Original Research Article

A prospective study of clinicopathology and management of carcinoma breast

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Abstract

Introduction: Breast cancer is the most common site-specific cancer in women and it is one of the leading cause of death from cancer for women between 20-59 years age group and it is accounting for 29% of all newly diagnosed cases and 14% of cancer related death among women. Breast cancer accounts for the mortality of 21.5% of all cancer cases, ranking number one killer in women. **Materials and Methods** The data used in the study was obtained from the K.V.G Medical Collage Hospital, Sullia who were presented to the surgery department with carcinoma breast from December 2017 to June 2019. A total of 100 cases were evaluated at this study period. **Results:** 100 cases of breast cancer were studied for emphasizing the risk factors and management of breast cancer. Most common age group of presentation is between 50-59 years and mean age was 52.7 years. Majority of our patients had early menarche, late menopause and longer reproductive period was associated with high risk of breast cancer. Most common presentation was lump in the breast with tumor size >5cm (64%).62% of patients were in the stage III when they presented to the hospital. Majority of patients were diagnosed as infiltrating ductal carcinoma on FNAC and histology. All patients underwent modified radical mastectomy (MRM) and postoperatively patients received Chemotherapy (CT) and Hormonal therapy (HT). **Conclusion:** Stage III due to lack of awareness about the disease. MRM, CT and HT are the various modalities of treatment given to the patient depending on the stage of disease.

Keywords: MRM, CT, HT, IDC, FNAC.

Introduction

Breast cancer is the most common site-specific cancer in women and it is one of the leading cause of death from cancer for women between 20-59 years age group and it is accounting for 29% of all newly diagnosed cases and 14% of cancer related death among womens[1].

A recent study on breast cancer risk in India, revealed that 1 in 28 women develop breast cancer during her life time and it was higher among urban women being 1 in 22 in a life time compared to compared to rural women where the risk is relatively much lower being 1 in 60. The average age of high-risk group in India is 43-46 years group compared to west where the risk group is 53-57 years for breast cancer[2].

The proportional prevalence in younger age group in India is higher than the global average. Almost 50% of breast cancer patient's first visit to the doctor at stage III and 15-20% patients in stage IV[3].

The mortality rates from breast cancer have increased over the past 60 years and it is estimated that during the year 2012, breast cancer accounts for 27% of all malignant cases. Breast cancer accounts for the mortality of 21.5% of all cancer cases, ranking number one killer in women[4].

Incidence is increasing due to increased lifespan, changes in life style and widespread awareness in the general population about breast cancer and better diagnostic aid to detect the lesion at an early stage[5].

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As carcinoma breast is the most common clinical problem in surgical practice.

Hence this study is conducted to identify the various risk factors in association with carcinoma breast, modes of presentation and various treatment approaches for the management of carcinoma breast.

The management of carcinoma breast requires a multidisciplinary approach involving surgeons, radiologists, pathologists, medical oncologist and radiotherapist.

Aims and objectives

- To correlate the risk factors with breast cancer.
- To correlate the FNAC/ trucut biopsy report with post-operative histopathology report.
- To study the various modality of treatment for the management of carcinoma breast.
- To correlate presentation of histopathological types with gross appearance, lymph node metastases and systemic metastases.
- To study the incidence of stage of presentation of breast cancer.

Materials and methods

Materials

The data used in the study was obtained from the K.V.G Medical Collage Hospital, Sullia who were presented to the surgery department with carcinoma breast from December 2017 to June 2019. A total of 100 cases were evaluated at this study period.

Inclusion Criteria

- Female patients presenting with breast cancer, irrespective of tumor stage and location (females >18years of age)
- Patients who were willing for surgery and other treatment modalities
- All patients with breast lumps and FNAC positive reports

Exclusion Criteria

- Pregnant women
- Male patients and female patients below 18years of age
- Recurrent cases of carcinoma breast.

Methods of collection of data

- The complete history was obtained from the patients at the time of admission.
- Complete clinical examination was done.
- All patients who were positive clinically positive and FNAC suggestive of malignancy were evaluated completely for further management.
- All the patients who were willing for the treatment were explained about the surgery and need for chemotherapy and hormonal therapy following surgery and also explained about the need of radiotherapy in selected cases. Patients were explained about the referral to higher oncological center for radiotherapy in selected cases.

Investigations

Routine investigations

Hemoglobin percentage, Total WBC count, Differential WBC count, Erythrocyte sedimentation rate, Platelet count, Bleeding time, Clotting time, Urine for protein, sugar and microscopy, Random blood sugar, Blood urea, Serum creatinine

Specific investigations

- Fine needle aspiration cytology
- Ultrasound breast / Mammography - same or opposite breast
- Post Operative Histopathology Report
- Chest X ray PA view
- Ultrasound Abdomen and Pelvis
- Liver function tests
- Alkaline Phosphatase levels.

