

Pathophysiological and epidemiological aspects of fibroadenoma of the breast: A review

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Abstract

A fibroadenoma is a solid, not fluid-filled, unilateral, benign (non-cancerous), breast tumour. It is painless. Fibroadenoma the terms "Fibro" and "Adenoma" refer to the glandular structure in epithelial tissue, respectively. In most cases, they appear as a straightforward, moveable, painless, smooth, and well-defined lump. They could be found in one breast or both. fibroadenoma is most frequently detected in women between the ages of 14 and 35. The lump may gradually grow without any accompanying pain, nipple changes, or skin changes, however the menstrual cycle may cause variations in size. In women with clinically worrisome lesions or lesions that are equivocal on imaging, FNA, or CNB (SORC), an excisional biopsy should be undertaken to reduce the risk of scarring that will impede further mammographic and sonographic interpretation. Clinical and radiographic examinations revealed complex fibroadenomas. Metformin as a new option in the medical management of breast fibroadenoma. The treatment of fibroadenoma may be conservative, but the mass may be removed through total enucleation. Patients should be counselled throughout therapy on the benign nature of the mass, the various surgical and non-surgical treatments, and the necessity for additional surgery. More long-term outcome data are needed to inform treatment options for adolescent patients with breast fibroadenomas.

Keywords: Fibroadenoma; Lump; Breast Fibroadenoma; Lesion; Mammography

1. Introduction

A fibroadenoma is a solid, not fluid-filled, unilateral, benign (non-cancerous), breast tumour. It is painless. Although it can be seen at any age, it most frequently affects females between the ages of 14 and 35. In postmenopausal women, fibroadenoma is less prevalent because it diminishes after menopause. Fibroadenoma the terms "Fibro" and "Adenoma" refer to the glandular structure in epithelial tissue, respectively. In most cases, they appear as a straightforward, moveable, painless, smooth, and well-defined lump. They could be found in one breast or both. It can be single or many, and the majority of the time, their size is wear off, fibroadenoma does not actually grow or shrink, some can disappear over time if the hormonal influence wears off^[1].

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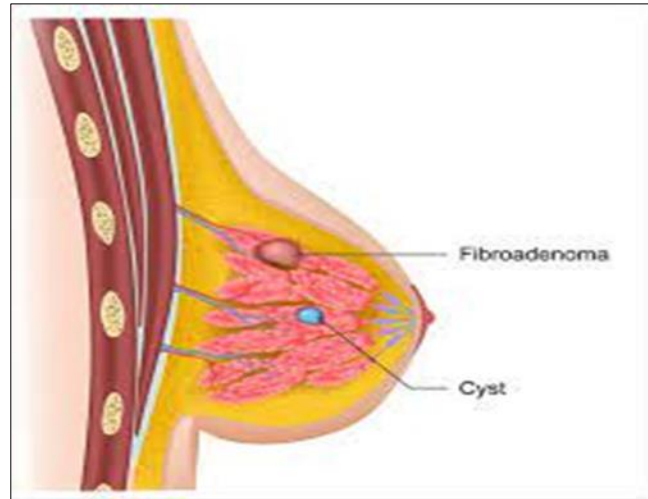


Figure 1 Fibroadenoma in Breast

2. Epidemiology

2.1. Incidence

The prevalence of fibroadenoma in adolescents is 2.2% on average.

2.2. Prevalance

The most frequent benign breast tumour in women under 30 is a fibroadenoma. Approximately 50% of all breast biopsies are for fibroadenoma, and this percentage rises to 75% for biopsies on women under the age of 20. In 10 to 25% of instances, numerous fibroadenomas develop. Although it can occur at any age, fibroadenoma is most frequently detected in women between the ages of 14 and 35. In postmenopausal women, it is less frequent^[2].

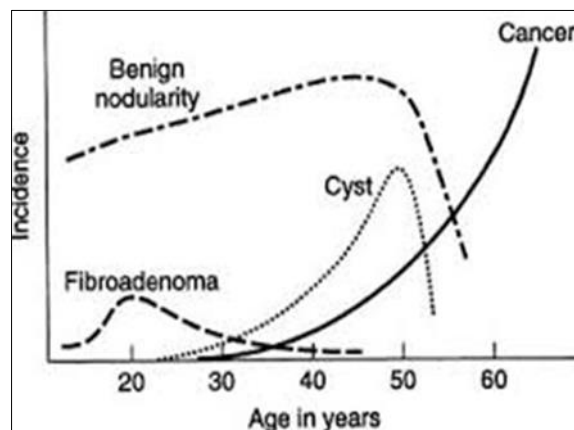


Figure 2 Epidemiology of Fibroadenoma

2.3. Etiology

The actual cause of fibroadenomas is uncertain, although various studies have found that oestrogen has an impact on how they form. Young age (35 years old) and self-breast illness were found to be risk factors for the development of fibroadenoma in a large population research of 256,402 women. The risk of fibroadenoma is reduced by using an oral estrogen-progesterone contraceptive before menopause and by having more live babies. Full-term pregnancies and exposure to exogenous estrogen-progesterone combinations before menopause may lower risk by improving differentiation or reducing fibroadenomas, which were found to be dependent on the availability of ovarian hormones. Early-onset fibroadenoma is more frequently encountered in postmenopausal women. According to estimates, 10% of women worldwide.

