Title: A Rare Case of Extensive Bilateral Fibroadenomas in a Young Woman

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Author names:

1. Cory Dixon
2. Sawyer Longley
3. Aaron Tillman
4. Britton Ethridge
5. Samuel Armstrong

Degrees and Affiliations:

1. Third Year Osteopathic Medical Student, Alabama College of Osteopathic Medicine, Dothan, Alabama, United States
2. Third Year Osteopathic Medical Student, Alabama College of Osteopathic Medicine, Dothan, Alabama, United States
3. Third Year Osteopathic Medical Student, Alabama College of Osteopathic Medicine, Dothan, Alabama, United States
4. Fourth Year Osteopathic Medical Student, Alabama College of Osteopathic Medicine, Dothan, Alabama, United States
5. DO. Radiology Associates of Dothan, Dothan, Alabama, United States

ORCID (Open Researcher and Contributor Identifier):

1. https://orcid.org/0009-0000-7695-8504
2. https://orcid.org/0009-0004-5947-6502
3. https://orcid.org/0009-0003-7908-6424
4. https://orcid.org/0009-0003-2177-1584
5. https://orcid.org/0000-0002-1505-6133

About the author: Cory Dixon is currently a third-year medical student at Alabama College of Osteopathic Medicine of a four-year program.

Corresponding author email: Coryjd1998@gmail.com

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Highlights

- Progression of a rare case of a young female who developed approximately 50 fibroadenomas, with over 25 in each breast, by the age of 26.
- Shared decision-making is imperative in the management and treatment of extensive fibroadenomas, particularly for young women concerned about breastfeeding.
- Conservative management can be a viable alternative in extensive benign breast disease, balancing patient preferences and clinical risks

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Personal, Professional, and Institutional Social Network accounts.

- **Facebook:**
- **Twitter:** @CoryJDixon @tillman_dpt @DO_good_25 @ACOMEDU
- **Instagram:**
- **Linkedin:**

ABSTRACT.

Background

Fibroadenomas are benign, solid nodules in the breast commonly found in women less than 35 years of age. Typically, fibroadenomas do not exceed 3-4 per breast, and the occurrence of five or more is uncommon with only 6 cases in the literature reporting 20 or more fibroadenomas in each breast.

Case

We present a case of an 18-year-old female, initially diagnosed with bilateral fibroadenomas, progressing to an extensive presentation of over 25 fibroadenomas per breast by age 26, a rarity in the medical literature. Despite recommendations for a mastectomy due to the high fibroadenoma count, the patient, after consulting with the physician and understanding the risk of progression of size, number, or dysplasia, opted for watchful waiting, citing concerns about future breastfeeding.

Conclusion

This case highlights the importance of shared decision-making and agreeing to conservative management with close monitoring in managing extensive fibroadenomas in young women, considering their impact on future reproductive choices. We aim to raise awareness of such uncommon presentations and encourage further reporting to broaden understanding and management strategies.

Key Words: *Fibroadenoma, Breast, Benign, Ultrasound, Radiology, Lactation*

INTRODUCTION.

Fibroadenomas are benign, solid nodules in the breast commonly found in women less than 35 years of age.[1,2] Typically, fibroadenomas do not exceed 3-4 per breast, and the occurrence of five or more is uncommon.[1] A 2016 cohort study concluded the risk of breast cancer for women with fibroadenoma of the breast is similar to that for women with a diagnosis of benign breast disease.[3] In a population-based study, 2.5% of women with benign breast disease developed breast cancer, compared to 1.5% without benign disease, indicating a modest absolute risk increase.[4] A 1% increase in risk is not usually considered clinically significant. Remarkably, more than 20 fibroadenomas per breast has only been demonstrated in six published cases found by the authors. A diagnosis of multiple fibroadenomas, especially in such extensive cases, can have significant psychological and quality-of-life implications. Patients may experience anxiety related to the potential risk of malignancy, body image concerns, and the burden of repeated clinical evaluations or interventions. Shared decision-making is crucial in these cases, balancing the risks and benefits of surgical removal versus conservative management while addressing the patient's emotional well-being and quality of life. This article presents a rare case of extensive bilateral fibroadenomas of the breast with an estimated 25 fibroadenomas per breast by the age of 26.

