



## Pattern of Patient Presentation to the General Surgery Unit of a Tertiary Health Care Centre in a Developing Country

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**Background:** *Not much has been published on the surgical burden in Africa. This study describes the pattern and distribution of surgical conditions treated by the general surgery division in a Nigerian tertiary hospital.*

**Method:** *This was a retrospective study over thirty months. All patients treated by the general surgery divisions of the hospital were included in this study.*

**Results:** *A total of 5631 new patients were seen over the period. Male: Female sex ratio was 1: 1.35 with a mean age of 39.6 years. malignant conditions accounted for 22.7% while 74.6% were benign. Breast carcinoma was the commonest malignancy in females. The commonest malignancy in males was abdominal (gastrointestinal, hepatobiliary and retroperitoneal).*

**Conclusion:** *Patients are getting increasingly educated. Appropriate manpower training is required so that tertiary hospitals are not encumbered by mundane surgical conditions. Specialty clinics for hernias, breast, gastrointestinal malignancy and anorectal conditions should be considered.*

**Key words:** Breast, Colon, Epidemiology

### Introduction

Surgical conditions are defined as disease states requiring the expertise of a surgically trained healthcare provider while surgical care is defined as processes which decrease the rates of physical disability or premature death associated with any surgical condition<sup>1</sup>. There are numerous conditions for which people seek surgical review. These surgical conditions constitute a significant aspect of the disease burden spectrum in Africa where the provision of surgical services in Africa is often considered inadequate<sup>2</sup>. The patterns of diseases vary with the geographical locations, age, race, and social class in different populations. The essentials in surgical care vary with the disease pattern of each region<sup>3</sup>. Very few local studies are available on the pattern of diseases and surgical conditions prevalent in the country, where many of the qualified surgeons are employed only in government health facilities in urban or semi-urban areas<sup>4</sup>. Knowledge of the local pattern of diseases is required in planning manpower training and allocation of resources. Consequently many surgical procedures need not be referred to tertiary hospitals to prevent undue strain on overstretched resources and personnel. Secondly knowledge of the pattern of diseases helps to plan training curriculum at undergraduate and postgraduate levels. This study was carried out to describe the pattern of cases treated in a general surgical division in a Nigerian teaching hospital. It also intends to identify surgical conditions which constitute disease burdens in this sub-region.

### Patients and Methods

This was a retrospective study. Our hospital is the premier teaching hospital in Nigeria. It is located in the South west Nigeria in a city with a population in excess of three million people. It serves the entire people of Oyo state and other neighbouring states. It is a 1000 bed hospital with many subspecialties in surgery namely neurological surgery, cardiothoracic and cardiovascular surgery, orthopaedic, ophthalmology, plastic and reconstructive surgery, urological, paediatric surgery and general surgery. There are three divisions of general surgery. This study was based on the pattern of patients and surgical conditions seen by the general surgical divisions over a thirty month spanning January 2010 to June 2012. Each of the general surgery units has one clinic day a week, but each unit also sees emergency and ward patients on request. The inclusion criterion was all patients referred to the units in the division within the period of the study. Data obtained included the patients' demographic data,

the educational status, and the diagnosis. The diagnoses were classified into two broad categories namely benign and malignant. Each of these was further subdivided into anatomical regions namely:

1. Head and neck (Goitre, parotid tumours)
2. Chest( Pleural effusion, pulmonary metastasis and tumours)
3. Breast( pathological conditions of the breast)
4. Abdomen ( Acute abdomen; gastric ,colonic, hepatobiliary , pancreatic and retroperitoneal tumours)
5. Anorectal (haemorrhoids, anal fissure, perianal abscess, rectal and anal carcinoma,)
6. Urogenital( obstructive uropathy, bladder stones and malignancy and renal pathological conditions)
7. Hernias
8. Extremities( ganglion, in-growing toenail, chronic ulcers)
9. Soft tissue (lipoma, intradermal lesions, abscesses, sebaceous cysts etc.)
10. Others

The data was entered into the data sheet of SPSS using record from patients’ files, admission register and operation theatre register. The data was analysed by SPSS version-16.

