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Original Article

Histopathological Evaluation of Breast Cancer in Rangpur Medical College Hospital, Rangpur

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Abstract:
Background: Histopathological findings of breast cancers are more important factor for the analysis of individual characteristics of breast cancer & categorization by specific histologic patterns. **Objectives:** Aim of this study is to assess histopathological findings of breast cancer patients. **Methods:** This retrospective study was carried out at the Department of Radiotherapy, Rangpur Medical College Hospital, Rangpur, Bangladesh between the period 2006 to 2018.From the registry of department data of 457 breast cancer patients were taken . Age, previous & current clinical data of all patients was recorded properly during data collection. Histopathological types of all breast cancer patients were evaluated. **Results:** Registry data revealed that 215 (47.04%) of the breast cancers occur at the age group of 33–48 years. Among histopathological data of breast cancer patients, most common & the highest incidence of breast cancer type is invasive ductal carcinoma about 354 (77.46%), invasive lobular carcinoma 52(11.38%), tubular carcinoma 9 (1.97%), mucinous (Colloid) carcinoma 11 (2.41%), medullary carcinoma 5 (1.09%) & others 26 (5.69%). **Conclusion**: It was found that most breast cancers were at the age group of 33-48 years and invasive ductal cell carcinoma is most common & highest histopathological type of breast cancer than others.

Key words: Breast cancer, Histopathology

Introduction:
Breast cancer is a heterogeneous disease, comprising multiple entities associated with distinctive histological, biological features, clinical presentations and behaviours[1].
Microarray-based expression profiling analysis has been used to unravel the molecular underpinning of several characteristics of breast cancer, including its proclivity to disseminate to distant sites and the molecular basis of histological grade[2].
Using Surveillance, Epidemiology, and End Results Program data on 135157 invasive breast cancer cases diagnosed from 1992 to 2001, relationships between nine histologic types of breast cancer and various tumour characteristics were assessed. Among women aged 50–89 years at diagnosis, lobular and ductal/lobular carcinoma were more likely to be diagnosed with stage III/IV, ⩾ 5.0 cm, and node-positive tumours compared to ductal carcinoma. Mucinous, comedo, tubular, and medullary carcinomas were less likely to present at an advanced stage. Lobular, ductal/lobular, mucinous, tubular, and papillary carcinomas were less likely, and comedo, medullary, and inflammatory carcinomas were more likely to be estrogen receptor (ER) negative/progesterone receptor (PR) negative and high grade (notably, 68.2% of medullary carcinomas were ER−/PR− vs 19.3% of ductal carcinomas). In general, similar differences were observed among women diagnosed at age 30–49 years. Inflammatory carcinomas are associated with more aggressive tumour phenotypes, and mucinous, tubular, and papillary tumours are associated with less aggressive phenotypes. The histologic types of breast cancer studied here differ greatly in their clinical presentations, and the differences in their hormone receptor profiles and grades point to their likely different aetiologies[3].
In 2008, breast cancer caused 458,503 deaths worldwide (13.7% of cancer deaths in women and 6.0% of all cancer deaths for men and women together)[4]. Breast cancers comprise

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22.9% of invasive cancers in women and 16% of all female cancers[5].
In 2012, it comprised 25.2% of cancers diagnosed in women, making it the most common female cancer[6].
In addition, there are more than 18 other sub-types of breast cancer. Some cancers, such as ductal carcinoma in situ, develop from pre-invasive lesions. The diagnosis of breast cancer is confirmed by taking a biopsy of the concerning lump[7].

Breast cancer remains the most common cancer among women in Bangladesh.It has become a hidden burden which accounts for 69% of cancer death in women[8].

The number of new breast cancer cases in Bangladesh is 17,781 every year. A total of 8,396 (15.4% of cancer death in women) women die each year from breast cancer[9].

In Bangladesh, the incidence rate of breast cancer was about 22.5 per 100000 in females[9].

