Original Research Article

Epidemiology of benign breast lumps, is it changing: a prospective study

Navin Kumar^{1*}, Janardan Prasad²

¹Department of Surgery, All India Institute of Medical Sciences Rishikesh, Uttarakhand, India

²Department of Surgery, Rajendra Institute of Medical Sciences Ranchi, Jharkhand, India

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*Correspondence:

Dr. Navin Kumar,

E-mail: surgeon_navin@yahoo.co.in

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ABSTRACT

Background: There are wide range of benign breast diseases reported from India. Breast lumps are one of the commonest presentations. Although most of the breast lumps are benign but patient become anxious due to fear of malignancy. Due to this, there is an increase in the use of screening mammography and the fine needle aspiration cytology (FNAC) or core needle biopsy (CNB), most of which yield benign findings. This study is aimed to evaluate the incidence of different types of benign breast lumps in respect to age, size, side and site, relation with parity and use of oral contraceptive pills and analyses of this result in relation with the past and recent study on benign breast diseases.

Methods: This study was conducted at Rajendra Institute of Medical Sciences, Ranchi (India) over a period of one and half years. Inclusion criteria was the cases with palpable breast lumps which were reported benign on either FNAC or CNB and exclusion criteria was the cases with breast malignancy and inflammatory breast lumps.

Results: Most common benign breast lump (BBL) was fibroadenoma followed by fibrocystic disease of breast. Fibroadenoma was mainly presented with lump only whereas fibrocystic diseases of breast presented with lump and pain. Most of the BBL was found in nullipara and OCP non-users.

Conclusions: Epidemiology of BBL is still the same when analyzed with past and recent study on the benign breast diseases. Triple assessment remains the key in the evaluation of breast lumps.

Keywords: Benign breast disease, Fibroadenoma, Fibrocystic disease of breast, Phyllodes tumor

INTRODUCTION

Benign breast conditions are the most common clinical presentation among breast diseases. In spite of this, there are very few studies on epidemiology of benign breast lumps (BBL). At least 90% of patients attending a breast clinic will have benign breast diseases.^{1,2} Pain is the most common symptom followed by the breast lump. Breast lumps create anxiety among female of any age due to fear of malignancy. There is a constant physiological change occurring in breast throughout the life cycle of female

related to menstrual cycle, pregnancy, lactation and menopause. Women experiences various types of breast lumps. 85% or more of all breast lump are discovered by self-breast examination by the patient. Lump become palpable when it is more than 1 cm in diameter. It takes 3 years for a tumor to attain this size from a single cell stage estimated by tumor doubling time.³ Incidence of breast lump is different in different parts of the world.

This study is aimed to evaluate the incidence of different types of benign breast lumps in respect to age, size, side

and site, relation with parity and use of oral contraceptive pills and analyses of this result in relation with the past and recent study on benign breast diseases.

METHODS

This was a prospective observational study conducted at Rajendra Institute of Medical Sciences, Ranchi (India) from July 2004 to December 2005. The study protocol was approved by the local ethical committee. Informed consent form was obtained from all the participants included in the study.

Inclusion criteria

The cases with palpable breast lumps which were reported benign on either fine needle aspiration cytology (FNAC) or core needle biopsy.

Exclusion criteria

The cases with breast malignancy and inflammatory breast lumps.

Study population

All the female patient with breast lumps who presented to Surgery out-patient department (SOPD) during the study period, who met the inclusion criteria were included in the study. Total 75 cases meet the inclusion criteria and were included in the study. A detail history and thorough clinical examination done, and a provisional clinical diagnosis made. Then all the cases were subjected to Sono-mammography and thereafter all the cases were subjected to either FNAC or CNB as depicted in Table 5. A detail proforma was tabulated in relation to age, size of lump, side and site affected, mode of presentation, types of BBL on the basis of FNAC / core needle biopsy (CNB), and relationship with parity and use of oral contraceptive pills. Cases were broadly divided in to six different age groups with 10 years interval. On the basis

of FNAC / CNB, it was found eight types of benign breast lumps as follows; fibroadenoma- unilateral and bilateral, Fibrocystic disease /fibroadenosis- unilateral and bilateral, Phyllodes tumor, Breast cyst, Galactocoele, Duct ectasia, Duct papilloma and fat necrosis. All the collected data (like age, size, side and site, mode of presentation and relationship with parity and use of oral contraceptive pills) were arranged with their final diagnosis (Tables 1 to 6 respectively). Now these data were analyzed in relation with the past and recent study on benign breast diseases.

Statistical analyses

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS) version 24.0, statistical software.