THE CASE

An 18-year-old female with no prior comorbidities, no risk factors, and a negative family history of breast cancer presented to the office with multiple breast lumps bilaterally. Initial ultrasonography revealed four distinct masses, two in each breast. Her medical history included nodular fasciitis of the sartorius muscle and basal cell carcinoma on the right knee. Family history was non-contributary. Because of this no genetic syndromes were suspected. Three of the masses were ovoid-shaped with a well-circumscribed margin. The other mass was irregularly shaped, spiculated, and raised suspicion for malignancy. This led to excision of all four masses which were subsequently sent off to pathology for evaluation. Histologic examination revealed a diagnosis of fibroadenomas for all four lesions.

A year later, the patient was evaluated secondary to polymenorrhagia, and breast imaging revealed ten new distinct masses consistent with fibroadenomas. She was instructed to follow up in six months to see if there was any progression. Her follow-up appointment showed no progression in size, shape, or number of fibroadenomas.

At the next follow-up visit, approximately 18 months after the initial examination, imaging detailed nineteen total fibroadenomas compared to the ten she had before. Mass sizes ranged from 0.36 cm to 2.43 cm with no single lesion raising suspicion for malignancy **(Figure 1)**.

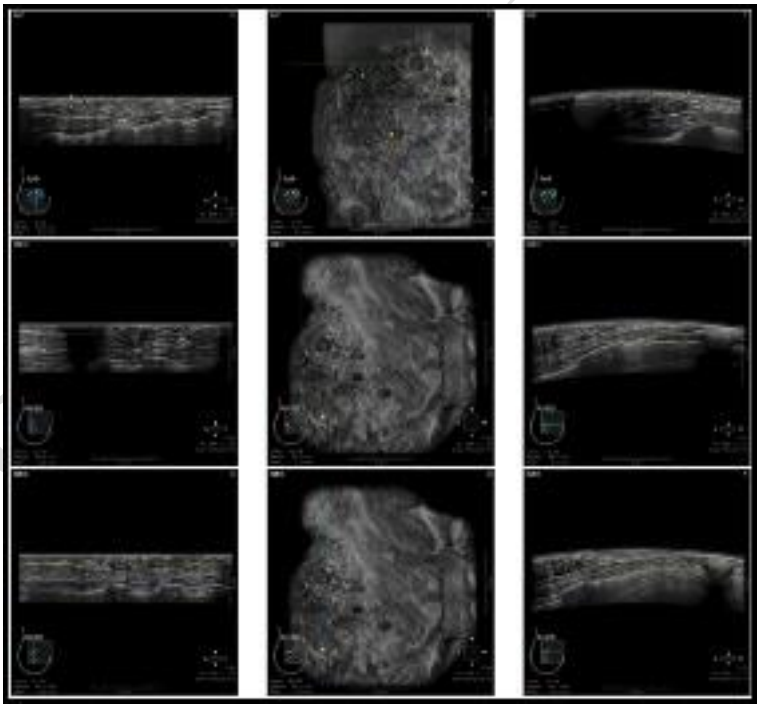

Figure 1. A 3-dimensional Ultrasonography Showed Multiple Hypoechoic Lesions with Sharp Demarcation at the Follow-up Appointment.

Seven years after the initial presentation, the patient was reevaluated to establish care with a new physician. Imaging revealed extensive bilateral fibroadenomas, estimated to be over 25 fibroadenomas per breast. These

range between 0.5 cm and 2.6 cm in maximum dimension. Many are larger than prior ultrasounds with growth rates within acceptable range. Due to the extensive quantity, the largest masses were measured as a means to track growth rates. The largest on the right was along the 12:00 axis and is measured at 1.6 x 2.3 x 2.4 cm **(Figure 2)**. The largest on the left was subareolar at 12:00 measuring 1.4 x 2.6 x 2.4 cm **(Figure 2)**.

