinto for inspiring their lives.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Goldblum J, Weiss S, Folpe AL. Enzinger and Weiss's Soft Tissue Tumours, in Enzinger and Weiss's Soft Tissue Tumours 4th ed., Elsevier; 2014.
2. Shao C, Zhang J, Ling F, Fu J, Huang Z. Giant solitary neurofibroma in the breast: A case report and review of the literature. *Cancer Treat. Commun.* 2015;4:19–22.
3. Sherman JE, Smith JW. Neurofibromas of the breast and nipple-areolar area. *Ann. Plast. Surg.* 1981;7(4):302–307.
4. Jeyaretna DS, Oriolowo A, Smith MEF, Watkins RM. Solitary neurofibroma in the male breast. 2007;3:3–5.
5. Laky D, Petraru DM, Ancar V, Kelemen J. Giant neurofibroma of the pectoral region including the breast. Case report. *Rom. J. Morphol. Embryol. = Rev. Roum. Morphol. Embryol.* 1990;36(3–4):213–215.
6. Narayan AS, Rao KP. Neurofibroma of the breast. *J. Indian Med. Assoc.* 1968;50(8):375–376.
7. Lim HS, et al., "Sonographic findings of accessory breast tissue in axilla and related diseases," *Journal of Ultrasound in Medicine*; 2017.
8. Bland KI, Copeland EM, Klimberg VS, Gradishar WJ. *The Breast: Comprehensive Management of Benign and Malignant Diseases*; 2017.
9. Kayava Y. The proportions of supernumerary nipples in the Finnish population. *Duodecim.* 1915;31:143–170.
10. Youn HJ, Jung SH. Accessory breast carcinoma. *Breast Care*; 2009.
11. Amaranathan A, Balaguruswamy K, Bhat RV, Bora MK. An Ectopic Breast Tissue

- Presenting with Fibroadenoma in Axilla. Case Rep. Surg; 2013.
12. Oshida K, et al. Phyllodes tumor arising in ectopic breast tissue of the axilla. Breast Cancer; 2003.
13. Rodriguez FJ, Folpe AL, Giannini C, Perry A. Pathology of peripheral nerve sheath tumors: Diagnostic overview and update on selected diagnostic problems. Acta Neuropathologica; 2012.

© 2020 Roberto and Antonio; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/62131>