A Review of Breast Diseases in Chingola

[1]Duncan D Mugala, [2]Professor Nathan Siulapwa, [3]Alick Mwambungu, [4]Muleya Mwila

[1]BSc, MB ChB, M Med (Surgery), FCS (ecsa), Senior Consultant General Surgeon, Nchanga South Hospital, Chingola.(Retired), Senior Consultant Surgeon Ndola Central Hospital, Senior Lecturer Copper Belt University School of Medicine Honarary Lecturer University of Zambia School of Medicine

[2](BSc, MSc, PhD) Head-Basic Sciences Copperbelt University School of Medicine

[3](BSc, MSc) Lecturer Ndola College of Biomedical Sciences

[4]BSc, MB, ChB Medical Officer, Nchanga South Hospital Chingola

Abstract: **Background: Breast tumors are common worldwide, and various reports suggest an increasing incidence in Zambia. Breast lesions can be of various types from inflammatory to benign to malignant.**

Some lesions are common in young females while others are more common in elderly age group. The main objective of this study was to determine the prevalence of inflammatory, benign and malignant breast lesions and age related pattern of presentation of patients with various breast lesions.

Materials and Methods: A retrospective review of histology reports on breast disease from 1991 to 2008 was done. The case records of all the patients who presented to the Nchanga South Hospital January 2006 to January 2008 with breast disease were studied. The information gathered was entered on a questionnaire which was formulated for the purpose.

Results: During the study period 4,565 requests for histology were made. Sixty three patients were admitted to the hospital for breast disease from January 2006 to January 2008. The youngest patient found was 2 years old and the oldest was 69. The mean age was 32 years. A total of 108 breast tumors were diagnosed during the study period, of which 78 (72%) were benign, and 30(28%) were malignant. Fibroadenoma was the commonest benign breast tumor followed by fibrocystic change, and they accounted for 50% and 25.4% of benign breast tumors respectively. Invasive ductal carcinoma was the predominant malignant tumour diagnosed with the prevalence of 87%.

Conclusions: We conclude that breast diseases are common among our women and the fact that those women with non-acute diseases tend to report to health institutions late is a worrying problem that needs the attention of health authorities.

Keywords: **Breast Lump, Carcinoma, Benign, Fibro adenoma, Breast disease.**

1.   INTRODUCTION

1.1 Background:

Breast comprises a branching system of ducts leading down from the nipple ending in glands in which the acini aggregates into lobules. There are approximately 12 large ducts which emerge from the breast at the nipple as lactiferous ducts. These ducts then branch repeatedly giving rise to the terminal duct lobular units (TDLUs) at the end (1). Breast lesions are a common heterogeneous group of disorders ranging from self limiting inflammatory lesions to life threatening invasive cancers (2). Breast diseases are showing a rising trend worldwide (3). This may be due to increasing public awareness of breast cancer which is presently the most common female malignancy worldwide (4). Breast diseases are common in women because estrogen cyclically stimulates breast development during their reproductive life, while in men the breast remains largely poorly developed providing formidable anti-neoplastic resistance (5). Nevertheless benign breast diseases are most common cause of breast problems (6). Benign breast disease is a neglected entity despite the fact

that it constitutes the majority of breast problems. Breast cancer has taken precedence over benign breast disease since it is more fearsome although the number of females with benign breast disease is substantial (7). Factors ranging from genetic, viruses, endocrine, geographic, reproductive function, radiation, obesity, trauma and microorganisms have been implicated as predisposing agents of breast pathology (8). Breast pathology has been grouped into 3 main groups, namely inflammatory, benign and malignant lesions. Acute and chronic inflammations are the 2 types of inflammation seen in breast biopsies, mostly caused by either microorganisms or obstruction of lactiferous ducts (9)

Benign lesion is a non-cancerous tumour confined in one place and does not spread to other parts of the body. Benign lesions can be categorized into various fibrocystic changes that can be proliferative or non-proliferative changes, fibroadenoma, duct papilloma, phylloides tumour and others. Fibroadenoma of the breast is a common cause of a benign breast lump in premenopausal women (10,11). Fibrocystic disease is a histological term that refers clinically to a large group of syndrome presented as lump or lumpiness (12). These types of lesions commonly occur in women within the reproductive age mostly below 30years and have fibroadenoma as the highest occurring type (13). Generally, as with most neoplasms of other organs, benign breast tumors occur more frequently in clinical practice than malignant cases in both sexes. Fibroadenomas are found most frequently in young women and together with fibrocystic disease are the two benign tumors of the breast most often encountered worldwide.

Malignant lesion is a cancerous condition of the breast that can invade tissues around the breast and has tendency of spreading to other parts of the body.

Carcinoma of the breast can be divided according to it is origin, example; ductal and lobular or according to invasiveness example; invasive and non-invasive. Carcinoma of the breast mostly occur after 40years of age, uncommon below 30 and rare before 25years with invasive ductal carcinoma being the highest occurring type (14). At present, breast cancer is the most common malignancy in women around the world. It is second only to lung cancer as a cause of cancer death among women in United States. Every single woman is at risk of developing cancer with a life time risk of occurrence presently 6.5% or 1 in 15 ratios. In 2001 alone, a total of 200,000 cases were said to be diagnosed in the United States with over 40,000 dying of the disease (15). Morbidity associated with benign tumors is minimal, unlike breast cancer and its treatment which constitute great physical, psychological and economic challenge in resource-limited societies. While mortality rate is declining in the developed world as a result of screening, early diagnosis and improved cancer treatment, in Africa, breast cancer has overtaken cervical cancer as the most common malignancy affecting women. Incidence rates appear to be rising due to changes in demography, socioeconomic, epidemiologic risk factors, better reporting and increasing awareness of the disease (16). The most common symptoms are pain and palpable breast lumps. Other clinical features include nipple discharge, nipple deformity such as retraction and occasional skin changes. Despite the presence of mammography and fine needle aspiration cytology, tissue biopsy remains the gold standard for diagnosis, and this can be obtained by different techniques such as needle core, incisional or excisional biopsies.