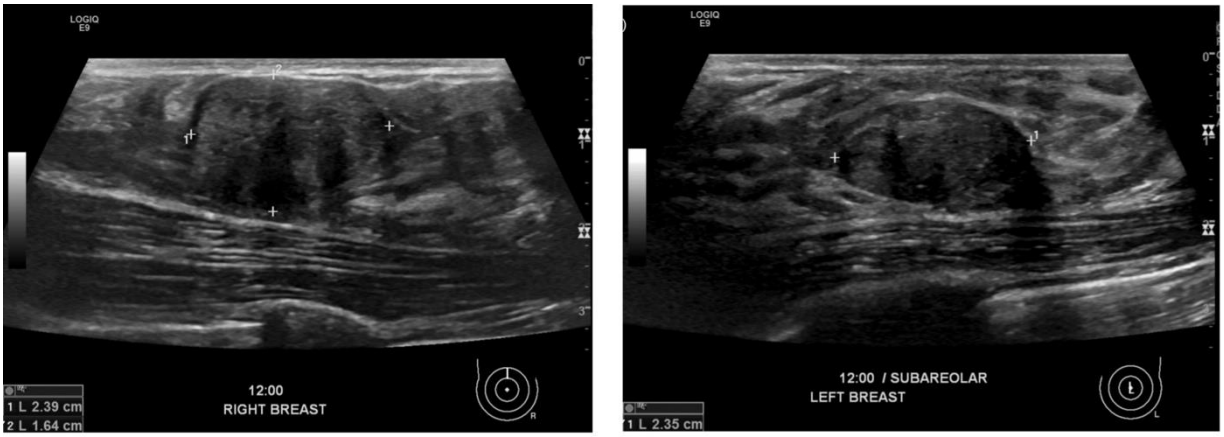

Figure 2. Ultrasonography of the Largest Masses Were Consistent with Ovoid, Well-circumscribed Fibroadenomas. Borders of the Masses are Marked with a White Cross.

With the progressive increase in fibroadenomas, as well as the high risk of recurrence, the patient was advised on total mastectomy as treatment. However, due to the patient's desire to breastfeed, along with no single suspicious lesion, conservative management was agreed upon after a thorough discussion with the patient. After the commencement of breastfeeding, a mastectomy was still advised due to the risk of recurrence, continuous growth, risk of hidden malignancy, and multiplication of lesions.

As of the writing of this manuscript, the patient has been breastfeeding for 4 months without complications or limitations in milk production. Upon palpation, the masses have enlarged compared to the most recent baseline pre-pregnancy, though they have not been evaluated via ultrasonography. This increase in size does align with physiologic increase of estrogen during pregnancy increasing tumor size.

DISCUSSION

Fibroadenomas are painless, usually unilateral, mobile, solid, benign breast nodules. They are solid and are usually found in women under 35 years old but may appear at any age. These nodules typically shrink after menopause making them less common in postmenopausal women. Histologically, fibroadenomas are composed of stroma and epithelium located in the breast tissues. Fibroadenomas have been characterized as firm, rubbery masses with a smooth ovoid shape upon palpation.[1]

The pathophysiological mechanism of fibroadenomas is yet to be elucidated fully. One theory has linked oral contraceptives (OCPs) to fibroadenoma development, but the mechanisms behind this remain uncertain.[5] Another study found that the epithelial tissue in fibroadenomas showed a high binding affinity for estrogen, supporting the link between high estrogen levels or high volume of estrogen receptors, and subsequent fibroadenoma development.[6] Genetic testing will most likely play a future role in diagnosis and management of fibroadenomas.[7] More research is needed to further enlighten the role OCPs, estrogen, and genetics.