RESULTS

The study enrolled 75 cases of benign breast lumps (BBL). Maximum number of BBL (80%) were found in the age group of 15-35 years. The youngest patient was 15 years of age and oldest was of 62 years. The different types of BBL in relation to age group was found as depicted in Table 1. Fibroadenoma was the most common BBL 35 (46.66%) and was most prevalent in the age group of 15-25 years of age 23 (65.71%) whereas fibrocystic diseases 19 (25.33%) was the second common BBL and was most prevalent 12 (63.15%) in the age group of 26-35 years. Incidence of phyllodes tumor was 5 (06.6%) and most prevalent 02 (40%) in 56-65 years. The youngest patient of phyllodes tumor was 35 years and oldest was 62 years. Duct ectasia and duct papilloma was found in above 35 years of age and their incidence was 2 (2.7%). One case of Fat necrosis (1.33%) was found in 25 years. Two cases of galactocoele (2.7%) was found between 22-26 years of age. Breast cyst was found in more than 30 years of age and its incidence was 4 (5.33%). Authors have encounter a wide range of breast lump from less than 2.5cm to more than 10cm (Table 2).

Table 1: Incidence of benign breast lumps in relation to age.

Age groups (in years)	No. of cases in different age groups (in years)						Total
	15-25	26-35	36-45	46-55	56-65	66-75	
Types of disease							
Fibroadenoma	23	10	02	X	X	X	35
Fibrocystic disease	04	12	02	01	X	X	19
Phyllodes tumor	X	01	01	01	02	X	05
Breast cyst	X	02	02	X	X	X	04
Galactocoele	01	01	X	X	X	X	02
Duct papilloma	X	X	01	X	01	X	02
Fat necrosis	01	X	X	X	X	X	01
Bilateral fibroadenoma	01	01	X	X	X	X	02
Bilateral fibroadenosis	X	03	X	X	X	X	03
Duct ectasia	X	X	01	01	X	X	02

There were two cases of phyllodes tumor had more than 10 cm of size. Although majority of the BBL 40 (53.33%) were within 2.5cm size (Table 2).

Right breast was most commonly affected 39 (52%) and upper outer quadrant was the most common quadrant affected 42 (56%) (Table 3).

Most common symptom was lump only in 45 (60%), followed by lump with pain 25 (33.3%). Fibroadenoma was the most common BBL which was present with lump only 27 (60%) (Table 4).

Final diagnosis was made on the basis of FNAC /CNB. All the cases of phyllodes tumor was directly subjected to CNB because of large size whereas cases of duct ectasia and duct papilloma was subjected to CNB after inconclusive report on FNAC (Table 5).

Incidence of BBL were maximum 44 (58.66%) in nullipara, of which fibroadenoma 30 (68.18%) was the most common (Table 6). BBL was most commonly found

in OCP non-user 65 (86.66%) in which fibroadenoma 33 (50.76%) was the most common. (Table 6).

Table 2: Incidence in relation to size of lump.

Type of disease	Size of lump in centimeter (cm)			
	<2.5	2.5-5	5-10	>10
Fibroadenoma	19	15	01	X
Fibrocystic disease	13	06	X	X
Phyllodes tumor	X	X	03	02
Breast cyst	01	03	X	X
Duct ectasia	01	01	X	X
Galactocele	X	02	X	X
Duct papilloma	02	X	X	X
Fat necrosis	X	01	X	X
Bilateral fibrocystic disease	03	X	X	X
Bilateral fibroadenoma	01	01	X	X
Total (75)	40	29	04	02
%	53.33	38.66	5.33	2.66

Table 3: Relation between side affected and site of distribution of lesion in different types of disease.

Type of disease	Breast affected			Site affected					
	R	L	BL	UOQ	UIQ	LOQ	LIQ	SA	MM
Fibroadenoma	23	12	02	26	04	02	03	X	02
Fibrocystic disease / fibroadenosis	08	11	03	12	03	03	03	X	01
Phyllodes tumor	03	02	X	01	X	X	X	X	04
Breast cyst	01	03	X	X	X	01	X	03	X
Duct ectasia	02	X	X	X	X	X	X	02	X
Galactocele	01	01	X	X	X	X	X	X	02
Duct papilloma	01	01	X	X	X	X	X	02	X
Fat necrosis	X	01	X	01	X	X	X	X	X
Total	39	31	05	40	07	06	06	07	09
%	52	41.33	06.7	53.33	09.33	08	08	09.33	12

Table 4: Different types of presentation.

Type of disease	Lump only	Lump with pain	Lump with nipple discharge	Lump, pain and nipple discharge
Fibroadenoma unilateral / bilateral	27	10	X	X
Fibrocystic disease	09	10	X	X
Phyllodes tumor	04	01	X	X
Breast cyst	02	02	X	X
Duct ectasia	01	X	01	X
Galactocele	X	X	02	X
Duct papilloma	X	X	02	X
Fat necrosis	01	X	X	X
Bilateral fibroadenosis	01	02	X	X
Total	45	25	03	02
%	60	33.3	04	02.7

Table 5: Diagnosis on the basis of FNAC and Core needle biopsy.