Cancer of the breast is becoming more frequent in developing countries including Zambia.

According to data obtained from the Zambia National Cancer Registry (ZNCR) data of 1990 to 2009, Breast cancer accounts for 11.4% and 1.0% of all the cancers in female and male patients respectively.

The main purpose of this study was to analyses the spectrum of breast lesions in a mine Hospital, Chingola,Zambia.

2. PATIENTS AND METHODS

A retrospective review of histology reports on breast disease from 1991 to 2008 was done to determine the trends of breast disease over the years.

The case records of all the patients who presented to the Nchanga South Hospital from January 2006 to January 2008 with breast disease were studied. A questionnaire was formulated on which the following information was entered; name, age, area of residence, complaint and duration of the complaint. The examination findings detailing the physical examination, breast and histological diagnoses were also entered on the same form.

3. RESULTS

Between 1991 and 2008, a total of 4,565 histology samples were sent to histopathology laboratory for diagnosis of different conditions. Out of 4,565 histology samples, 108 samples were positive for breast disease giving a prevalence of 2.4%.This figure included 107 female and 7 male patients.

Between January 2006 and January 2008, 63 patients were admitted to the hospital for breast disease and all these were female patients.

Histology reports studied from 1991 to 2008 had the youngest patient aged 2 years old and the oldest aged 69 years, with the mean age of 32 years. In the cases reviewed between 2006 and 2008, the youngest patient was 14 years old and the oldest was 60 years old, with the mean age of 30 years.
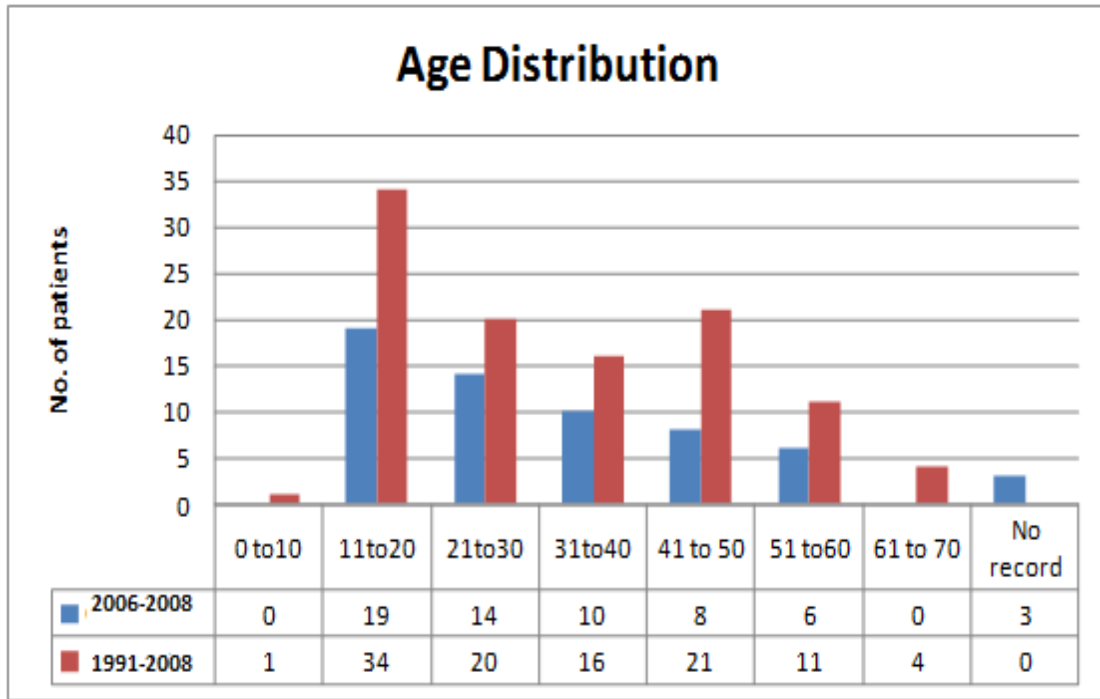