To investigate any potential impact of dietary practises on fibroadenoma, numerous studies have been carried out. In their study of the relationships between a variety of circulating biomarkers of dietary intake and the risk of fibroadenomas. There is an inverse relationship between a higher percentage of the eicosapentanoic acid (EPA) and docosapentaenoic acid (DPA) and fibroadenoma risk, indicating that consuming more soy products and fatty fish may reduce that risk.

A strong family history of breast cancer has also been linked to multiple fibroadenomas, and it has been hypothesised that in these patients, the physiologic level of oestrogen did not rise; rather, the number of oestrogen receptors increased, causing local breast tissue to become more sensitive to oestrogen^[3].

2.4. Pathogenesis

A fibroadenoma is a common benign breast tumour. There are still questions about the pathophysiology. The terminal duct-lobular unit gives rise to biphasic stromal and epithelial connective tissue cells, which multiply to form fibroadenomas. The findings from the study of the stromal and epithelial cells supported the notion that fibroadenomas are hyperplastic lesions connected to a deviation from the breast's normal maturation rather than true tumours by revealing that both are polyclonal.

Although fibroadenomas can develop in any part of the breast, they are far more likely to do so in the upper outer quadrant. The lump may gradually grow without any accompanying pain, nipple changes, or skin changes, however the menstrual cycle may cause variations in size. Fibroadenoma typically develops during menarche (15 - 25 years of age), when hyperplastic lobules are prevalent and may be viewed as a normal phase of breast growth. Histologically, hyperplastic lobules are identical to fibroadenomas. The pattern of stromal growth in fibroadenoma is determined by its epithelial component, with stromal mitotic activity being stronger near this component. Fibroadenomas are induced by oestrogen and progesterone, as well as nursing during pregnancy, and they atrophize during menopause^[4,7].

2.5. Gross pathology

A breast lump that is painless, hard, movable, and slowly expanding is a hallmark finding of a fibroadenoma on gross pathology. Additional features of fibroadenomas discovered during a physical examination include: Rubbery texture Tan/white coloured^[8].

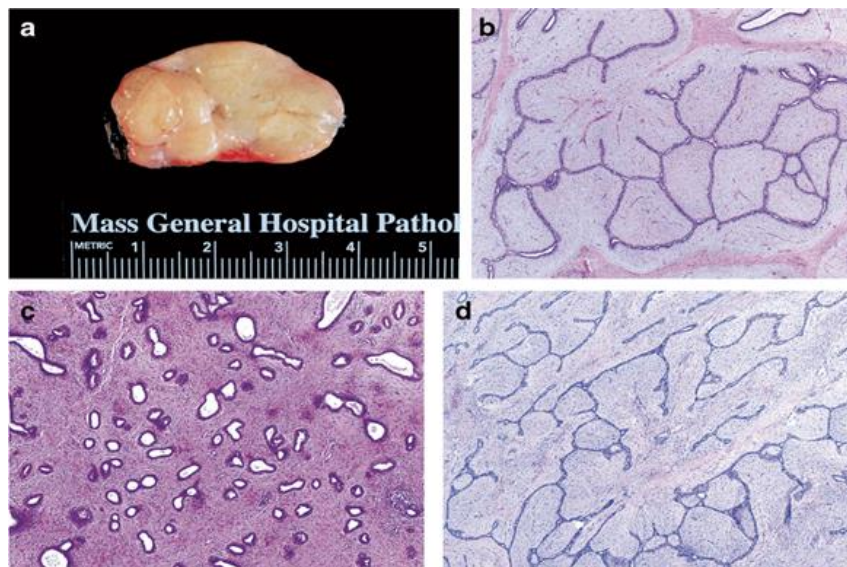


Figure 3 Histopathology of Breast showing Fibroadenoma

2.6. Clinical manifestation

Fibroadenoma often presents as a painless, smooth, movable, rubbery mass with defined borders on the upper outer quadrant of the breast, ranging in size from 1cm to 3cm. The size of the fibroadenoma might change spontaneously, or it can be hormonally sensitive and change in size with the menstrual cycle. A fibroadenoma is a solid breast mass that frequently does not cause pain. It is: round with definite, smooth boundaries movable firm or rubbery^[2].



Figure 4 Symptoms of Breast Fibroadenoma

2.7. Diagnosis

Patients with breast masses should have a medical assessment that includes a complete medical and family history, the occurrence of any previous breast-related lesion, a history of any malignancy or, mantle radiation, and constitutional symptoms. Providers should question about the mass's location, duration, size change, whether it is related to menstruation, concomitant pain or discharge, and the occurrence of subsequent masses. Some fibroadenoma can only be detected using an imaging test (such as a mammography or ultrasound). A breast biopsy (the removal of some breast tissue in order to alter it in the lab) may be required to determine whether a breast mass is a fibroadenoma (or another disorder).

