Original Article

Post Mastectomy Wound Complications with or Without Neo-Adjuvant Chemotherapy: An Observational Study

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Abstract

Background: Breast cancer is the most common cancer diagnosed in women and the second most common cause of death from cancer among women in the world. Diagnosis is usually made by the clinical examination, USG Breast & mammography, and confirmed by FNAC, true cut biopsy, and incision biopsy.

Materials and Methods: The study was an observational study which was carried out at tertiary care Medical Centre (BMCH) Day today patient admitted in Department of Surgery with a breast lump and was diagnosed as breast carcinoma, took neoadjuvant chemotherapy or not and operated. The present study was done to observe the incidence of wound complications after mastectomy following neoadjuvant chemotherapy within 6 weeks and to compare the incidence of wound complications that occurs after breast surgeries following neo adjuvant chemotherapy with the same without neoadjuvant chemotherapy.

Results: The mean age of this study population was 50.8 yrs. Histological type distribution showed that invasive ductal carcinoma consists of 64 patients (80%). Histological grade distribution showed that most of the patients were Grade 2 (76.25%). Most of the patients had undergone modified radical mastectomy. About 77 (96.25%) patients underwent a modified radical mastectomy of which 36 (46.73%) took neoadjuvant chemotherapy and 41 (53.24%) were not taken neoadjuvant chemotherapy. In our study, we found that among the 36 patients who received neoadjuvant chemotherapy 27 patients (75%) developed complications after surgery whereas it was much lesser in patients without neoadjuvant chemotherapy which was 21 among 44 patients (47.7%). It has been found that the chance of complications is slightly more in the case of neoadjuvant chemotherapy patients.

Conclusion: It was concluded that post-operative complications of MRM included wound dehiscence, seroma, surgical site infection, hematoma, altered sensation, and pain. Seroma formation is the most frequent and common complication after mastectomy. The present study showed that the rate of wound complications after mastectomy was slightly high in the case of patients taking neo adjuvant chemotherapy.

Keywords: Breast carcinoma, neoadjuvant chemotherapy, mastectomy, complications.

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Introduction

Breast cancer is the most common cancer diagnosed in women, accounting for more than 1 in 10 new cancer diagnoses each year. It is the second most common cause of death from cancer among women in the world.[1] Breast carcinoma is the most common of the all cancer and is the leading cause of cancer death in women. In 2004, breast cancer caused 519,000 deaths worldwide (7% of cancer deaths; almost 1% of all deaths).[2] Breast cancer is the most frequent cancer among women in the world with an estimated 1.67 million new cancer cases diagnosed in 2012 which constituted about 25% of all cancers.[3] It is the 2nd leading cause of cancer related death. One million case diagnosed in one year.

In India age adjusted incidence rate is 25.8/10000 and 95/10000 in UK but mortality rate is high in India, because majority of patient in India present at the stage 3 or 4 which could be due to lack of screening program and lack of frequent self-examination or breast awareness. There is a significant increase in cancer related morbidity and mortality in India earlier, cervical cancer was the most common and leading cause of cancer death, but now breast cancer is the main common cause. The survival rate improves with early diagnosis. The tumour tends to spread lymphatically and haematologically leading to distant metastasis and poor prognosis. This explains and emphasizes the importance of breast cancer screening programs.[1,4, 5]

Diagnosis is usually made by the clinical examination, USG Breast & mammography and confirmed by FNAC, true cut biopsy and incision biopsy. Prognosis and treatment is depends on: stage, lymph node status, estrogen and progesterone receptor, measure of tumour proliferation status such as ki-67 growth factor analysis and oncogene; women age, general health and menopausal status and the type of breast cancer. Tissue biopsy is an important step in the evaluation of breast cancer patient. There are different ways to take a tissue specimen, and these include fine needle aspiration cytology, core biopsy (Truecut), and incision or excision biopsy.[6-8]

Several treatment options are available for breast carcinoma depending upon the stage of disease. The complete removal of the tumour is definitive therapy but it is not possible every time. So several treatment options are available .neo adjuvant chemotherapy for breast cancer to shrink which is not operable in its current status, so it can be surgically removed. When there is a risk for metastatic relapse, systemic therapy is indicated in the form of hormonal therapy, chemotherapy, targeted therapy, or any combination of these. In locally advanced disease, systemic therapy is used as a palliative therapy with a small or no role for surgery.[9-11]

Neo adjuvant can be considered as treatment option for any patient who is expected to require systemic treatment. Therefore there is a need to understand post- operative complications in recipient of neo adjuvant chemotherapy. Neutropenia is most common side effect of chemo therapeutics; this has raised concerns regarding post- operative wound complications. Various post mastectomy wound complication occur as follows. The most common direct post-surgical complications following MRM are the formation of a hematoma, the infection of the surgical wound and the formation of a seroma. These direct post-surgical complications can, at least in part, be attributed to the drainage of the surgical wound.[12-13]

Present study was done to observe the incidence of wound complications after mastectomy following neoadjuvent chemotherapy within 6 weeks and to compare the incidence of wound complications that occurs after breast surgeries following Neo adjuvant chemotherapy with the same without neo adjuvant chemotherapy.