Fig 1: Age distribution of patients with breast disease

3.1 Side of breast affected:

Figure 2 shows that among the histology cases reviewed from 1991 to 2008 the left breast was the most frequently affected.
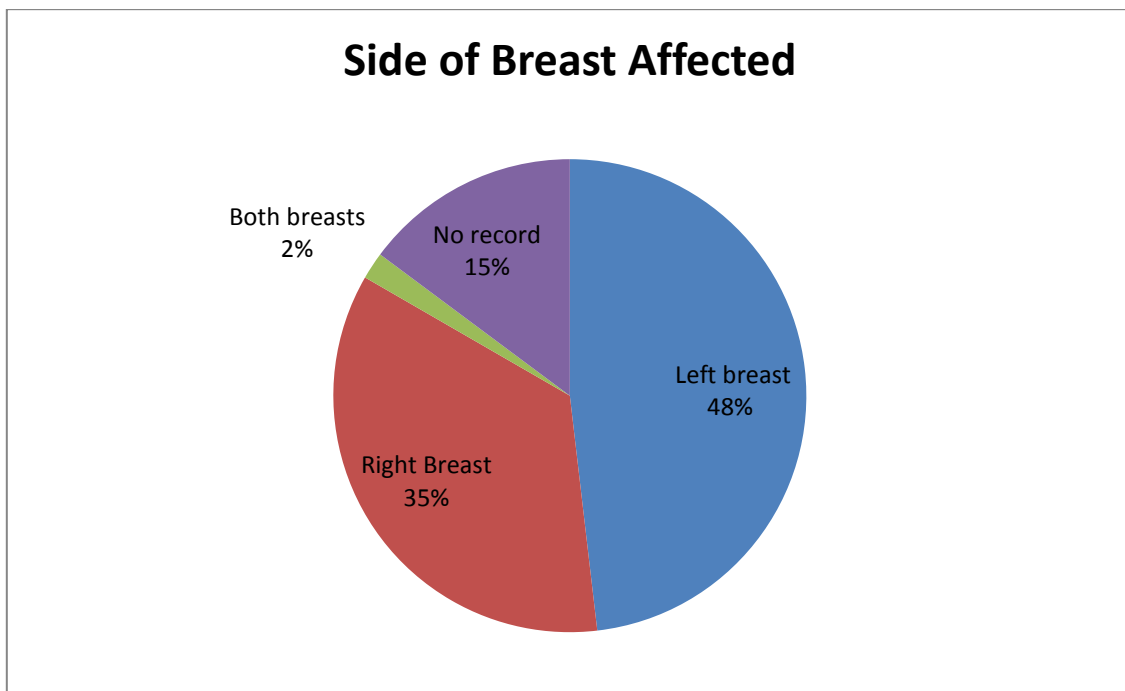

Fig 2: Side of breast affected with breast disease

3.2 Social status of patients:

Figure 3 and 4 shows that the majority of patients who had breast disease between 2006 and 2008 where of lower income category.
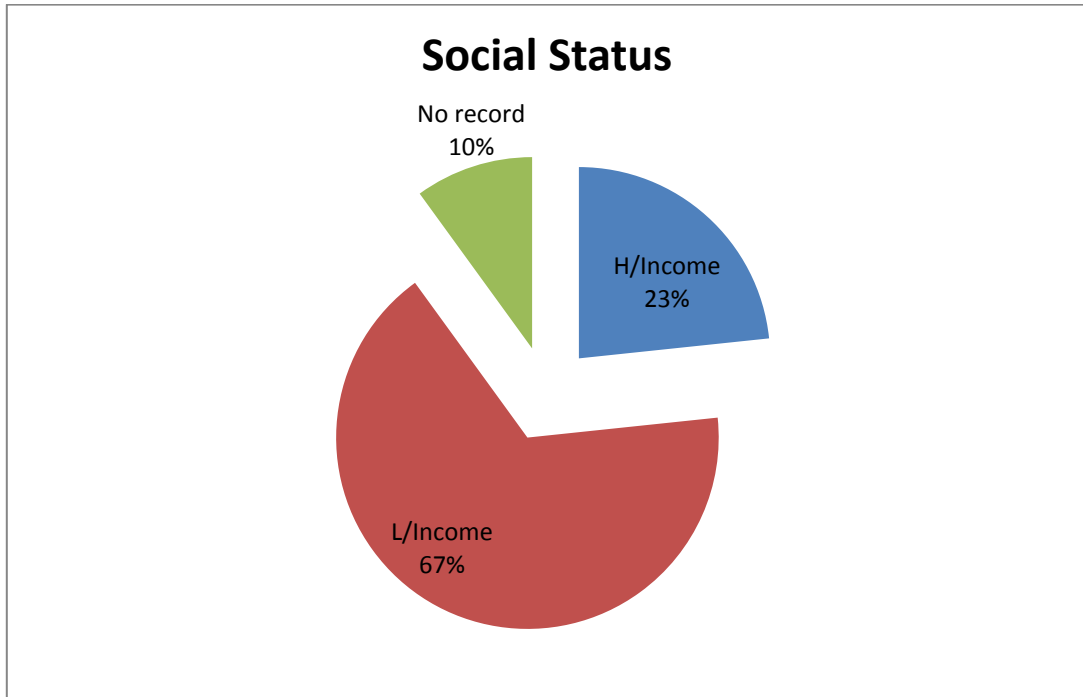