Interventions

- Surgical intervention was done the form of modified radical mastectomy.
- Neoadjuvant chemotherapy was given preoperatively to some selected cases.
- In some selected cases chemotherapy and hormonal therapy was given after MRM.
- Patients referred to higher center for radiotherapy in selected cases.

Statistical Analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.[6-9]

Results

Table 1: Age Distribution of the Study Population

Age Group	Number of Cases	Percentage:%
20:29	0	0
30:39	2	2
40:49	35	35
50:59	46	46
60:69	16	16
70:79	1	1

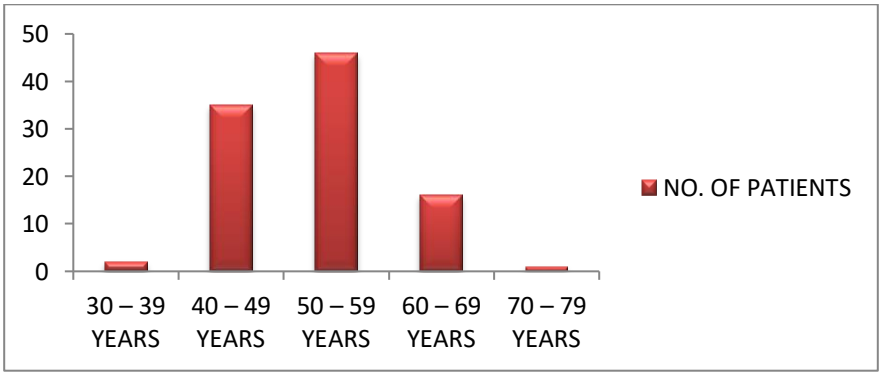

Fig 1: Age Distribution of the Study Population

Majority of patient belongs to the age group between 50:59 years and youngest patient was 39 years and eldest patient was 77years. Median age of presentation was 52.7 in the present study.

Table 2: Presenting Complaint

Presentation	Number Of Cases	Percentage
Lump	100	100
Pain	26	26
Ulcer	10	10
Skin Changes	25	25
Nipple Discharge	20	20
Nipple Retraction	34	34

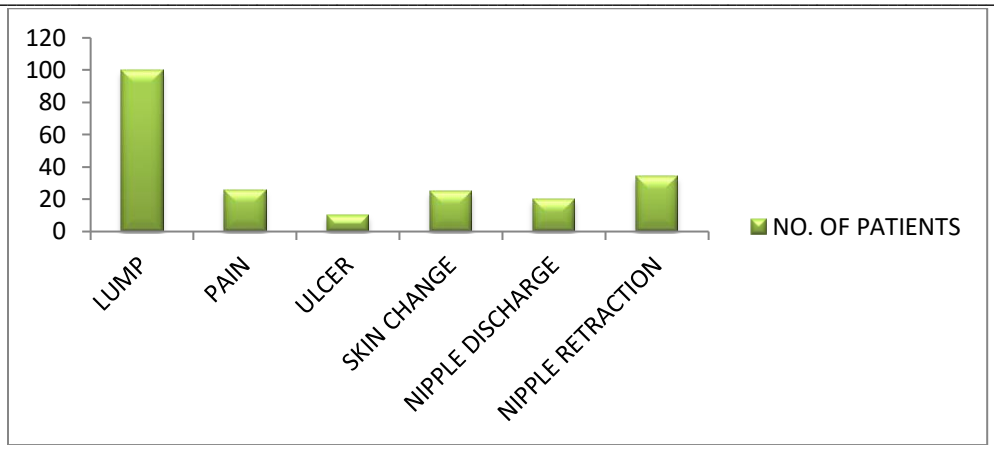

Fig 2: Presenting Complaint

Most common presentation was lump in the breast and present in 100% of the cases, followed by nipple retraction and pain.

Table 3: Family History

Family History	Number Of Cases	Percentage
Negative	82	82
In Mother	7	7
In Sister	7	7
Aunt	4	4

Positive family history present in 18% of cases and no family history in 82% of cases

