Resection of giant pseudoangiomatous stromal hyperplasia: Expectant observation and avoidance of complex breast surgery

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A B S T R A C T

INTRODUCTION: Pseudoangiomatous stromal hyperplasia (PASH) is a benign tumor of the breast that can achieve large, or even giant, dimensions. Resection of giant tumors can pose cosmetic challenges.

CASE PRESENTATION: We report the prospective cosmetic outcome of a 31-year-old female with a 21-cm PASH tumor of the right breast using simple excision through an inframammary approach. The patient was followed for 6 months before final cosmesis was established. Breast cosmesis was considered very good by both patient and physician. Mild external rotation of the nipple and mild contour changes involving the lateral aspect of the breast persisted at 6 months.

DISCUSSION: Avoidance of more complex alternatives such as reduction mammoplasty and/or mastopexy was achieved by allowing the skin envelope to undergo natural involution over a period of six months.

CONCLUSION: Inframammary simple excision of a giant PASH tumor is appropriate in select patients.

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1. Introduction

Pseudoangiomatous stromal hyperplasia (PASH) is a benign tumor comprised of proliferating myofibroblasts, the etiology of which appears to have a hormonal influence. PASH can either present as microscopic foci or discrete tumors. These tumors may grow rapidly to impressive dimensions, and achieve discrete palpability, warranting a designation of tumorous-type PASH, particularly in young women.

Pseudoangiomatous stromal hyperplasia was first described by Vuitch and colleagues in 1986 as a proliferation of benign myofibroblasts that appeared to line pseudovascular spaces [1]. PASH can present as either microscopic foci or tumorous PASH [2]. Giant tumorous PASH is rare, but well described. The largest reported tumor measurement is 23 cm [3]. Surgical management includes simple excision, excision with various methods of compensation for volume loss, and mastectomy with reconstruction. The cosmetic management of giant breast tumor resections of other histologic types has been documented in the literature, but this is the first detailed report of a giant PASH excision that emphasizes cosmetic outcome.

2. Case presentation

This 31-year-old nulliparous Caucasian female presented with a rapidly enlarging right breast mass spanning 12 months duration. On physical exam, her right breast was markedly larger than the left, with a palpable mass occupying the entire lateral aspect of the breast and measuring 22 cm in greatest diameter and demonstrating well-circumscribed borders (Fig. 1).

The skin overlying the bulk of the mass was thinned but intact, without prominent vascular stigmata. Imaging revealed a high-density oval lesion with well-circumscribed borders by mammogram and ultrasound. A percutaneous biopsy (14G Bard Monopty, Tempe, AZ) revealed non-specific dense collagenous tissue. Pre-operative differential diagnosis included giant fibroadenoma versus PASH versus benign phyllodes tumor. Surgical excision yielded a final diagnosis of PASH.

Pathologic evaluation of the 21 cm × 16 cm × 7 cm gross specimen included a recorded weight of 1,258 g. On sectioning, the tissue had a relatively homogeneous, lobulated character, and appeared grossly circumscribed. Histologically, the predominant pattern that emerged on low magnification was one of stromal expansion with non-proliferative terminal duct lobular units. On 200 × magnification, clefing of the collagenous tissue revealed empty spaces lined by banal oval-to-spindle shaped cells. The nonvascular nature of the slit-like spaces contrasted with red blood cell-filled rounded profiles of occasional venules within the stroma. This benign lesion is widely regarded as having a myofibroblastic origin that lacks atypia or necrosis [4] (Fig 2).

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Surgical management consisted of excision through an infra-mammary incision (IMI) with allowance for minimal margins. The majority of the dissection was performed in the posterior plane adjacent to the pectoralis major, sparing as much of the medially compressed tissue as possible. Significant lateral deformity was present at the conclusion of the operation. The Jackson-Pratt drain was removed after 4 days.

During the second follow up exam, a palpable seroma was noted in the previous tumor location. It was left intact, occupying an estimated volume of 300 cc. The seroma was completely reabsorbed by week eight. At the 2-month interval, the right breast was remarkably similar in contour and size to the left breast and demonstrated mild flattening of the lateral contour with slight skin wrinkling still visible. At the 6-month interval, mild flattening was again noted, but the patient reported satisfaction with the result and declined plastic surgical consultation (Fig 3).

3. Discussion

Giant benign tumors of the female breast are defined as tumors exceeding 5 cm or weighing >500 g [5]. Reports of giant tumors most frequently describe large juvenile fibroadenomas or phylloides tumors in a population that is usually under 20 years of age. Various surgical management options have been described in the literature. Concerns about the developing breast bud dictate conservative excisional management in the juvenile population, usually through an inframammary approach [6]. In this series of four patients, with an age range of 11–15 years, and lesion size of 5.9 cm to 17 cm, an excellent cosmetic outcome with excision and subsequent natural remodeling of breast tissue over time is described. Park et al., advocated excision with reduction of the skin envelope for giant breast tumors showing gross distortion [7]. A group of nine young women, average age 18.5 years, was treated with excision and mastopexy through an inverted T-incision with satisfactory results. Prominent scarring, although infrequent, was the major adverse result of this technique. Reduction alternatives were reserved for cases of true hypertrophy. Ugboro and associates reported treatment results from 22 patients with giant fibroadenomas, 73% of whom were under age eighteen [8]. Fifteen patients were treated with simple excision through an inframammary approach (IMI) as described by Biggers, including those with significant ptosis (grade 2 or higher), skin stigmata that included prominent striae, gross venous dilation, ulceration, or severe asymmetry. Seven patients were treated with reduction mammoplasty (RM). Excellent cosmetic outcome with IMI correlated with absence of skin stigmata or nipple deviation, and no more then grade two ptosis. RM produced better results if the above factors were present, with less redundancy of skin and improved correction of ptosis. Of note, severe asymmetry in this cohort of patients was due to tumors with an upper weight of 3300 g and caused significantly more distortion than present in the case described here.

Finally, there is a single report of utilization of a tissue expander to control the rate of skin contraction after excision of a giant benign breast tumor. Two patients, age 17 and 19 years, with tumors that measured 10–11 cm in diameter, underwent serial aspirations diminishing the tissue expander volume over 6–11 months. Once the skin envelope had contracted sufficiently, the expanders were removed [9]. Mastectomy for giant PASH, while reported, is not recommended unless unusual clinical circumstances are present [10].

4. Conclusion

Existing literature addressing surgical management of giant tumors of the female breast consists of reports of fibroadenomas and phylloides tumors, generally in a juvenile population. Extrapolation of this data is reasonable for giant PASH tumors. This 31-year-old patient had grade 2 ptosis, minimal nipple deviation, and no skin stigmata, all of which predicted good cosmetic outcome with simple excision of a giant PASH tumor and allowance for natural shrinkage of the skin envelope over a six month period.

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Conflict of interest

None.

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Ethical approval

There was no ethics committee involvement. The author followed all institutional regulations regarding case reports.

Consent

The subject of this case report gave full and written consent for use of all clinical material, including photographs, relevant to publication.

Author contributions

Dr. Stephanie Fine was the surgeon in fellowship training, and the primary surgeon responsible for clinical work-up, operative plan and execution, and follow-up. This case was conceived as a case report by this author; the main body of the paper, including abstract, clinical history, and discussion was written primarily by this author.

Dr. Mary Murray was the attending physician on record for the author/fellow. She was instrumental in surgical plan and execution, extended follow-up of this patient, and revision of the paper.

Dr. Angela Powell was the pathologist on record who provided the pathology photography, the pathology description included as part of this case report, and general revision assistance.

Research registry

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Guarantor

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