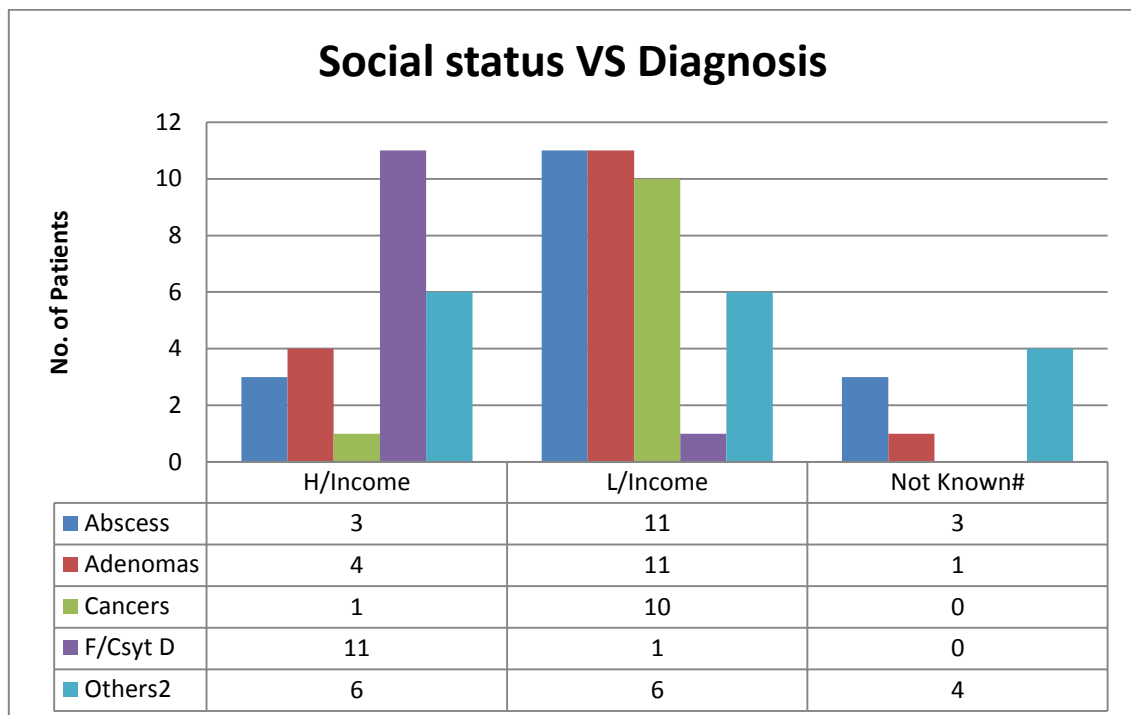**Fig 3: Social status of patients (January 2006- January 2008)**

	H/Income	L/Income	Not Known#
■ Abscess	3	11	3
■ Adenomas	4	11	1
■ Cancers	1	10	0
■ F/Csyt D	11	1	0
■ Others2	6	6	4

Fig 4: Characterization of breast disease in comparison with social status

 # Either the Diagnosis was not known or the Social status was not known.

3.3 Presenting signs and symptoms:

The presenting complaints in the patients whose case notes were studied (2006-2008) were as shown in Fig 5 and the duration of complaints from onset to clinical examination is shown in Fig 6.
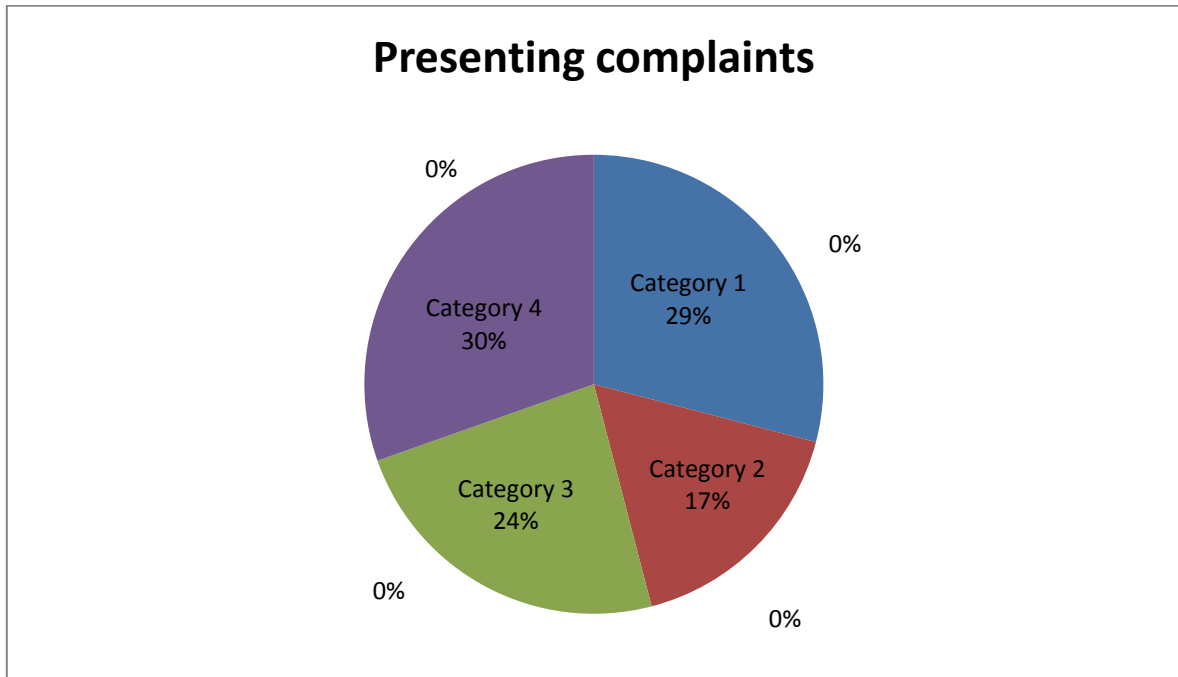
Presenting complaints