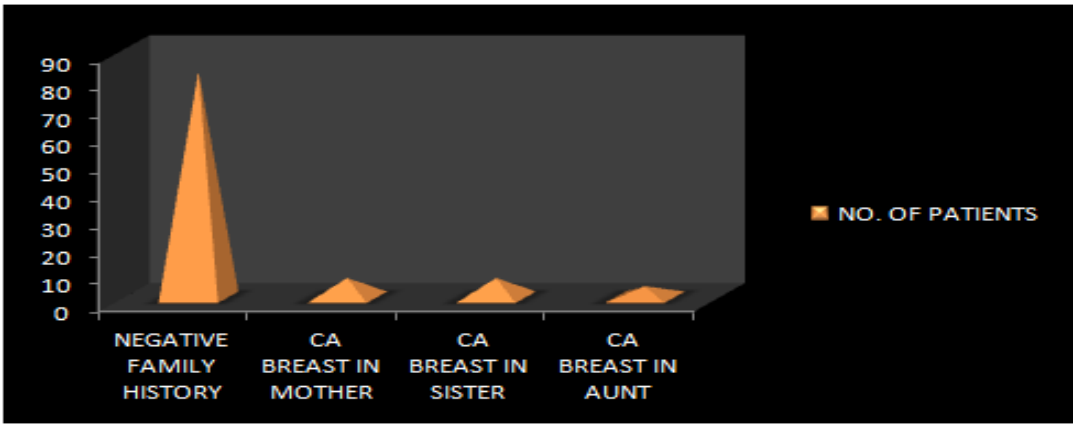

Fig 3: Family History of Patients Who Were Diagnosed As Having Ca Breast

Table No 4: Age of Menarche

Age Of Menarche	Number Of Cases	Percentage
10:11 Years	29	29
12:13 Years	48	48
14:15 Years	23	23

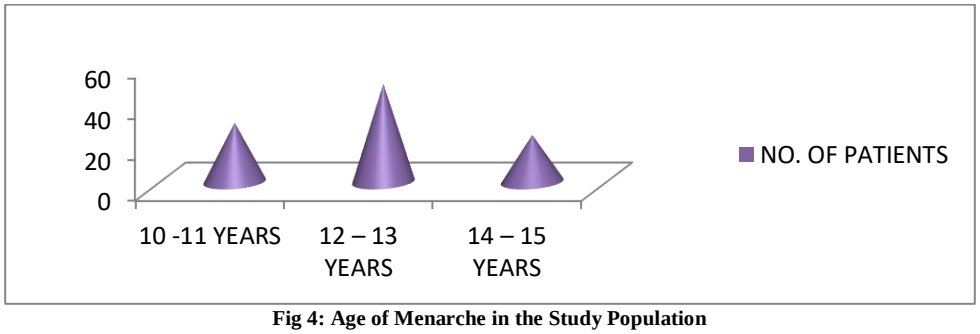

Fig 4: Age of Menarche in the Study Population

Early age of menarche seen in 29% of cases and majority of patients had their menarche between 12:13 years age group in the present study.

Table 5: Age at First Child Birth

Age At First Child Birth	Number Of Cases	Percentage
17:19 Years	17	17
20:25 Years	68	68
26:30 Years	15	15

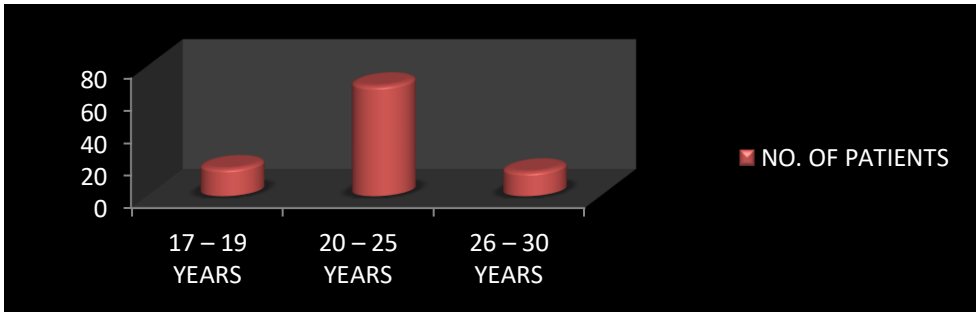

Figure 5: Age at Birth of the First Child in the Study Population

15% of the patients had first child birth between 26:30 years age group and majority of the patients had their first child birth between 20:25years.

Table 6: Menopausal Status

Menopausal Status	Number	Percentage
Attained	71	71
Not Attained	29	29

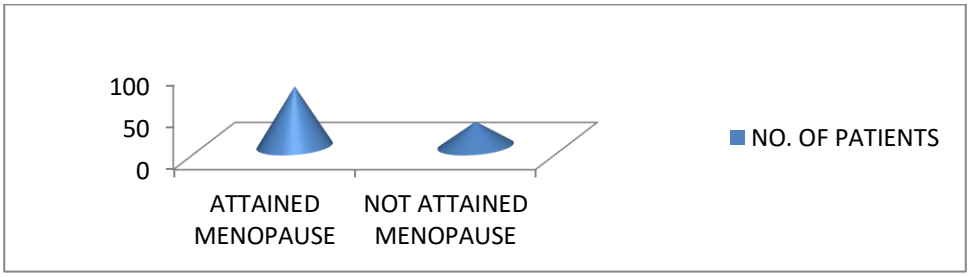

Fig 6: History of menopause in the Study Population

71% of the patients were attained menopause and 29% of the patients were not attained menopause.