Materials and Methods

The study was an observational study which was carried out at tertiary care Medical Centre (BMCH) Day today patient admitted in Department of Surgery with breast lump and was diagnosed as breast carcinoma, took neo adjuvant chemotherapy or not and operated. They were observed the patients to search for wound complications occur or not. Period of study was between May 2019 to November 2020.

Inclusion Criteria:

1. Female/Male patient with breast lump diagnosed as breast carcinoma by pathological examination.

2. Stage of disease which require mastectomy or breast conserving surgery.

Exclusion Criteria:

1. Recurrent cases
2. Patient who has taken previous chemotherapy/radiotherapy

A written informed consent was taken from all patient included in the study. A detailed history taking, through clinical examination was done for these patients. The data collected like lab investigations, radiological investigations Chest X-ray, Echo, Bone scan, USG abdomen; tissue diagnosis by true-cut biopsy, FNAC and histopathological examination of incisional biopsy of breast tissue and axillary lymph node. Administration of chemotherapy prior to or after breast surgery was also noted. Descriptive statistics was done comparison of non parametric data by using Chi square test, Mann Whitney test. Parametric data was compared by using Students T test.

Results

This study had included total 80 patients. Among the 80 patients 36 patients (45%) got neoadjuvant chemotherapy and 44 patients did not get neoadjuvant chemotherapy. All the patients were followed up after operation for 6 weeks and the complications regarding surgery (mastectomy) was tabulated and result analyzed [Table 1].

Table 1: Age distribution of study population

Age group(yrs)	Patient No. (%)	Neoadjuvent (%)	No neoadjuvent (%)
<40	22 (27.5%)	14 (63.36%)	8 (36.36%)
>40	58 (72.5%)	22 (37.93%)	36 (62.06%)

In this study 58 (72.5%) patients were more than 40 yrs. Among these patients 22 patients which was 37.9% of these group, got chemotherapy before operation and 22 patients (27.5%) were less than 40 years age, included 14 (63.36%) patients who got neoadjuvent chemotherapy [Table 1]. About 36 patients among those 58 patients which were 62.06% of this group did not get have chemotherapy before operation and 8 (36.36%) patients among the 22 patients who did not got neoadjuvent chemotherapy [Table 1].

Table 2: Histological type distribution of study population

Histological type	No of patients	Percentage (%)
IDC Nos.	64	80
Other	16	20
Histological grade		
Grade 1	8	10%
Grade 2	61	76.25%
Grade 3	11	13.75%

Among the study population, 64 patients were invasive ductal carcinoma type where as other 16 patients included invasive lobular 10 patients, medullary carcinoma 3 patients, mucinous carcinoma 2 patients and metaplastic carcinoma 1 patient. Among the study population 61 patients were diagnosed with grade 2 tumor, followed by 11 patients of grade 3 and 8 patients of grade 1 [Table 2].

Table 3: Distribution of patients according to type of mastectomy

Type of surgery	No of patients		Neoadjuvent given	Neoadjuvent not given
	no	Percentage (%)		
Modified radical mastectomy	77	96.25	36(46.73%)	41(53.24%)
Toilet mastectomy	3	3.75	0	3

All the 80 patients were underwent mastectomy. About 77 patients were underwent modified radical mastectomy and 3 patients need toilet mastectomy [Table 3].

Table 4: Distribution of patients according to post operative complications

Complications	No of patients	Percentage (%)
Yes	48	60
No	32	40
Seroma	27	56.25
Wound infection	8	16.67
Skin flap necrosis	6	12.5
Wound dehiscence	3	6.25
Upper limb lymph edema	4	8.33
Hematoma	0	0
Venous thromboembolism	0	0
Injury to vital structure	0	0
Stuart Treves Syndrome	0	0

Among the 80 post operative patients 48 patients had developed different type of post operative complications where as 32 patients discharged and followed up without any visible complications. Among the post operative complication patients, it was noted that most common post operative complications was seroma formation. Among the 48 patients 27 patients (56.25%) developed seroma formation, 8 patients (16.67%) wound got infected, 6 patients (12.5) skin flap got necrosed, 3 patients (6.25%) wound dehiscence occurred and rest 4 patients (8.33%) developed upper limb lymph edema [Table 4].