Fig 5: Presenting signs and symptoms

Duration of symptoms vs clinical findings

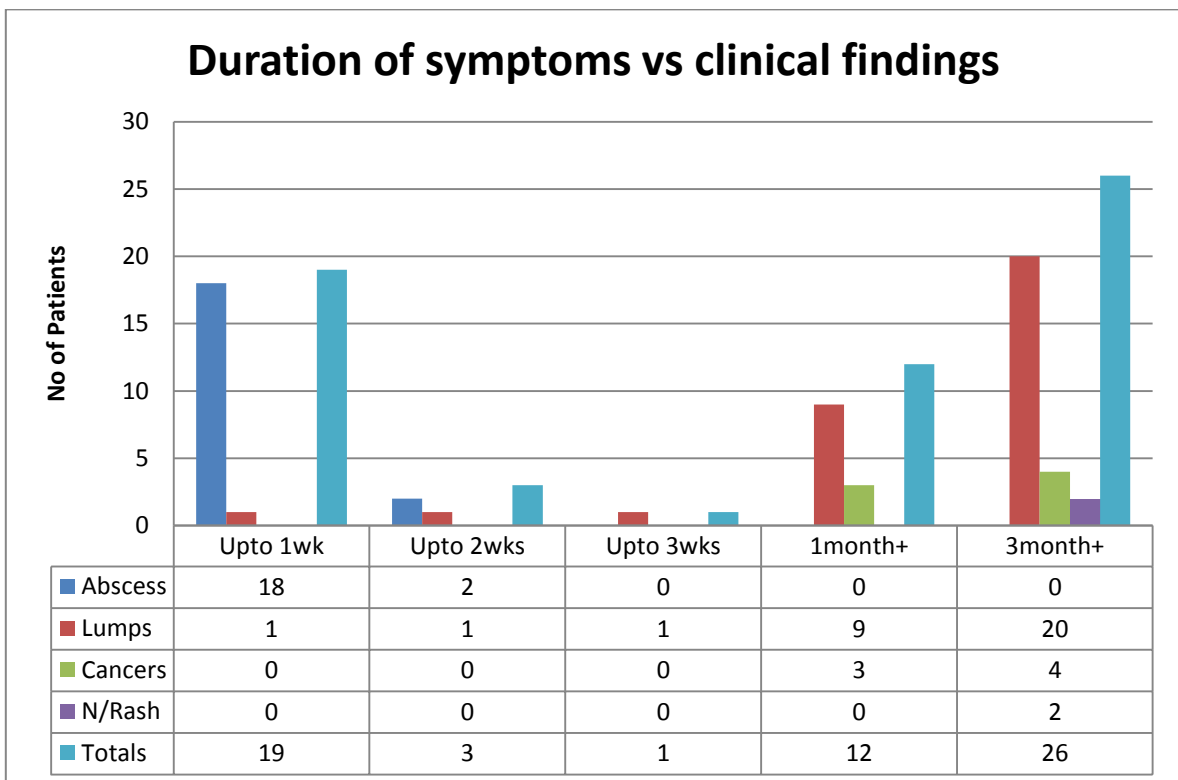|	Upto 1wk	Upto 2wks	Upto 3wks	1month+	3month+
■ Abscess	18	2	0	0	0
■ Lumps	1	1	1	9	20
■ Cancers	0	0	0	3	4
■ N/Rash	0	0	0	0	2
■ Totals	19	3	1	12	26

Fig 6: Duration of symptoms in comparison to clinical findings

3.4 Clinical examination findings in admitted patients (2006-2008):

Figure 6 shows that Infections of the breast were found in 18 (30.0 %) patients and all of them were lactating mothers. Lumps were found in 32 (53.3 %) of the patients. Two women had bloody nipple discharge; one had a clearly malignant rash. Seven women had malignant Tumours which were clinically evident.

3.5 Histological diagnosis:

All the diagnoses except in the patients with mastitis and some breast abscesses were made histologically.

3.5.1 Benign conditions:

3.5.1.1 Benign Tumours:

Table 1, shows that fibro adenoma was the most benign tumour diagnosed at Nchanga South Hospital with the prevalence of 39(50%).

Table 1: Prevalence of Benign breast diseases

Disease	No. Patients (%)
Fibro adenoma	39(50.0)
Fibrocystic Disease	11(14.0)
Tubular adenoma	06(7.0)
Abscess	03(3.0)
Gynacomastia	02(2.5)
Epithelial Duct hyperplasia	02
Mammary Duct Actasia	02
Follicular Lymphoid Hyperplasia	02
Fat Necrosis	02
Giant cell Tumour	01(1.3)
Misc	08(10.2)
Total	78(100)

Table 2 and figure 7 shows that Pericanalicular variant fibro adenoma was the most common among the characterized fibro adenomas with the mean age at diagnosis being 18 years.

Table 2: Characterization of fibro adenomas

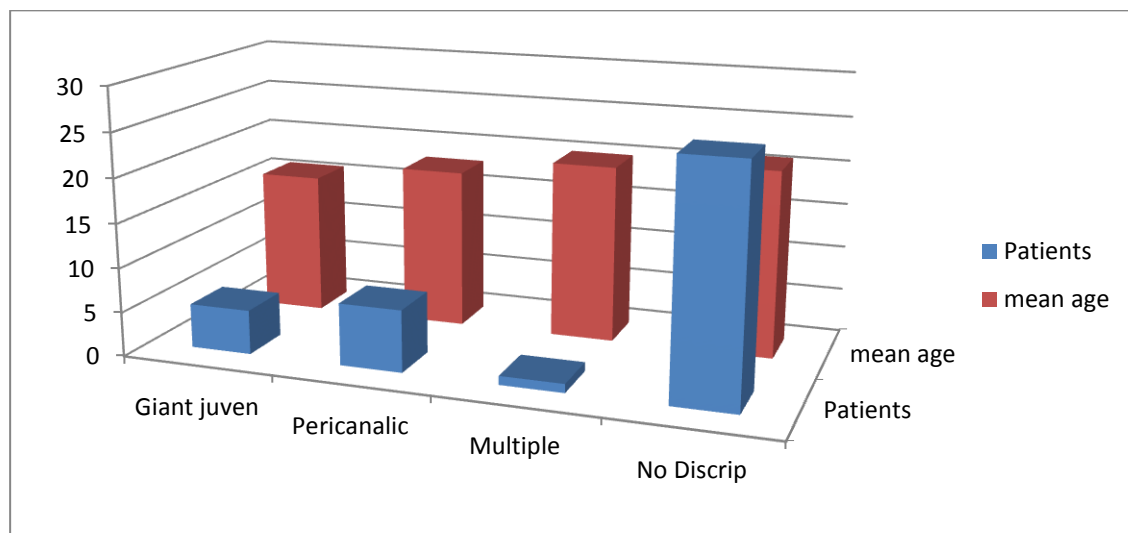| DESCRIPTION	N (%)	MEAN AGE
Giant juvenile variant	05 (12.9)	16
Pericanalicular variant	7 (17.9)	18
Multiple tumors (peri canalicular)	1 (0.5)	20
No description given	26 (66.7)	21