### Results

The surgical division had a total of 5631 new patients over the thirty month period with an average weekly number of new patients was 43.1 patients. The male female ratio was 1: 1.35. The age range was 13years to 95years with a mean age of 39.6 years.

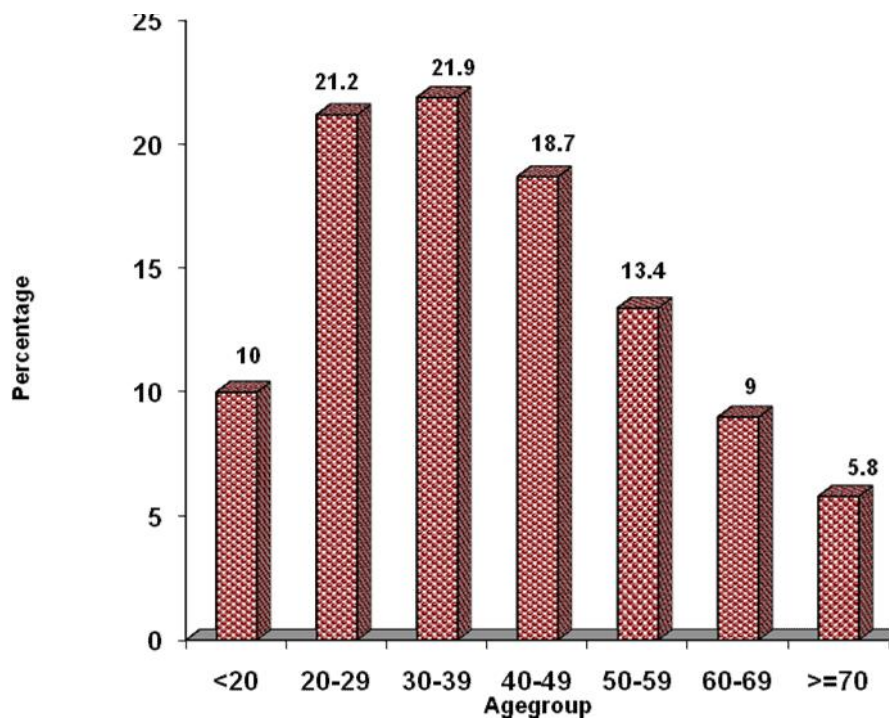


Figure 1. Age Distribution

There was no significant difference in the mean age of elective patients and emergency patients. The peak age group in these patients was the fourth decade and this gradually tailed off down in subsequent age groups (Figure 1). A review of the educational status of the patients revealed that 21% had only basic primary education or less, 35% had secondary education while 43% had gone beyond

secondary schools (Figure 2). The spectrum of diseases revealed 22.7% as malignant while 74.6% were benign diseases. The global picture demonstrates that breast malignancy is the commonest malignancy (Figure 3). However in a cross tabulation for both sexes the commonest malignancy in males was abdominal (gastrointestinal, hepatobiliary and retroperitoneal). The most frequent benign diseases in male patients were abdominal conditions (obstructive and inflammatory), hernias and anorectal conditions respectively. In female patients, the commonest benign surgical conditions were abdominal conditions, breast diseases and goitres i.e. (head and neck) respectively (Figure 4). The overall frequency of malignancy in females was 31.4% compared to 12.4% in males. The prevalence of malignancy in an age group related distribution demonstrates predominance of females except in the eighth decade and above (Figure 5). This significant disparity is not demonstrated in benign conditions (Figure 6). Breast cancer is the commonest female malignancy with abdominal (gastrointestinal, hepatobiliary and retroperitoneal malignancy) conditions being a distant second most common malignancy.