When viewed under a microscope, most fibroadenoma seem the same all over. However, certain fibroadenomas may have additional modifications and are referred to as complicated fibroadenomas (complex fibroadenomas are larger and more common in elderly people). No laboratory testing is required for diagnostic purposes.

Imaging diagnostics: • Ultrasound - preferable if a definite palpable lump is visible, the patient is over the age of 30, or the patient is pregnant. • Discovering c/w fibroadenoma Oval or circular circumscribed hypoechoic mass with mild lobulations. Homogeneity.

2.7.1. Mammogram

Use if there is a palpable mass, you are above 30 years old, or you are not pregnant. Ultrasonography, rather than mammography, should be used to detect breast lesions in young women with dense breast tissue (SORC). MRI: Fibroadenomas are typically smooth masses with high signal intensity on T2 weighted images and gadolinium enhancement^[6,10].

2.8. Management

In the vast majority of situations, fibroadenomas do not require treatment. They will eventually diminish and disappear, but if they are huge and squeezing other breast tissue, they should be removed. Many females decide without surgery because the lesions are benign and provide no long-term risk of cancer. The contour of the breast is also destroyed during surgery. Surgery: Simple fibroadenomas found on clinical and radiological examinations have the following treatment options: Biopsy of the core confirm the diagnosis with no additional follow-up required or Ultrasounds in series: Examine for changes in appearance every 6 months for 2 years, with excision if necessary: In women with clinically worrisome lesions or lesions that are equivocal on imaging, FNA, or CNB (SORC), an excisional biopsy should be undertaken to reduce the risk of scarring that will impede further mammographic and sonographic interpretation. Clinical and radiographic examinations revealed complex fibroadenomas. Excisional biopsy: After full removal, no additional therapy is required. If the diagnosis of fibroadenoma is questionable, the following options are available: aspiration with cytological assessment of the aspirate, stereotactic core biopsy, or ultrasound guided biopsy. Metformin as a new option in the medical management of breast fibroadenoma^[9].

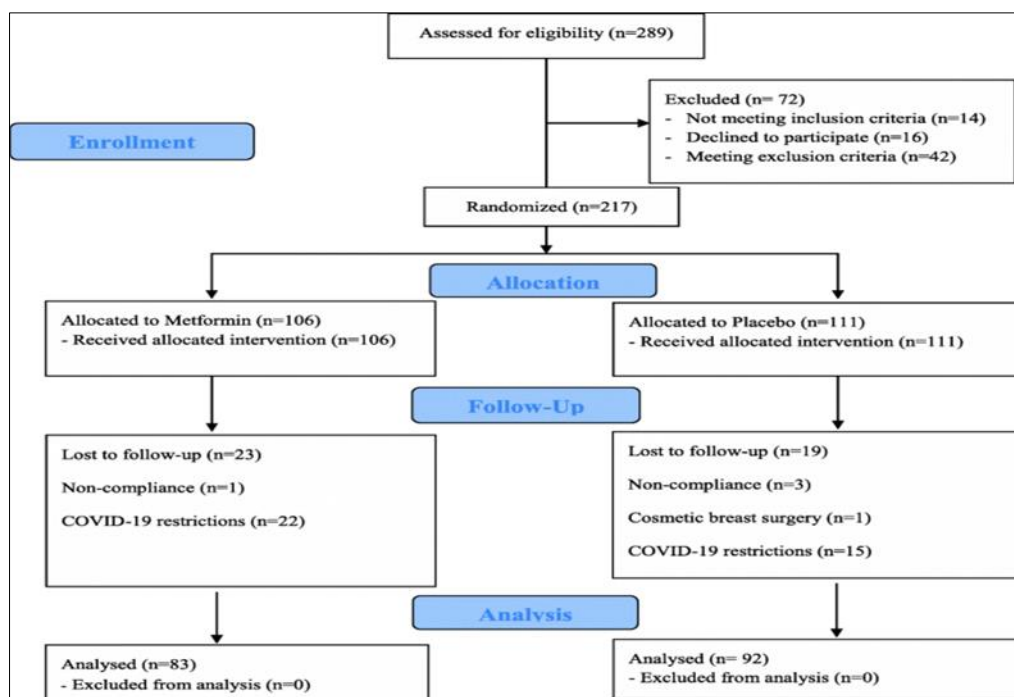


Figure 5 Management of Breast Fibroadenoma

3. Conclusion

In rural settings, benign breast fibroadenoma disorders are seen first, followed by fibroadenomatosis, giant fibroadenoma, tumour, and cysts in that sequence. Young women and teenagers can follow those conservative observations. A thorough medical examination, including imaging studies, should be performed to determine the presence of fibroadenoma. The treatment of fibroadenoma may be conservative, but the mass may be removed through total enucleation. Patients should be counselled throughout therapy on the benign nature of the mass, the various surgical and non-surgical treatments, and the necessity for additional surgery. More long-term outcome data are needed to inform treatment options for adolescent patients with breast fibroadenomas.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest in preparing this article.

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