This patient was found to have firm nodules upon the first breast exam at eighteen years old. Initial ultrasound revealed two masses in each breast. While fibroadenomas are estrogen-sensitive, a progression to more than 20 per breast has only been demonstrated in six published cases found by the authors. Of these, 5 underwent total excision, and the other underwent mastectomy due to the presence of 100 fibroadenomas.[8-12]

Remarkably, this patient developed an estimated 50 fibroadenomas between both breasts before the age of twenty-six. Excision was considered, but due to her history of recurrence, it was not recommended. She was advised to consider total mastectomy due to the extensive number of lesions, potential occult malignancy, cosmetic reasons, and high recurrence risk. Despite mastectomy recommendations, the patient opted for watchful waiting, prioritizing future breastfeeding after understanding the risks. Considering the benign nature and quantity of the tumors, along with the patient's consistent follow-up history, a follow-up-as-needed schedule was determined to be appropriate. The patient was advised on the importance of self-monitoring for any changes in symptoms, such as alterations in tumor size, quality, number, pain level, or cosmetic appearance of the breasts, which would require prompt re-evaluation. Additionally, she was encouraged to schedule a follow-up appointment after the completion of childbearing to further discuss her medical and surgical options.

CONCLUSION

This case presents the uncommon occurrence of at least 25 benign fibroadenomas per breast and highlights the importance of shared decision-making with patients considering future breastfeeding capabilities. This case also highlights the importance of long-term follow-up, considering the risk of hidden malignancy in extensive fibroadenomas. With minimal literature on the subject, the authors intend to establish awareness and encourage others to present similar cases regarding extensive bilateral fibroadenomas.

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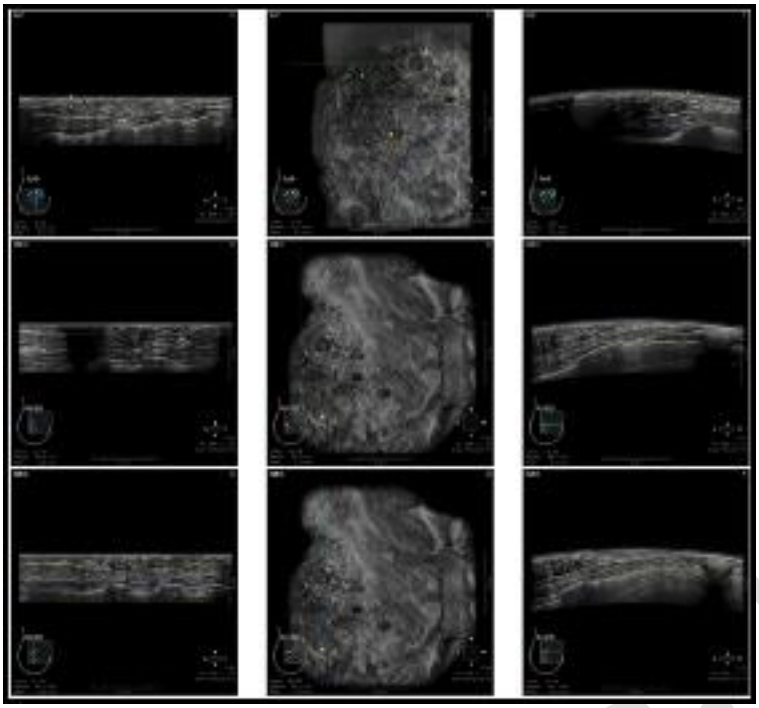
FIGURES AND TABLES.

Figure 1. A 3-dimensional Ultrasonography Showed Multiple Hypoechoic Lesions with Sharp Demarcation at the Follow-up Appointment.