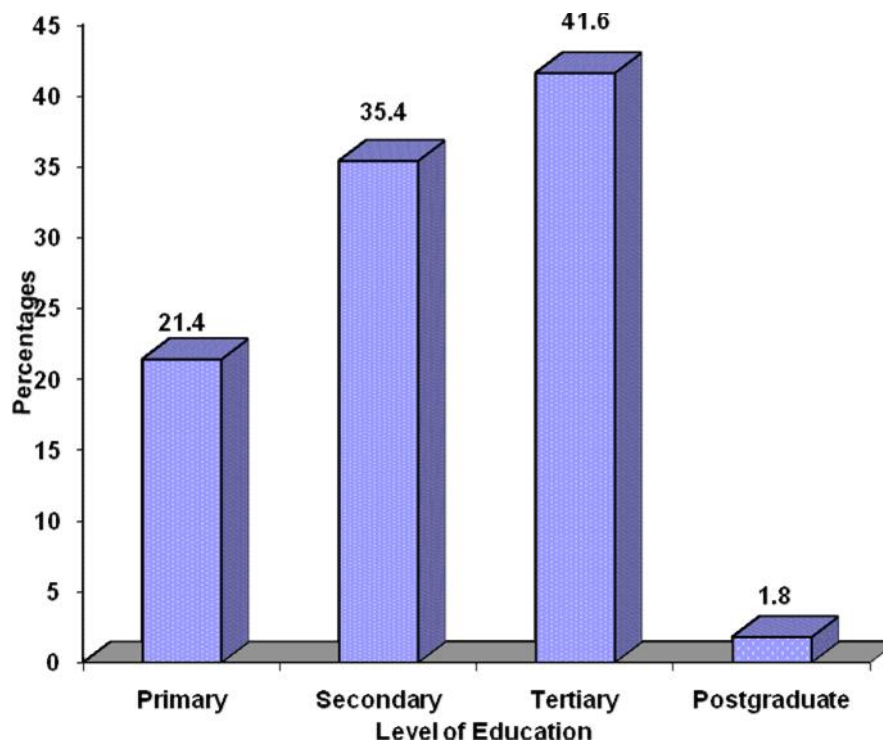


Figure 2. Distribution of Education Level

Table 1. Sex Distribution of Malignant conditions

Region	Male	Female
Head and Neck	33.3	66.7
Breast	3.8	96.2
Abdominal	50.2	48.8
Soft Tissue	59.3	49.7
Extremities	42.9	57.1
Anorectal	52.3	47.7
Urogenital	72.2	27.8
Chest	33.3	66.7