Fig 7: Characterization of fibro adenomas and age

3.6 Infective Breast disease:

 18 (28.3%) cases of infective breast disease; 15 were breast abscesses and 3 were cases of mastitis. The age range in this group was 16 to 42 years and the mean age was 27.2 years. All these patients were lactating mothers.

3.7 Malignant tumours:

Table 3: Characterization of breast malignancies diagnosed at Nchanga South Hospital

Malignancy	N (%)
Ductal carcinoma	26 (87)
Sarcoma Phyllodes	02 (7)
Lobular Carcinoma	01 (3)
Papillary Duct carcinoma	01 (3)
Total	30 (100)

The age range among patients with Malignancy was from 15 years to 65, the mean age was 44.7 years

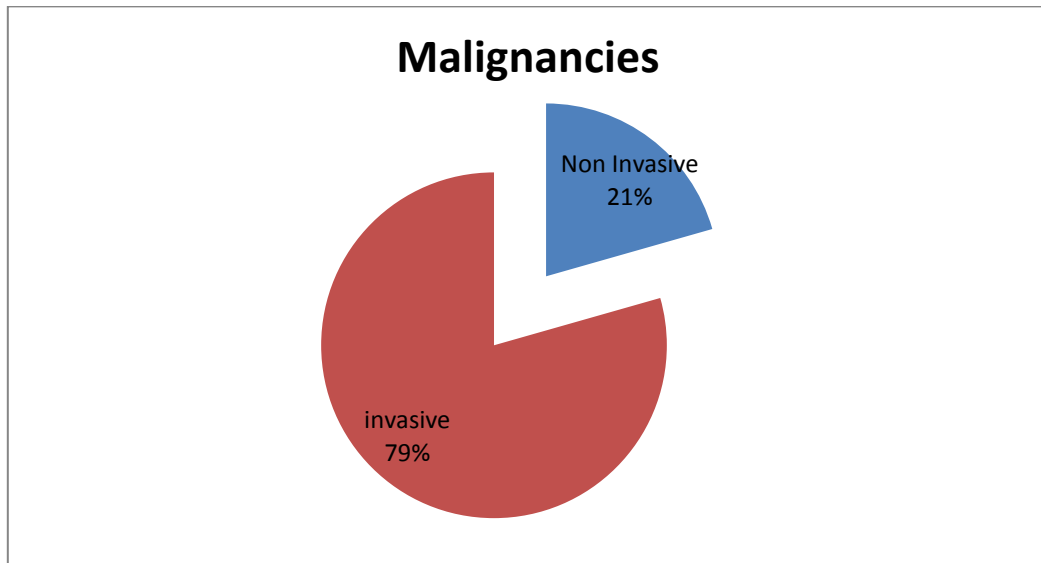Figure 8, shows that 79% of malignancies diagnosed were invasive while 21% were non invasive.

Fig 8: Stage of malignancies at diagnosis

3.8 Type of surgery done:

As shown in figure 9, the majority of the patients with breast disease had undergone Lumpectomy (40%).
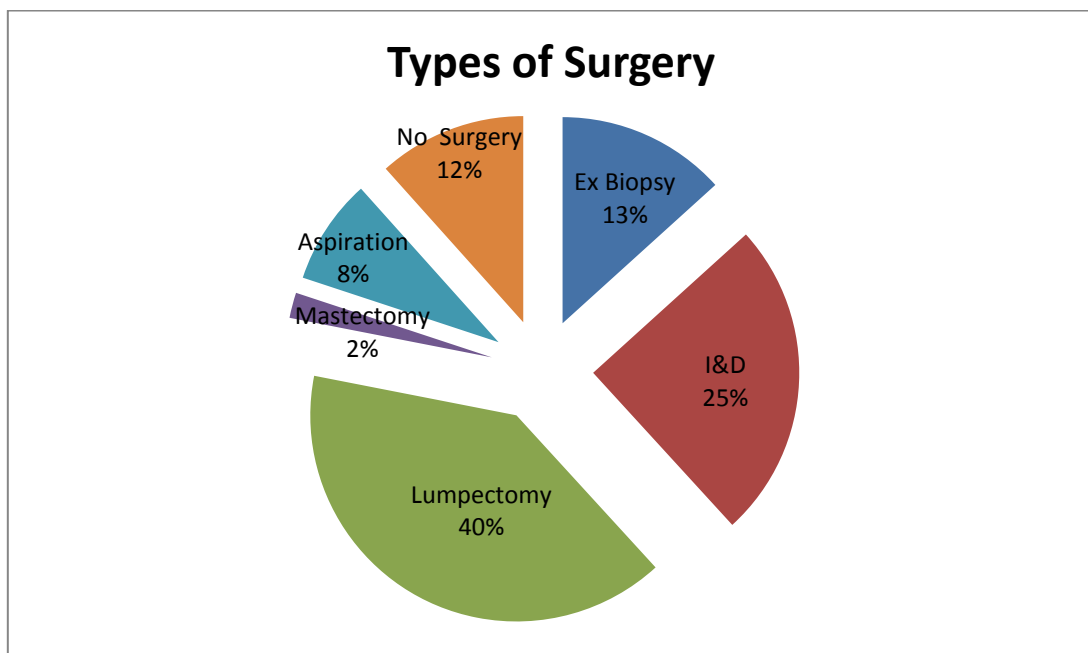