Breast cancer has been reported as the highest prevalence rate (19.3 per 100,000) among Bangladeshi women between 15 and 44 years of age when compared to other types of cancer. Cervical cancer ranked second for this group of women, with a prevalence rate of 12.4 per 100,000 in 2008-2010[9].

An increase in incidence rate has been reported due to lack of disease awareness, lack ofconfidence about medical treatment, improper screening tests and maltreatment of early metastasis[10].

The primary risk factors for breast cancer are being female and older age[11]. Other potential risk factors include genetics[12], lack of childbearing or lack of breastfeeding[13], higher levels of certain hormones[14,15], certain dietary patterns, and obesity. One study indicates that exposure to light pollution is a risk factor for the development of breast cancer[16].

Risk factors for developing breast cancer include being female, obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, prior history of breast cancer, and family history. About 5–10% of cases are due to genes inherited from a person's parents, including BRCA1 and BRCA2 among others[17].

Breast cancer most commonly develops in cells from the lining of milk ducts and the lobules that supply the ducts with milk[17]. Cancers developing from the ducts are known as ductal carcinomas, while those developing from lobules are known as lobular carcinomas.[17]
Aim of this study is to assess histopathological conditions of breast cancer patients.

Methods:
This retrospective study was carried out at the Department of Radiotherapy, Rangpur medical college hospital, Rangpur, Bangladesh. All data regarding of 457 breast patients were collected from 2006 to 2018 from the registry book. Patients having previous history of clinical record like age and histopathological types that were evaluated. In cases of suspicious patients' necessary arrangement were made for confirmation of the diagnosis. Inclusion criteria were, patient with breast cancer within age 15-100 years and exclusion criteria were, patient with co-morbidity status & children.

Statistics analysis:
All the observed data were tabulated in MS-Excel and statistically analyzed using IBM SPSS statistic software, version 13.

Results:
The study comprised a total of 457 breast cancer patients. Highest number of breast cancers were in the age group of 33–48 years about 215(47.04%) that shown in (Table I).

Table I: Percentage of breast cancer patients according to age

Range of Age	No of Patients	Percentage
15 to 32	45	9.84%
33 to 48	215	47.04%
49 to 65	175	38.29%
66 to 82	21	4.59%
83 to 100	1	0.21%
Total	**457**	**100%**

According to the histopathological reports, most common type breast isinvasive ductal carcinoma 354(77.46%), invasive lobular carcinoma 52(11.38%), tubular carcinoma 9(1.97%), mucinous (Colloid) carcinoma 11(2.41%), medullary carcinoma 5(1.09%) & Others 26(5.69%) (Table II). According to this study it

has been found that incidence of invasive ductal carcinoma was higher than other types of breast cancers.

Table II: HPR percentage of Breast cancer patients

HPR	N	Percentage
Invasive Ductal Carcinoma	354	77.46%
Invasive Lobular Carcinoma	52	11.38%
Tubular carcinoma	9	1.97%
Mucinous (colloid) carcinoma	11	2.41%
Medullary Carcinoma	5	1.09%
Others	26	5.69%
Total	**457**	**100%**

Discussion:

Globally, breast cancer is the most common cause of cancer-related death in women, with some 327 000 deaths each year. There is 1·35 million new cases every year, and about 4·4 million women are believed to be living with breast cancer. An estimated 1.7 million women will be diagnosed with breast cancer in 2020 a 26% increase from current levels mostly in the developing world[18].

Breast cancer is already the leading cause of cancer in Southeast Asian women, and is second only to gastric cancer in East Asian women, and to cervical cancer in women in south-central Asia. In India, almost 100 000 women are diagnosed with breast cancer every year, and a rise to 131 000 cases is predicted by 2020[18].

Most types of breast cancer are easy to diagnose by microscopic analysis of a sample or biopsy of the affected area of the breast. Also, there are types of breast cancer that require specialized lab exams.

The two most commonly used screening methods, physical examination of the breasts by a healthcare provider and mammography, can offer an approximate likelihood that a lump is cancer, and may also detect some other lesions, such as a simple cyst[19].