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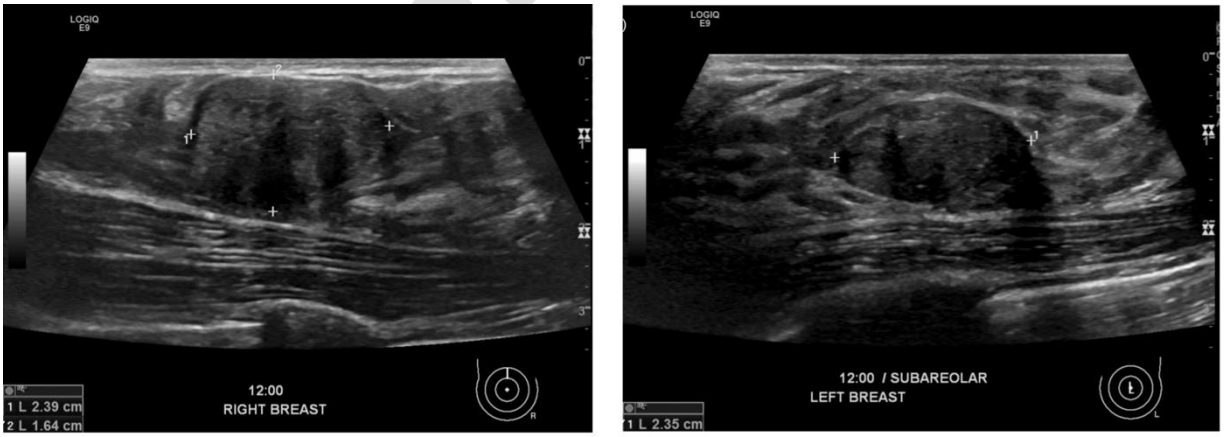

SUMMARY – ACCELERATING TRANSLATION

Title: Unusually High Number of Benign Breast Tumors in a Young Woman: A Case for Conservative Management and Shared Decision-Making

Main Problem to Solve: Fibroadenomas are non-cancerous (benign) lumps that often appear in the breasts of young women, especially those under 35 years of age. Usually, a woman may have one to three fibroadenomas in each breast, and it is uncommon to have more than five. Having over 20 fibroadenomas in each breast is extremely rare, with very few cases documented worldwide. When this happens, it raises important clinical and emotional questions: Should the patient undergo surgery, including mastectomy (removal of the breasts), or could a more conservative approach be safely considered?

Aim of the Study: The purpose of this study was to present a rare and striking case of a young woman who developed more than 25 fibroadenomas in each breast by the age of 26, and to highlight the importance of patient-centered care and long-term follow-up when managing extensive benign breast conditions.

Methodology: This is a case report based on a detailed medical follow-up of a female patient from age 18 to 26. Information was collected from her medical visits, imaging studies (especially breast ultrasounds), and surgical biopsies. Her clinical course, decisions, and outcomes were documented and analyzed to better understand how such rare cases can be managed without immediately resorting to aggressive treatments.

Results: At 18 years old, the patient discovered four lumps in her breasts. They were surgically removed and confirmed to be fibroadenomas. Over the next several years, more lumps appeared. Imaging at age 19 showed 10 new masses, and by age 20, there were 19 in total. Seven years after the first diagnosis, imaging confirmed over 25 fibroadenomas in each breast, ranging in size from small (0.5 cm) to over 2.6 cm.

Given the large number of tumors, a mastectomy was recommended by her doctors to reduce the risks of recurrence, growth, and the small but possible chance of undetected cancer. However, the patient was concerned about losing the ability to breastfeed in the future. After detailed discussions with her care team, she chose a conservative management approach: no surgery, but regular monitoring through imaging and self-exams.

After giving birth, the patient breastfed successfully and without complications. Some of the lumps became slightly larger, likely due to natural hormonal changes during pregnancy, but no signs of cancer or other complications were noted at the time of writing this report.

Conclusion: This case shows that, even in rare and extreme cases of multiple benign breast tumors, aggressive surgery is not always the only option. With proper monitoring, good communication between the patient and medical team, and consideration of the patient's values and future plans (such as breastfeeding), a conservative approach can be both safe and appropriate. It also shows how important it is to report rare cases like this to help doctors and patients make better-informed decisions in the future. By sharing this experience, we hope to raise awareness and encourage healthcare providers to consider individualized care that respects both medical risks and personal preferences.