Fig 9: Type of surgery done

3.9 Trends in breast diseases:

Fig 9 and 10 shows that over the study period, prevalence of breast diseases has been on an increase from 1991 to 2008.
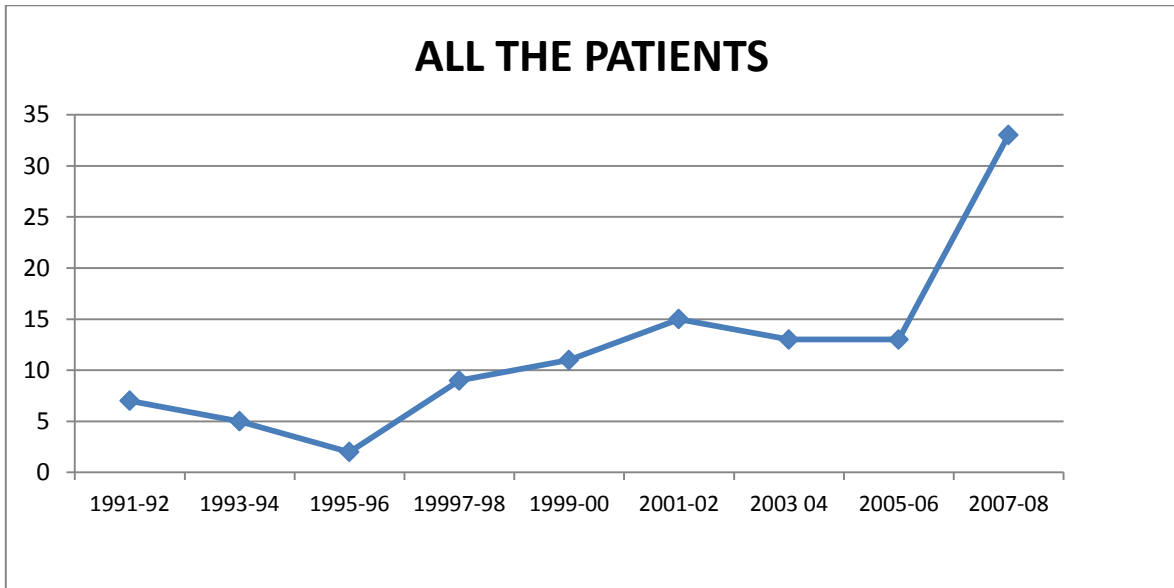

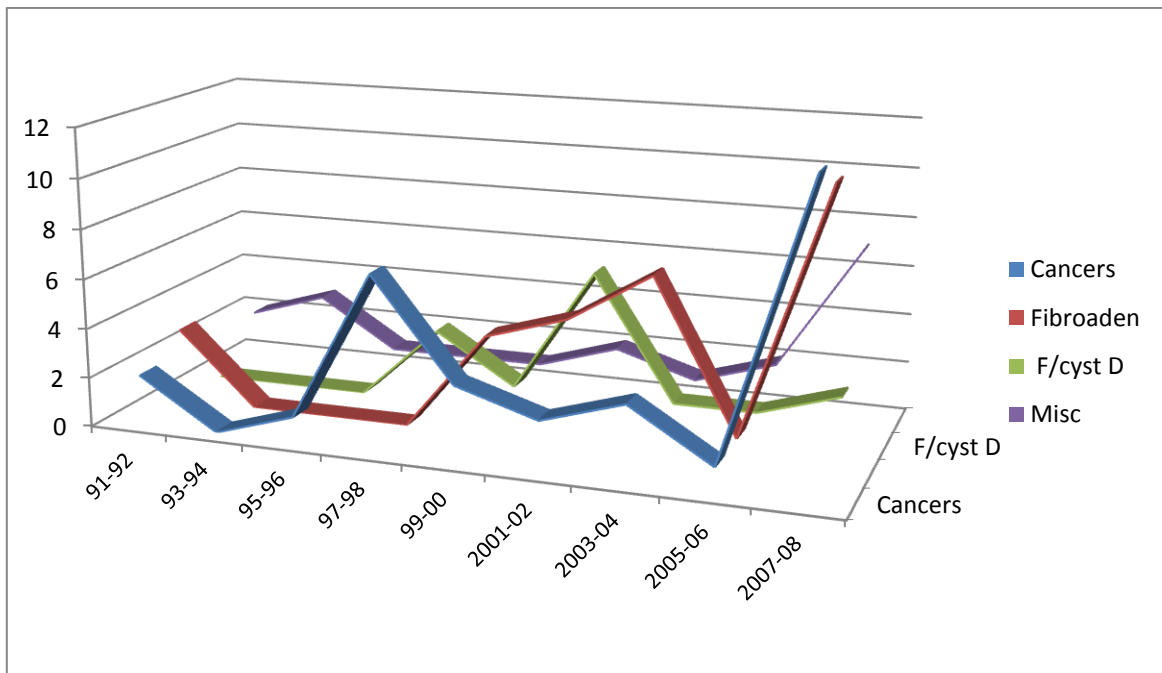**Fig 10: Trends in all breast diseases from 1991 to 2008**

