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A REVIEW ON FIBROADENOMA

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ABSTRACT

Fibroadenoma is a non-cancerous breast lump. A fibro adenoma typically presents as a well circumscribed, rubbery,and firm mass. The natural history of fibro adenoma varies. A majority will grow slowly and can be around 2 to 3cm in size when detected by the adolescent, then remain static in size or resolve spontaneously. Fibro adenoma is the most common breast tumor in adolescent girls and women younger than 25 years. Fibro adenomas are benign tumors that are sharply demarcated from the surrounding tissue. The symptoms of fibro adenoma are solid breast lumps they are usually round, smooth, easily moved in breast and painless lumps. The cause of fibro adenoma is unknown but they might be related to the reproductive hormones.

Keywords: FIBROADENOMA, BREAST LUMP, REPRODUCTIVE HORMONES

INTRODUCTION

The breasts are specialized organs, which are placed on the anterior chest wall. . The female breast is more developed than the male breast, as their main function is to produce milk for nutrition of the infant and baby. There are a lot of glands in our breasts, which grow and develop during puberty and maturation. Female hormones such as oestrogen and progesterone are essential in promoting growth and changes that occur in the breast, especially during pregnancy and the menstrual cycle. Lying in a superficial layer of our skin above our chest muscles, the mammary glands in our breast drain through many ducts to our nipples. There is a dark, round layer around the nipple, known as the areola. It is important for women to understand the normal anatomy and function of their breasts so that any abnormalities can be detected and treated.[1][2]

Components of Breast [3, 4]

The breast consists of:

- Milk glands (lobules) that produce and supply milk
- Special ducts that transfer milk from the lobules to the nipple
- Nipple
- Areola (pink/brown pigmented region surrounding the nipple)
- Fat
- Connective (fibrous) tissue
- Breast structure

Female breasts are rarely symmetrical. In most cases, a breast is normally slightly larger or smaller, higher or lower or of different shape to the other side. When fully developed, the female adult breast is composed of 15–20 lobes of branching glands. These lobes are separated via bands of connective tissue, which radiate out from the nipple like spokes from the

middle of a bicycle wheel. There is lots of fat tissue within the breast. The amount of fat determines the size of the breast. The fatty tissue gives the breast its tender consistency.

The specific glands in the breast are called tub alveolar glands, which are modified sweat glands. Each of these glands end in a lactiferous duct (2–4 mm in diameter) and opens up via a small gap onto the nipple. Deep to the areola, each duct has a dilated part known as the lactiferous sinus, in which milk can accumulate and remain in the nursing mother. Cells which are important in contraction movements, called myoepithelial cells, are present in the gland and help in secreting fluid.[3][4]

Fibro adenoma is a non-cancerous breast lump.Fibroadenoma is the most common breast tumor in adolescent girls and women younger than 25 years.Although the peak incidence is between the 2nd and third decades of life,it is not distinctive in postmenopausal women, with an increased incidence after hormone replacement therapy[5].overall, it takes place in about 10% of women and accounts for about 50% of breast biopsies performed [6].A fibro adenoma generally presents as a well – circumscribed,rubbery,and firm mass.The natural history of fibro adenoma varies. A majority will develop slowly and can be around 2 to 3cm in size when detected by the adolescent, then remain static in size or resolve spontaneously[7][8].Cancer arising in the fibro adenoma is extremely rare.Fibroadenomas are benign tumors that are sharply demarcated from the surrounding tissue. Some authors even consider them to be an aberration of normal development rather than a true neoplasm [9].They consist of combined proliferation of epithelial and connective tissue elements ,and there is good histologic evidence that these tumors develop from a lobular origin [10].This may explain the high incidence of fibro adenomas in young women at the time of maximal lobular development and why the very rare cases of most cancers that arise in fibro adenoma are of lobular region .During their growth phase they increase significantly in size within six to 12 months and they remain stable or reduce later .During pregnancy they get bigger ,and in post-partum they commonly decrease in size[11].The signs and symptoms of fibro adenoma are solid breast lumps they are normally round,smooth,easily moved in breast and painless lumps. The cause of fibro adenoma is unknown but they might be related to the reproductive hormones.