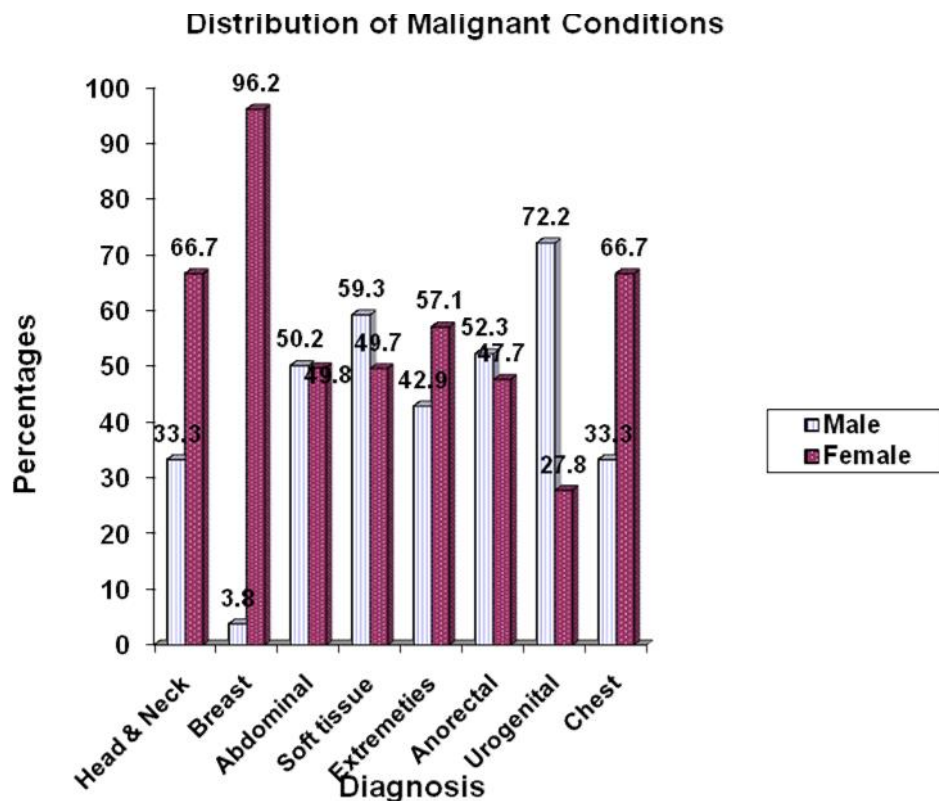


Figure 3. Regional Distribution of Malignant Conditions