Fig 11. Trends in various breast diseases from 1991 to 2008

4.   DISCUSSION

At Nchanga South Hospital, the set up of Breast units[1] was not available during the period of this study and in addition there was no breast disease data base and hence researchers had to plough through the hospital records to retrieve data for this study. In the study of hospital admission cases, we were able to find sixty three records of admissions for breast disease in the period we studied, however only 60 case notes could be traced and studied because of poor record keeping which is expected in a situation where all the breast disease records go in the general hospital records pool. Our youngest patient was 14 years old and the oldest was 60 years with an average age of 30 years. When we looked at the histology reports over a period of (17 years) we found the youngest patient to have been 2 years old and the oldest to be 69. The mean was age 32. It appears as though breast disease cut across a wide age range however the mean ages in both groups were

very close demonstrating the fact that breast disease in our women start in the third decade showing that our patients present with breast disease earlier than in the West ˙These results are in agreement with the study done in Zambia (17).

In terms of Social status 67% of our patients came from the low income group and this could be seen in all the disease entities (fig3). Goehring and Morabia (18), also found a positive correlation between Socioeconomic status and the onset of breast diseases.

The commonest presenting complaint, at 60%, was that of a swelling in one or both breasts,(fig 5). Pain was a presenting symptom in 21% of our cases. These results are in line with the findings of Rasheed and colleagues (19).

That 81% of our women presented one month or more after the onset of symptoms is a worrying factor in fact over 60% of the patients with benign breast lumps presented more than three months after the onset of symptoms and similarly 57% of the ones with malignant disease (fig 6). This late presentation could be a manifestation of poor awareness of the disease in our community hence the need for Breast Units which should provide care for breast disease at all its stages from screening through to the care of advanced disease, with breast health education included. We observed a sharp rise in the numbers of patients coming with breast disease from 2006 and this was in all disease categories, This could be as a result of increased awareness for breast cancer screening and improved diagnostic methods.

In the absence of Breast units, the practice at present is that, the women with symptoms of breast disease are seen by the General surgeon who attends to them.

Normally diagnosis of breast disease is done by clinical examination, imaging and fine needle biopsy; this is known as the triple test. Women who have negative results for malignancy in all three tests may choose to have benign lumps removed. In our set up imaging is rarely used mainly because mammography is not available and although fine-needle biopsy is not difficult to learn, adequate cytopathologist support is required. Consequently, we do not offer this procedure as well, so open biopsy is the only means of obtaining a sample for histology. It is our opinion that we are doing far too many open biopsies. It would be good if Image-guided vacuum-assisted core biopsy could be adopted, it has been regularly used for gathering samples of tissue in women with breast lesions suspicious of breast cancer, or when histological evidence of a benign lesion is required. This procedure can also be used to remove benign breast lesions such as fibro adenomas (20). The resultant delay in determining whether a mass is benign or malignant no doubt increases patient anxiety (21).

Although any lump formed by body cells may be referred to technically as a tumor. Not all tumors are malignant. In the west 80% of those biopsies are benign (22). In our study we found 72.2% were benign.

Infections of the breast were seen in 30% of our patients. These patients tended to present early. These results are in agreement with the study done by Rasheed and colleagues (19).

The commonest tumours we found were Fibroadenomas; they formed 36% of all the lumps we saw and 50% of the entire benign tumour we encountered. This result is in agreement with the results obtained from a study done in Nigeria by

Isah and the colleagues (23). Apart from the usual Fibroadenoma we saw four variants namely, giant, pericanalilcula, juvenile and dermato Fibroadenomas.

It is said they occur most frequently in women between 18 and 35 and account for nearly all breast tumors in women under 25 years of age (Isah et al.,2013). The youngest of our patients was 13 years old and the oldest was 47years old. The mean age in our study was 20.1 years. Most of our patients came because the lump was large or uncomfortable and hence preferred removal of the lumps.

Reports say that Cysts are a common cause of palpable breast masses affecting 50 to 60 percent of all women (24). Commonly appears in women who are between 30 and 50. They are most often found in women who are nearing menopause. They are relatively uncommon in postmenopausal women who are not receiving hormone therapy (NIHCE, 2006). In women younger than 40 years, fibro adenomas and other solid benign lesions are the most likely cause of newly discovered dominant breast lumps. In our study about 16% of our patients were in the age group around 31 - 40 years and 30 % in the age group 41 and above but only eleven patients (14%) had fibrocystic disease of the breast. Recent research has reported that the chemical called methylxanthine, found in coffee, tea, cola, chocolate and some diet and cold medication, seems to promote the growth of Fibrocystic lumps (Stony Brook University, 2007). Maybe our low figures could mean that our women may not have the luxury of taking these beverages as 67% of them were from the low income group.

Malignancies were found in 28% of our patients and the common feature was that these patients presented late to the hospital as shown in Fig 6. Cancer of the breast is said to be the second leading cause of cancer-related deaths in women in the United States (22). In our study it formed 87% of all the breast malignancies we saw and 79 % of these breast cancers were invasive at diagnosis (25). Currently in the West, death rates from breast cancer are declining. The decline in death rates may be due to a combination of earlier detection and better screening as well as improved treatments. We are seeing most of our breast cancer patients die early because they present late and most are reluctant to have Mastectomy as shown by low rates of mastectomies carried out (Fig 9).

5.   CONCLUSION

Most breast tumours occur in the first three decades of life and majority are benign but most tumours in the elderly are malignant. The average rate of breast pathology in our society is on an increase with fibroadenoma and invasive ductal carcinoma been the most common benign and malignant lesions respectively. It is therefore important that strong awareness among the populace is instituted to improve presentation of these lumps early for proper health management.

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