Table 7: Reproductive Period

Reproductive Period	Number of Cases	Percentage
25:29 Years	7	7
30:35 Years	60	60
36:39 Years	33	33

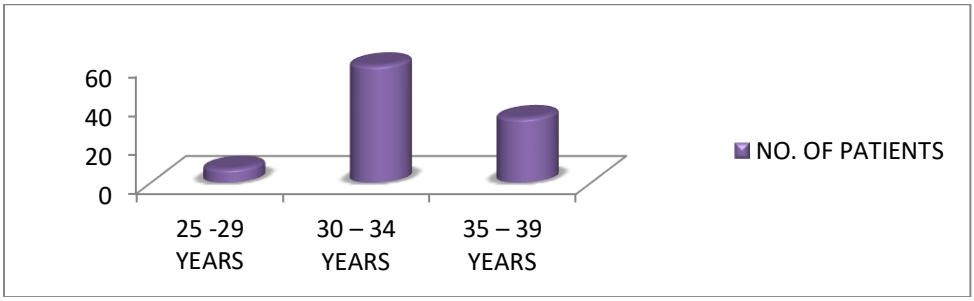

Fig 7: Reproductive Period of the Study Population

Nearly 33% of the patients had a reproductive period of 36:39 years and only 7% of patients had reproductive period of 25:29years.

Table 8: Parity of the Female Diagnosed As Breast Carcinoma

Parity	Number Of Cases	Percentage
No Children	1	1
1 Child	3	3
2 Child	33	33
3 Child	32	32
4 Child	17	17
5 Child	9	9
6 Child	5	5

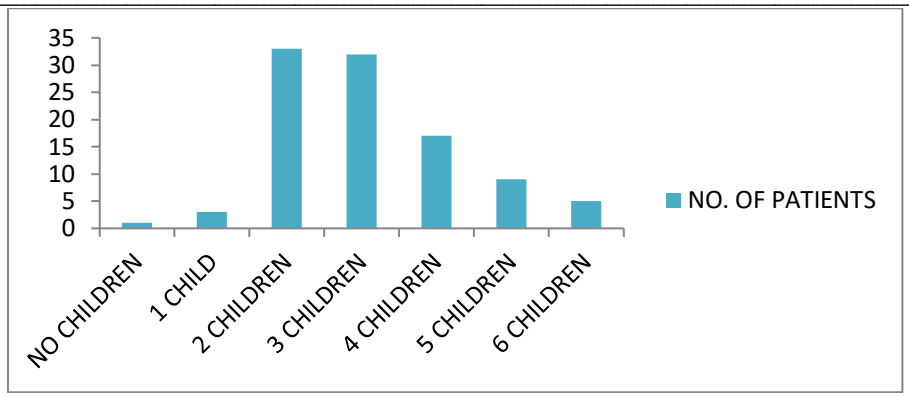

Figure 8: Parity of the Female Diagnosed As Breast Carcinoma

Nearly 33% of the patient had 2 children and only 1% of the patients had no child.

Table 9: Breast Feeding Status

Breast Feeding Status	Number Of Cases	Percentage
Breastfeed	**99**	**99**
Not Breastfeed	**1**	**1**

Only 1% of the population had not breastfeed the child and 99% of the patient's breastfeed their babies.

Table 10: Examination Findings

Findings		Number Of Cases	Percentage
Side	Right	47	47
	Left	53	53
Size	1cm	6	6
	2:3cm	14	14
	4:5cm	14	14
	6:7cm	58	58
	8:9cm	8	8
Quadrant Involved	Central	10	10
	Upper outer	52	52
	Upper inner	18	18
	Lower outer	5	5
	Lower inner	15	15

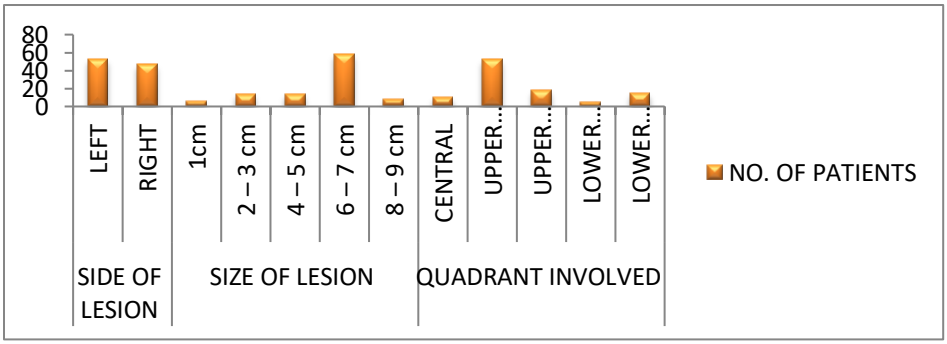

Fig 9: Examination Findings of the Breast Lesion

53% of the patient had cancer in the left breast, and 52% of them presented with lesion in upper outer quadrant, 58% of the patients had 6:7cm lesions and 6% of the patients had 1cm lesion.