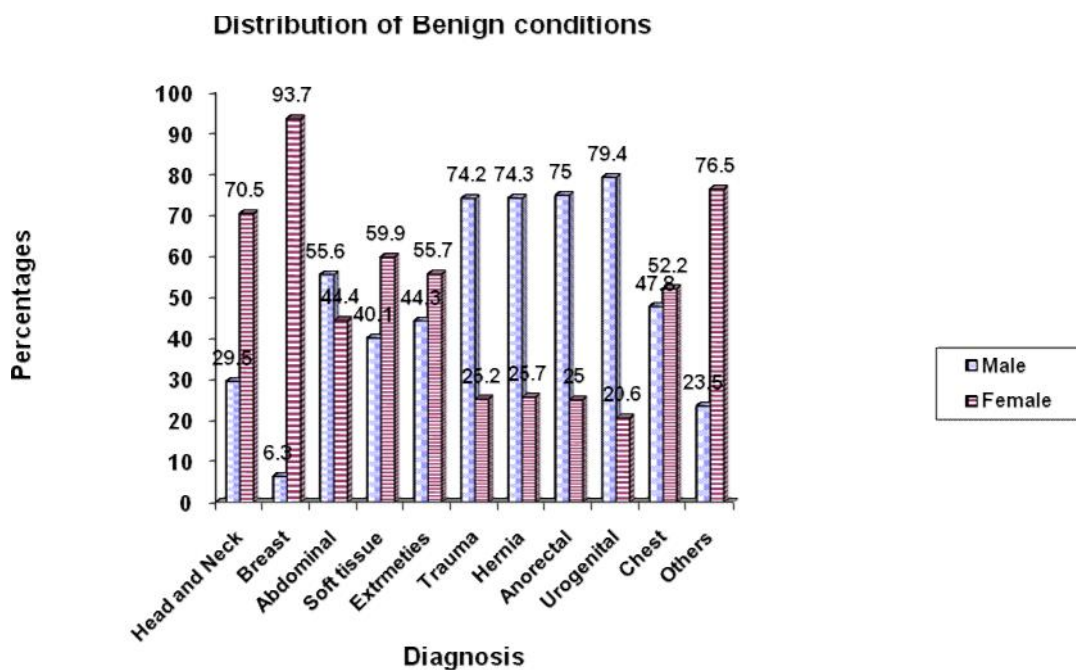
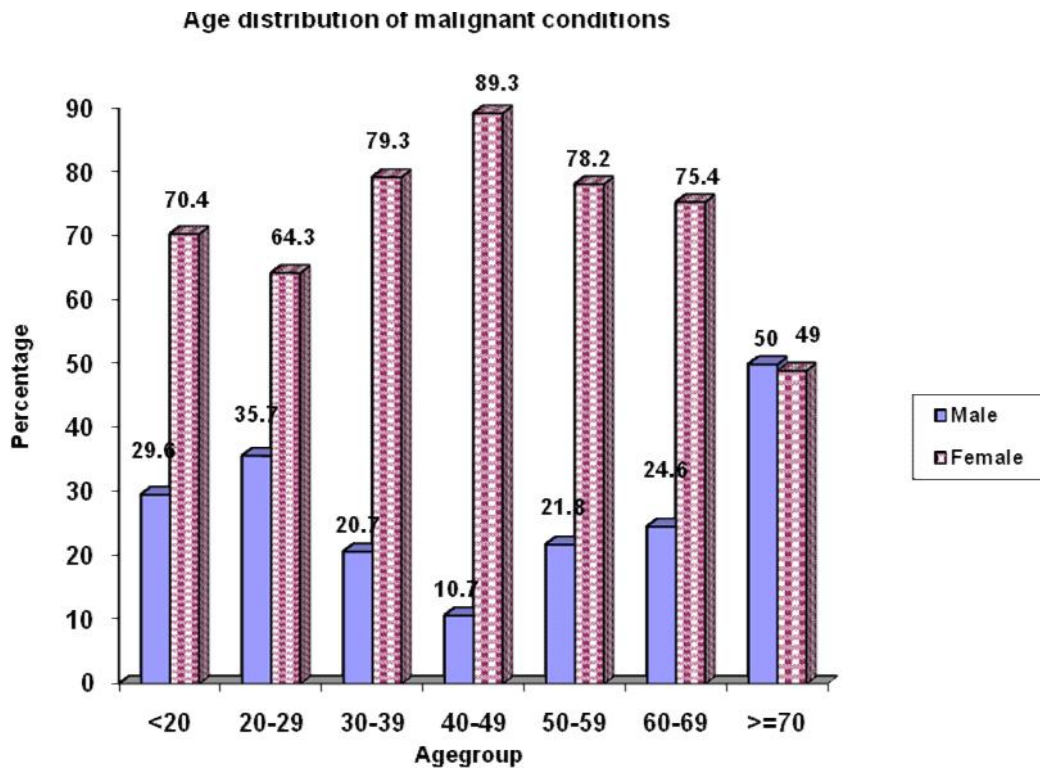
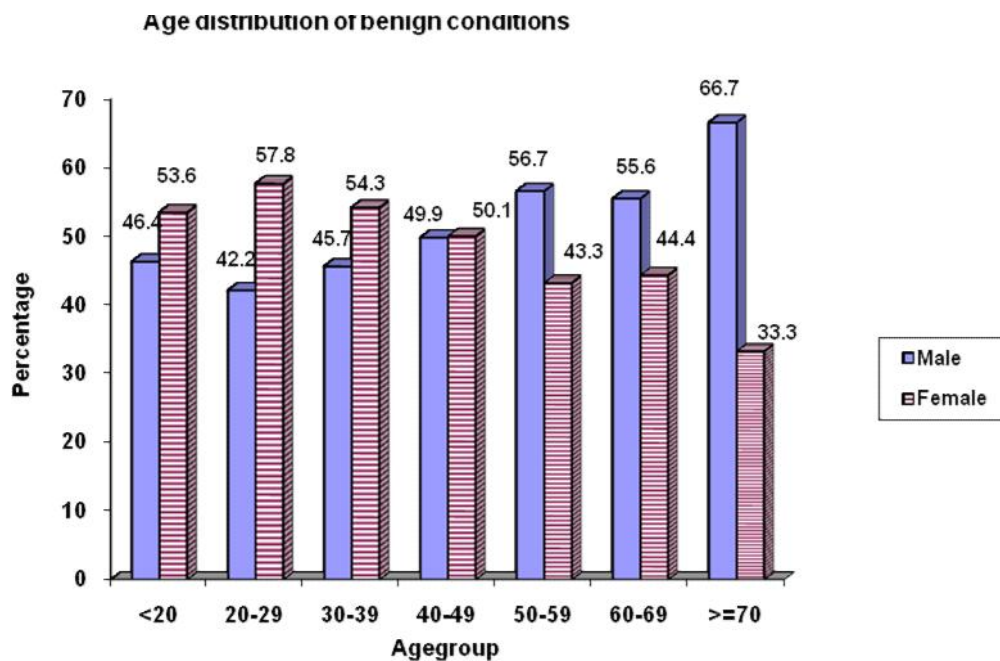