Table 5: Distribution of neoadjuvant chemotherapy among patients with post operative complications (n=48)

Complications	No of patients	Neo-adjuvant	No neo-adjuvant
Seroma	27	15(55.55%)	12(44.44%)
Wound infection	8	5(62.5%)	3(37.5%)
Skin flap necrosis	6	3(50%)	3(50%)
Wound dehiscence	3	1(33.33%)	2(66.6%)
Upper limb lymph edema	4	1(25%)	3(75%)
Hematoma	0	0	0
Venous thromboembolism	0	0	0
Injury to vital structure	0	0	0
Stuart Treves syndrome	0	0	0

Among the 27 patients producing seroma formation, 15 (55.55%) patients taken neoadjuvent chemotherapy and 12 (44.44%) patient not take any neo adjuvant chemo therapy. Among the 8 patients producing wound infection, 5(62.5%) patients taken neoadjuvant chemotherapy and 3(37.5%) patients not take any neo adjuvant chemo therapy. Among the 6 patient producing skin flap necrosis, 3(50%) patients taken neoadjuvant chemotherapy and 3(50%) patient not take any neo adjuvant chemo therapy. Among the 3 patients producing wound dehescence, 1(33.33%) patient had taken neoadjuvant chemotherapy and 2(66.66%) patient did not take any neo adjuvant chemo therapy. Among the 4 patients producing upper limb lymphadenoma, 1(25%) patient had taken neoadjuvent chemotherapy and 3(75%) patients did not take any neo adjuvant chemo therapy [Table 5].

Discussion

In present study total 80 patients with breast carcinoma were included. All were female patient and no male patient seen during my study. Breast carcinoma is strongly related to age and more common in female. In my study it is also seen that 58 (72.5%) are above 40 yrs and 22 (27.5%) are below 40 yr. Age specific incidence rate highly increase from 35 yrs to 39 yrs, then rise further age 65 yrs to 69 yrs, drop slightly for aged 70 yrs to74 yrs of women, then steadily to reach an overall peak in the age 85+ age group. In my patient group age group below 40 yrs. Mean age of this study population is 50.8 yrs. In the study done by Vinod Raina et al[14] showed 49.7% of cases occurred in less than 45 years and in the study done by Sunita Saxena et al[15] of New Delhi reported that the median age of occurrence was 47.8 years which is similar to our study.

The commonest histological type in our study is invasive ductal carcinoma consists 64 patients (80%). In the study done by Vinod raina et al [14], Meneka Ds lokuhetty[16], Lobana et al[17] were respectively 92.8%, 86.3% and 83.8% which is almost similar to our study.

In our study most of the patients were grade 2(76.25%). It is similar to the study done by Lobana et al[17]. Stage of a cancer does not change over time, even if the cancer progress. Modified radical mastectomy and axillary clearance is the most the most common surgical procedure performed for early

breast carcinoma. In the present study 77 (96.25%) patient undergone modified radical mastectomy of which 36(46.73%) taken neo adjuvant chemotherapy and 41(53.24%) are not. and 3(3.75%) undergone toilet mastectomy who are not taken any neo adjuvant chemotherapy.

Post operative Complications

Seroma formation is the most common complication seen after mastectomy (MRM or toilet mastectomy). In the present study seroma formation had occured in 27 patients (33.75%). A study done by Naman Chandrakar et al[18] showed seroma formation in 26% of patients, a study by Wedgwood KR et al[19] showed 25% seroma formation, and a study by Dahri FJ et all[20] showed 33.33% seroma formation in post operative cases, which was almost similar to our study.

Superficial surgical site complications is the another notable complications in our study include 8 patients (10%) of the study population. Study done by Ashok Kumar et al[21] showed 6.66% surgical site infection, Decar's et al[22] and Vilar-Compte et al[23] showed respectively 1.8%, and 20.5% surgical site infection. Skin flap necrosis is another complication includes 6 patients (7.5%) among the study population. Study done by Shaikh FB et al[24], Shaikh K et al[25], and Alam Jan W et al[26] showed respectively 5.1%, 7%, and 3.9%. Wound Dehiscence was another complication occurred in 3 patients (3.75%). The study done by Naman Chandrakar, Raju Kar Sindhe[18] and Vilar-Compte et al[23] showed respectively 3.3% and 11.2%. Our study was almost similar to Namanchandrakar study[18]. In our study we found 4 patients (5%) having upper limb lymphedema. It is a least found complication in other studies.

In the present study we have found among the 36 patients received neoadjuvant chemotherapy 27 patients (75%) developed complications after surgery where it is much lesser in patients without neoadjuvant chemotherapy which was 21 among 44 patients (47.7%). It has been found that the chance of complications is slightly more in case of neo adjuvant chemotherapy patients.

Limitations

A relatively small study population might not have reflected the manifestations in the whole population, so the study may be related with a large population. Some other risk factor could have been studied, but due to lack of availability of infrastructure and time, they had to be omitted from the study.

Conclusion

It was concluded that post-operative complications of MRM included wound dehiscence, seroma, surgical site infection, hematoma, altered sensation and pain. Seroma formation is the most frequent and common complication after mastectomy. Many other complications are seen in the present study were skin flap necrosis, wound infection, wound dehiscence, and upper limb lymphedema respectively. The present study showed that the rate of wound complications after mastectomy was slightly high in case of patient take neo adjuvant chemotherapy.

Conflict of Interest: None

Ethical clearance: Approved by Institutional Ethics Committee, BMCH, Burdwan

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