Table 11: TNM staging

TNM Stage	Number Of Patients	Percentage
T1 N0 M0	4	4
T1 N1 M0	2	2
T2 N0 M0	10	10
T2 N1 M0	12	12
T2 N2 M0	1	1
T2 N1 M1	2	2
T3 N0 M0	7	7
T3 N1 M0	29	29
T3 N2 M0	4	4

T3 N2 M1	1	1
T4 N0 M0	3	3
T4 N1 M0	20	20
T4 N2 M0	5	5

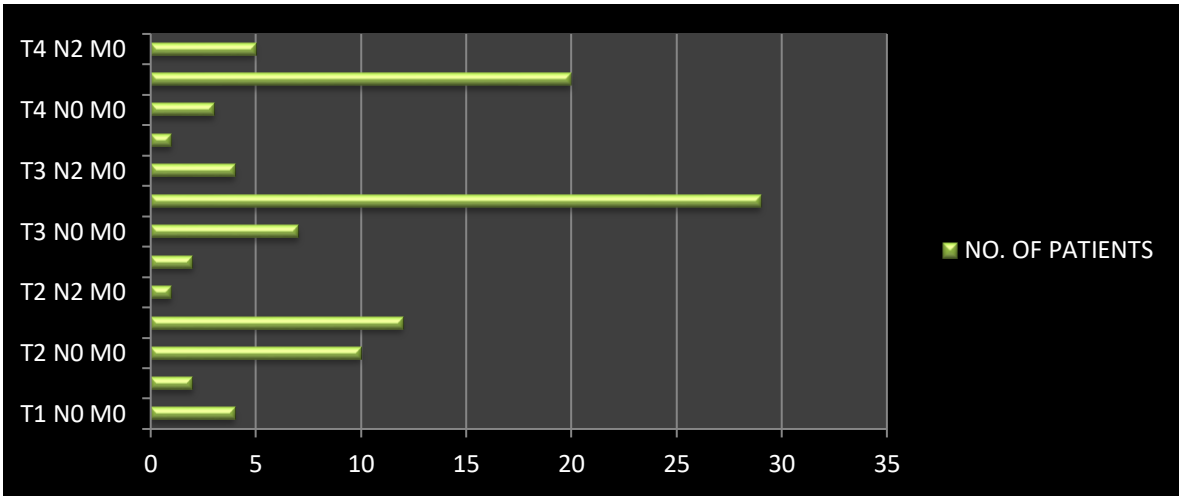

Fig 10: TNM Grading of the Breast Lesions

Majority of the patients were presented in T3 N1 M0 STAGE.

Table 12: Stage of Breast Cancer

Stage Of Cancer	Number Of Patients	Percentage
I	4	4
IIA	11	11
IIB	20	20
IIIA	32	32
IIIB	30	30
IV	3	3

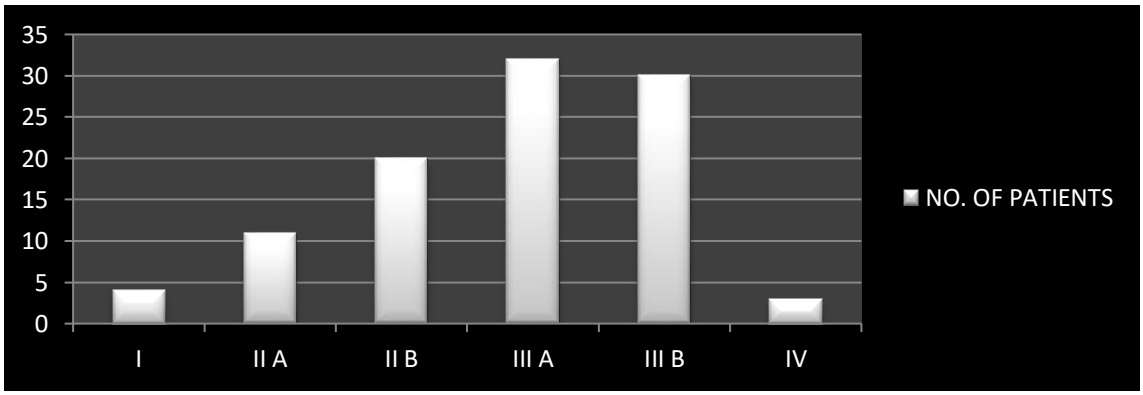

Fig 11: Staging of Breast Lesions

Majority of the patients were presented in stage III (62%). Only 4% of the patients presented in stage 1 and nearly 3% of them presented in stage 4.