Figure 4. Age Distribution of Benign Conditions



**Figure 5.** Age Distribution of Malignant Conditions



**Figure 6.** Age Distribution of Benign Conditions

The most frequent malignant conditions in males were intra-abdominal malignant conditions and anorectal malignancy respectively (Figure 3). The most frequent malignancy in the second decade is breast carcinoma though this is less than 0.6% of all malignant conditions. A review of the marital

status of the patients demonstrates 60 % and 38.1 % are married or single respectively while 82.4% and 10% of patients with a diagnosis of malignancy are married or single respectively. The frequency of benign conditions in widows/widowers is 1.8% ( $p=.001$ ). The frequency of malignant conditions decreased with increasing educational status however there is no statistical significance. On the other hand 80.4% of the patients with benign conditions have secondary school education and above.

## Discussion

The spectrum of surgical conditions is generally considered a reflection of disease prevalence in a region. There is paucity of information about the burden of surgical disease in our environment. As a result not much is known about planning provision of care for diseases that may be cured, or palliated by a surgical intervention.<sup>5</sup> Surgical care in Nigeria is provided by various levels of care ranging from primary referral hospitals through general or state hospitals to the tertiary hospitals. Tertiary hospitals are typically University Teaching Hospitals which provide the highest level of medical care available in the country or a region. Quaternary care is considered to be an extension of tertiary care with even more specialized and highly unusual care. Not many centres offer quaternary care.

In this study there is a female preponderance of patients. This may be attributed to exclusion of patients with urological conditions who are predominantly male. Nevertheless, diseases of the breast (1450 patients) constituted 25.7% while breast cancer which is one of the leading causes of cancer related death in the West African sub-region,<sup>3</sup> constituted 13.5% of all the new patients referred to the surgical out-patient in the considered period. The incidence of breast cancer rises gradually with age. There is a peak in the fifth decade (peri-menopausal) as documented in literature,<sup>6</sup> and then reduces with increasing age. The frequency of malignant conditions peaks in the fifth decade in females but exhibits a biphasic pattern in males with peaks in the third and eighth decades. The frequency in both sexes appears similar from the eighth decade. On the other hand the frequency of benign conditions peaked in the third decade for females while the peak age for males was the eighth decade. The increased risk of malignancy with age is documented in literature. An analysis of the geriatric patients in this study i.e. 60 years and above reveals that 35.8% of these patients have malignant conditions. The two most frequent areas of malignancy are breast and intra-abdominal malignant conditions (mostly colonic, gastric and pancreatic). There is a statistically significant relationship between surgical out-patient attendance and educated patients (secondary and above) with malignant conditions ( $p=.0012$ ). There is a progressive reduction of the number of patients with malignant conditions with advancing levels of education (*chart*). The peak incidence of hernias in literature is biphasic i.e. 0-5 years, and 75-80years<sup>7</sup>. In this study the incidence increases with age but plateaus in the 6<sup>th</sup> and above. 62.5% of patients diagnosed as hernia fall within this age group with a male; female ratio of 2.85:1. The frequency of hernia, trauma and anorectal conditions in males was thrice that of females.

## Conclusion

This result reiterates what has previously been published and highlights a few issues that little is known about. Patients in the surgical out-patient are getting increasingly educated. Breast diseases are very common in this region with a high frequency of malignancy. Breast cancer remains a scourge in this region. There are more female patients with malignant conditions than male patients. Cancer incidence is known to increase with age in studies in developed nations<sup>8</sup>. There is an increasing frequency of cancer with age which peaks in the fifth decade. There should be measures put in place for prompt diagnosis and treatment. Breast cancer is the commonest malignancy in the surgical out patient. There is also a need to educate health care workers about referrals to appropriate specialties in surgery to avoid delay in treatment. There should be appropriate manpower training to ensure that the tertiary hospitals are not encumbered by mundane surgical conditions. Specialty clinics for hernias, gastrointestinal malignancy and anorectal conditions should be considered. The surgical workload in the tropical and developing countries is variable. Malignancies constitute a significant proportion of the cases for which appropriate skills are required.



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