Other options for biopsy include a core biopsy or vacuum-assisted breast biopsy[20],which are procedures in which a section of the breast lump is removed; or an excisional biopsy, in which the entire lump is removed.

Very often the results of physical examination by a healthcare provider, mammography, and additional tests that may be performed in special circumstances (such as imaging by ultrasound or MRI) are sufficient to warrant excisional biopsy as the definitive diagnostic and primary treatment method[21].

Breast cancers differ in other ways. They can be non-invasive or invasive. Tumor cells can vary in location (milk ducts or lobules) and how they look under a microscope. These differences often affect prognosis. Tumor characteristics, such as hormone receptor status and HER2 status, also affect prognosis.

Most common types of breast cancer are non-invasive and invasive breast cancers. Ductal carcinoma in situ (DCIS) is a non-invasive breast cancer. In situ means "in place." With DCIS, the abnormal cells are contained in the milk ducts of the breast and have not spread to nearby breast tissue.

DCIS is non-invasive, without treatment, the abnormal cells could progress to invasive breast cancer over time. So, you may also hear the terms “pre-invasive” or “pre-cancerous” to describe DCIS.

Invasive breast cancer has spread from the original site (either the milk ducts or the lobules) into the nearby breast tissue, and possibly to the lymph nodes and other parts of the body. For this reason, invasive breast cancers have a poorer prognosis than DCIS[22.23].

According to the American Cancer Society, more than 180,000 women in the United States find out them have invasive breast cancer each year. Invasive ductal carcinoma makes up about 70-80% of all breast cancers. About 10% of all invasive breast cancers are invasive lobular carcinomas[24]. Research suggests that only about 2-3% of invasive breast cancers are “pure” mucinous carcinomas — meaning that this is the only type of cancer present within the tumor. About 5% of invasive breast cancers appear to have a mucinous component within them, with other types of cancer cells present as well[25].

In 2001, the Surveillance Epidemiology and End Results (SEER) database of the National Cancer Institute (NCI) studied a series of 135,157

women with breast cancer and reported tubular Carcinoma – 1.5 % & Medullary Carcinoma – 1.2%.[26]

Table III: A comparative observation between studies of the Surveillance Epidemiology and End Results (SEER) database of the National Cancer Institute (NCI) in 2001[26]& present study

Study of (NCI) 2001[26]	Present Study
Invasive Ductal Carcinoma (IDC) – 76 %	Invasive Ductal Carcinoma-77.46%
Invasive Lobular Carcinoma (ILC) – 8 %	Invasive Lobular Carcinoma-11.38%
Tubular Carcinoma – 1.5 %	Tubular carcinoma -1.97%
Mucinous (Colloid) Carcinoma – 2.4 %	Mucinous (Colloid) Carcinoma-2.41%

A comparative observation between studies of the Surveillance Epidemiology and End Results (SEER) database of the National Cancer Institute (NCI) in 2001[26] & present study show the highest incidence of breast cancer type is invasive ductal carcinoma, second type is invasive lobular carcinoma, third type is mucinous (Colloid) carcinoma & fourth type is tubular carcinoma (Table III).

In those who have been diagnosed with cancer, a number of treatments may be used, including surgery, radiation therapy, chemotherapy, hormonal therapy, and targeted therapy[27].

Types of surgery vary from breast-conserving surgery to mastectomy[28.29]. Breast reconstruction may take place at the time of surgery or at a later date. In those in whom the cancer has spread to other parts of the body, treatments are mostly aimed at improving quality of life and comfort[29].

Women can reduce their risk of breast cancer by maintaining a healthy weight, reducing alcohol use, increasing physical activity, and breast-feeding[30].

Conclusion:

Breast cancer occurrence is the most common in female than others cancer.The present study has provided the information about age group have a higher risk of breast cancer occurrence and histopathological types of breast cancer. It has found that most breast cancers were in the age group of 33-48 years andinvasive ductal cell carcinoma ismost common & highest histopathological type ofbreast cancer than others.

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