Table 13: FNAC Findings

FNAC Findings	Number Of Patients	Percentage
Invasive Ductal Carcinoma	90	90
Medullary Carcinoma	6	6
Lobular Carcinoma	3	3
Papillary Carcinoma	1	1

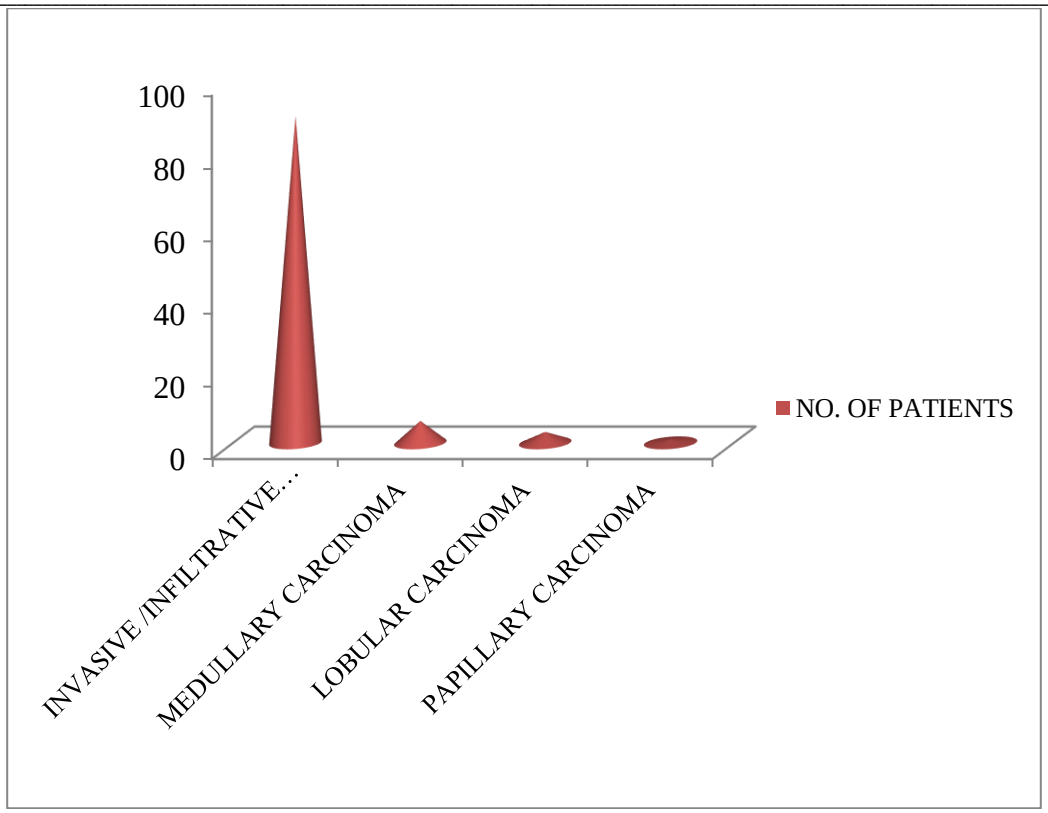

Fig 12: FNAC Findings of the Breast Lesion

90% of them presented with invasive ductal carcinoma on FNAC.

Table 14: Treatment

Treatment	Number Of Patients	Percentage
MRM	3	3
MRM+CT	61	61
MRM+CT+HT	33	33
NAC+MRM+CT	3	3

Majority of the patients underwent MRM+CT and MRM+CT+HT

Table 15: Histological diagnosis (postoperative specimen)

Histology	Number Of Patients	Percentage
IDC: COMEDO	4	4
IDC:NOS	79	79
Invasive Lobular Carcinoma	3	3
Medullary Carcinoma	11	11
Mucinous Carcinoma	2	2
Papillary Carcinoma	1	1

79% of the patients were presented with invasive ductal carcinoma of not otherwise specified variety on postoperative histopathology specimen. Few cases of medullary carcinoma, mucinous carcinoma and papillary carcinoma were identified.

Table 16: ER/PR Status

ER/PR Status	Number of Cases	Percentage
Negative	65	65
Positive	35	35

Significant number of patients (35%) were positive for hormonal receptor status positive.