Types of diseases	No. of cases of diagnosed on FNAC	No. of cases of diagnosed on core needle biopsy
Fibroadenoma unilateral / bilateral	37	X
Fibrocystic disease and bilateral fibroadenosis	22	X
Phyllodes tumor	X	05
Breast cyst	04	X
Duct ectasia	Inconclusive	02
Galactocele	02	X
Duct papilloma	Inconclusive	02
Fat necrosis	01	X
Total	66	09

Table 6: Relationship BBL in relation with parity and oral contraceptive pills (OCP) use.

Type of disease	Parity (P)					OCP (Estrogen and Progesterone)	
	Nullipara (P0)	P1	P2	P3	P4	OCP non- users	OCP users
Fibroadenoma	30	04	01	01	X	33	02
Fibrocystic disease	11	04	01	X	02	13	06
Phyllodes tumor	X	X	03	01	01	05	X
Breast cyst	01	03	X	X	X	04	X
Duct ectasia	X	01	X	01	X	02	X
Galactocele	X	02	X	X	X	02	X
Duct papilloma	X	01	01	X	X	02	X
Fat necrosis	X	X	01	X	X	01	X
Bilateral fibroadenosis	01	02	X	X	X	02	01
Bilateral fibroadenoma	01	X	X	X	01	01	01
Total	44	17	07	03	04	65	10
%	58.66	22.66	09.33	04	05.33	86.66	13.33

DISCUSSION

There are several hormones act on the epithelial and stromal cells of the breast and regulates its development and maturation.^{4,5} Estrogen helps in elongation of ductal tissue whereas progesterone helps in lobulo-alveolar development. Every month cyclical changes occur in the breast during the menstrual cycle, which causes 15% increase in the breast size, whereas number of lobule decreases at menopause.⁶ Benign breast lump is one of the commonest clinical diagnosis in breast clinic but biopsy of the lesion gives the accurate data of BBL. It starts from the second decade and peak in the third decade.^{7,8} Fibroadenoma was the commonest lesion in this study in 15-35 years of age followed by fibrocystic disease of breast in 26-35 years of age, which is consistent with the other past and recent study from India.^{7,9-14} Majority of the fibroadenoma was single 35 (46.66%), bilateral fibroadenoma in 2 (2.66%) and giant fibroadenoma (lump 5cm or more in size) was present in 1 (01.33%). Rangabashyam N et.al reported single fibroadenoma as most common presentation (71%).¹⁰ Mima Maychet B. Sangma et al, also reported fibroadenoma 52.74% as the most common BBL.¹² Brajesh Kumar et al, reported fibroadenoma 42% as the

most common BBL.¹⁴ Exaggerated response to hormonal stimuli may occur in the lobules and stroma of the breast which causes development of single or multiple fibroadenoma.¹¹ Unilateral fibrocystic disease of breast was 19 (25.33%), the second common lump in this study which was similar to the previous study by Naveen et al, and recent study from Mima Maychet B et al, and Brajesh Kumar et al (16%), and incidence of bilateral fibrocystic disease was 3 (4%).^{7,12,14} Fibrocystic disease of breast implies non-discrete nodule in the breast. Incidence of Phyllodes tumor in this study was 5 (6.66%) which was consistent with previous report from India (0.63-13.8%) whereas western data showing less than 1% of incidence.^{11,15} Mallikarjuna et al, reported upper outer quadrant as the most common site involved in BBL, which is similar to this study.¹⁶ In this study, most of the BBL was found in OCP non users which is in contrast with recent study by A. Carbonaro et al who showed no direct relationship between OCP and BBL.¹⁷ Fibroadenoma and fibrocystic disease of breast was more common in nullipara. Other studies showed increased incidence of fibrocystic disease with nulliparity but no relation of nulliparity with fibroadenoma.¹⁸⁻²¹ Higher parity is protective against fibrocystic disease but not from fibroadenoma.²²

This was a limited period and single center study. Longer duration of study is required to reflect the exact figure of epidemiology. However, our study data in most of the cases of BBL is consistent with previous as well as recent study from India.

CONCLUSION

Epidemiology in most of the cases of BBL in this study was similar to previous and recent study. Fibroadenoma was the commonest BBL in the age group of 15-25 years whereas fibrocystic disease of breast was common in the age group of 26-35 years of age. Lump was the major symptom in fibroadenoma whereas lump with pain was present in fibrocystic disease of breast. Majority of the patient of BBL were nullipara and OCP non users.

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