CLASSIFICATION

It includes

- Simple fibro adenomas
- Giant fibro adenomas
- Juvenile fibro adenomas
- Complex fibroadenoams

SIMPLE FIBROADENOMAS

These are benign solid tumors containing glandular as well as fibrous tissue. In 20% of cases, multiple fibro adenomas occur in the same breast or bilaterally. The etiology of fibro adenomas is not known, but a hormonal relationship is likely since they persist during the reproductive years, can increase in size during pregnancy or with estrogen therapy, and usually regress after menopause. They are most commonly found in women between the ages of 15 and 35years.[12]

Pathogenesis of fibro adenoma represents hyperplastic or proliferative manner in a single terminal ductal unit; there improvement is regarded as aberration of normal development and the reason is unknown and fibro adenomas may additionally involute in postmenopausal female and coarse calcification might also develop. Conversely, the tumors may also grow hastily at some stage in being pregnant during hormone replacement therapy or all through immunosuppression, in which case the can stimulate the malignancy. Although originally classified as non-proliferative lesions,Fibroadenomas are now considered as proliferative breast lesions. However it is important to note that the histologic features of the fibro adenoma influence the risk of breast cancer. The risk of subsequent breast cancer is slightly elevated only if the fibroadenoam is complex, if there is adjacent proliferative diseases, or if there is a family history of breast cancer .For the majority of women with simple fibroadenomas,there is no increased risk of developing breast cancer[13]

GIANT FIBROADENOMAS

Giant fibro adenomas refer to histologically typical fibro adenomas over 10cm in size. Excision is recommended. The primary challenge for the pathologist is to differentiate these from phyllodes

Volume 2, Issue 5; September-October 2019; Page No.223-226

tumors.phyllodes tumors have a more cellular stromal component than fibro adenomas [14]

JUVENILE FIBROADENOMAS

It occurs in young women between the ages of 10 and 18 years. They may differ in presentation and management from adult fibro adenomas.

COMPLEX FIBROADENOMAS

They present as amass on physical examination or a nodule on mammogram or ultrasound. They are associated with a slightly increased risk of cancer when multi centric proliferative changes are present in the surrounding glandular tissue [15]

MANAGEMENT AND TREATMENT

A change in growth in breast mass requires further evaluation with breast imaging, utilizing primarily directed breast ultrasound in the adolescent population[16] .The characteristic clinical presentation can provide an accurate diagnosis based on physical examination alone in only 50% and 67% of fibroadenomas.thus,diagnosis should be based on supporting data such as findings from imaging and tissue study[17].Physical examination should include a detailed breast examination and palpation of the axillary lymph nodes. For palpable masses, the size and location of the mass should be documented and monitored. The physician noted the History should include age of at onset of menstrual cycle ,pregnancy history, changes in the size and texture of the mass ,association with the menstrual cycle, associated pain, breast skin changes, and nipple discharge[18]. Alternatively, a core needle biopsy with ultrasound guidance can be performed for tissue diagnosis [16] Fine needle aspiration or core needle biopsy can achieve a reliable diagnosis. Fine needle aspiration is a simple, reliable ,cost effective and accurate method and the application of FNAC for the diagnosis of fibro adenoma was introduced by Martin and aellis in 1930 and since it ha sbeen established as an important tool in the evaluation of breast lesion .FNAC can reduce the number of open biopsies.FNAC is an important part of triple assessment[19]The combination of a clinical breast examination ,imaging, percutaneous tissue study is referred to as the Triple assessment approach. The management of fibro adenomas is still debatable and dependent on patient age and clinical findings. For non-palpable lesions, The recommended approach is a follow up period of 1 to 3 years after the fibro adenoma is diagnosed by the triple assessment, For palpable lesions, some advocate complete surgical excision of all lesions that are clinically suspected of being fibroadenomas,as it provides a definitive diagnosis while removing the lesion as a source of patient concern[20]

Management of fibro adenomas varies from observation to open surgical excision the risk of malignancy in fibro adenomas is less than 0.3% and exceedingly rare in women before the age of 40 yrs. A variety of minimally invasive techniques are available or being researched and include ultrasound guided vacuum assisted biopsy and it is performed for the diagnostic purposes in adult women. And this procedure is performed in an outpatient setting with local anesthetic and is less invasive with a better cosmetic outcome than surgical excision.[21]

CRYOTHERAPY

Cryoablation is an outpatient procedure performed with local anesthetic that consists of ultrasound guided placement of a cry probe in the center of a targeted lesion [22]

MRI GUIDED FOCUSED ULTRASOUND

It is a noninvasive tissue ablation method that utilizes focused ultrasound beams to penetrate through soft tissues and cause localized high temperatures.[23]

NON SURGICALTREATMENT

Surgery can distort the shape and texture of the breast, Fibroademoas sometimes shrink or disappear on their own. The breast has multiple fibro adenomas that appear to be stable

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Volume 2, Issue 5; September-October 2019; Page No.223-226

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Volume 2, Issue 5; September-October 2019; Page No.223-226