Table 17: Relationship between Histological Type of Breast Carcinoma and Stage of Breast Carcinoma

Histological Diagnosis	Stage I	Stage IIA	Stage IIB	Stage IIIA	Stage IIIB	Stage IV	P Value
Infiltrating ductal carcinoma – comedo type	0	0	1	2	1	0	0.939
Infiltrating ductal carcinoma – not otherwise specified	4	8	16	28	21	2	0.484
Infiltrating lobular carcinoma	0	0	0	0	3	0	0.205

Medullary carcinoma	0	2	2	2	4	1	0.619
Mucinous carcinoma	0	0	1	0	1	0	0.819
Papillary carcinoma	0	1	0	0	0	0	0.147

Majority of (52%) patients were IDC and presented in stage III when they presented to hospital and majority of medullary carcinoma patients were also presented in stage III.

Table: 18: Relationship Between FNAC Findings And Histological Diagnosis

S.No.	FNAC Findings	Histological Findings	
		Concordant	Discordant
1	Invasive /Infiltrative Ductal Carcinoma	83	7
2	Medullary Carcinoma	6	0
3	Lobular Carcinoma	3	0
4	Papillary Carcinoma	1	0

FNAC is equally effective as postoperative histopathological diagnosis in differentiating IDC and other histological subtypes of cancer.

Table 19: Diagnosis in Patients with Discordant Findings

FNAC findings	histological findings	
	Medullary carcinoma	Mucinous carcinoma
Invasive /Infiltrative Ductal Carcinoma	5	2

Only in very few cases, discordant finding seen in FNAC compared to histology.

Table 20: Correlation between FNAC Findings and Histopathology Diagnosis

Pearson Correlation	R Value	P Value
FNAC findings Vs Histopathological diagnosis	0.88097	<0.0001*

FNAC is equally effective as postoperative histopathological diagnosis in differentiating IDC and other histological subtypes of breast cancer.

Discussion

This study mainly focuses on the basic anatomy, physiology and pathology of carcinoma breast with the various diagnostic and therapeutic modalities.

Age incidence

The incidence of breast cancer will increase with age. Breast cancer is primarily a disease of the old age and its peak incidence in the fifth and sixth decades, but in India the disease is seen one decade earlier and this is because of shorter longevity of life in Indian women when compared to western population.

In the present study, majority of the patients belongs to the age group between 51-59 years, the youngest age in the study was 39years and eldest age was 77years and Mean age of the study population was 52.7 ± 7.29.

Mahajan K et al conducted a study where maximum numbers of subjects were observed between 50 to 54 years of age group and the average age of the cases was 46.64 years[6].

Presenting complaints

In the present study, 100% of the patients presented with lump in the breast followed by nipple changes, breast pain (26%), and skin changes. Koo M et al conducted a study where breast lump was the most frequent (83%) followed by non-lump breast symptoms like nipple abnormalities (7%) and breast pain (6%)).

Family history

The family history of breast cancer in the first or second degree relatives is associated with an increased risk of the disease in the patient. In the present study, nearly 18% of the patients had family history of breast cancer whereas study conducted by Jacobi C et al concluded that 13% of the women aged 30-50 have a family history of breast cancer and where the Haber G et al had got 11.3% of positive family history.

Age of menarche

Early age of menarche associated with the risk of developing breast cancer.

In the present study, nearly 29% of the patients had their menarche before the age of 11years whereas the study conducted by Mahajan K et al had observed that 37% of patients had their menarche before the age of 11years and the study conducted by Patil P et al observed that 37% of the patient had their menarche before 11years.

Age at first child birth

The early first child birth has a protective role compared to late first child birth as a risk in development of breast factor. The relative risk of developing breast cancer increases by 3% for each year delay.

In the present study, age at first child birth below 20 years is 17% compared to study conducted by the Palachandra A et al. Where it is 28% and study conducted by the Mahajan K et al is 25%.

Menopause

Late menopause associated with increase in risk of developing breast cancer. In the present study, 71% of patients were postmenopausal status when they were diagnosed as breast cancer whereas study conducted by Patil P et al observed that 51% of the patients were in postmenopausal status and study conducted by Zungana A et al shown that 57% of the patients were attained menopause at the time of diagnosis of breast cancer.

Reproductive period

Longer reproductive period associated with increase in risk of developing breast cancer.

Many studies have concluded that longer the duration of reproductive period, higher the risk of breast cancer. In the present study, we observed that 33% of the patient had >35 years of reproductive period and 60%of the patient had 30-35 years of reproductive period. Spicer D et al observed that early menarche with late menopause results in longer reproductive period and increase in the risk of breast cancer.

Parity

Nulliparity has an increase risk of developing breast cancer compared to multiparous women.

In the present study, nulliparity is seen only 1% of the patients and majority of the patients had 2 and 3 child norm (33% and 32% respectively). Murtuza R et al observed that only 3.5% of the patients were nulliparous and majority of them had 2 and 3 children (29 and 26 respectively) consistent with our present study. And another study, Mahajan K et al observed that 7% of the patients were nulliparous and 93% of them were multiparous women.

Murtuza R et al observed that only 3.5 % of the patients were nulliparous which is almost consistent with present study[8].

Breast feeding

Breastfeeding has an important protective factor in reducing the risk of developing breast cancer. In the present study, 99% of our patients breastfeed their babies and only 1% of the patients were not breastfeed their babies where association between breastfeeding and breast cancer could not be made out which is similar to the study done

by Palachandra A et al. Murtuza Ret al observed that 94% of the patients of the patients breastfeed their babies which is consistent with the present study.

Examination findings

Side

In the present study, 53% of the patient presented cancer in the left breast. AmerM et al observed that 50.9% of breast cancer seen on left side and 46.11% on the right side.

Quadrant

In the present study, majority of lesion seen in upper outer quadrant (52%) followed by upper inner 18%,central quadrant-10% and the least is lower outer quadrant involving 5% of overall. Patil P et al [90] observed 55.36% of involvement of upper outer quadrant and least was involving 5% of lesion which is consistent with the present study.

Size of lesion

In the present study, majority of the patients (58%) of the patients presented with 6-7cm lump in the breast and <6% of the patients presented with lesion of 1cm or less whereas the study conducted by Patil P et al only 0.71% of the people presented with lesion 1cm or less.

TNM staging

In the present study, majority of the patients were presented in T3 stage (41%) followed by T4 (28%), T2(25%) and 61% of them presented with N1 nodal status and 7% of them presented with metastases (M1) status. Nodal involvement seen in 75% of patients.

Patil P et al observed that majority of the patients presented with T3 stage of 36% and positive nodal status seen in 63% of patients and metastases seen only in <1% of cases which is almost consistent with our present study.

Staging

In the present study we observed that majority of the patients were presented in stage III constitutes approximately 62%, followed by stage II (33%), stage I(4%) and stage IV(3%) whereas study conducted by Shoeb M et al observed that majority of patients were in stage II constitutes almost 52% followed by stage III(46%), stage I(2%) and stage IV(0%).

Hezil D et al conducted a study and observed that, majority of patients were belongs to stage II comprising 57% followed bystage III(39%), stage I(8%) and stage IV(0%).

FNAC

In our present study, majority of patient's FNAC shows IDC(90%) followed by medullary, lobular and papillary carcinoma respectively. Study conducted by Siddegowda M et al observed that 82% of the cases were IDC which is consistent with the present study.

Treatment

In the present study, all patients were underwent MRM, 33% of the patients were offered CT+HT along with MRM and 94% patients underwent CT following surgery.

Treatment were offered on the basis of stage of the disease and hormonal receptor status, in the stage I, II and III, MRM done followed by CT and HT added depending on the hormonal receptor status where as stage IV patients underwent initial palliative chemotherapy followed by palliative mastectomy and adjuvant chemotherapy. Few patients were referred higher center for radiotherapy.

Post operative histopathology

In the present study histopathology shows 83% of the patients were detected as IDC(4%- comedo and 79%-NOS), medullary carcinoma was observed in 11% of patients, followed by lobular(3%), mucinous(2%) and papillary(1%).

ER/PR receptor status

In the present study we observed that 35% of the patients shows positive ER/PR status. In a study conducted by Rao C et al observed that ER/PR status positivity is seen in 36.5% of cases which is consistent with present study.

Histological type of carcinoma with stage of presentation

In the present study, majority of cases were IDC and majority of them were presented in the in the stage III and II and next common was medullary carcinoma, ILC, mucinous and papillary carcinoma which is similar to the study conducted by Lopes Let al.

Relationship between FNAC and histopathology

In the present study, we observed that FNAC is almost equally effective in differentiating IDC when compared to histopathology. (FNAC-90%, histopathology-(83%) which is consistent with the study conducted by Farida B et al.

Conclusion

The study conducted at K.V.G medical college and hospital, Sullia and 100 cases of carcinoma breast were studied where majority of the patients were presented in the age group of 50-59years which is similar to the western series and most common presenting complaint was lump in the breast. Early age of menarche, late menopause and longer reproductive period has an association with breast cancer with significant family history been seen in many cases. Majority of the patients were presented in stage II and III due to lack of awareness of breast cancer and ignorance. FNAC is highly sensitive and specific in differentiating various malignancies and IDC was the most common variant. Various methods of treatment offered to the on the basis of stage of breast cancer. Even though there has been a drastic change in the management of breast cancer in the last few decades, for the effective management of the cancer, patient should report to the hospital at an earliest stage, which is lacking in our locality. Hence our study focuses on the awareness of the public about breast cancer screening programs and importance of triple assessment in diagnosis of breast cancer which is cheap and effective. The main goal of the study was to prolong the patient's life considerably by ensuring good quality of life by early detection of cancer and its appropriate treatment.

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