Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i18.3845

SEROMA FORMATION AFTER MODIFIED RADICAL MASTECTOMY AT A TERTIARY CARE HOSPITAL

Zoya Mehran[1*], Aisha Shaikh[2], Ibrahim Asgher[3], Saira Fatima[4], Muhammad Umair Masoomi[5], Muhammad Muqeem[6]

[1*]Consultant Surgeon Chandka Medical College Hospital Larkana. zoya.sikander@ymail.com
[2]Associate Professor Surgery Shaheed Mohtarma Benazir Bhutto Medical University Larkana aashys19@gmail.com
[3]Assistant Professor Surgery. Gambat Institute of Medical Sciences. Gambat. ibrahimabbasy@gmail.com
[4]Associate Professor Surgery Shaheed Mohtarma Benazir Bhutto Medical University Larkana. sairafatimashaikh@yahoo.com
[5]Consultant Surgeon, THQ Hospital, Khanpur. drumairmasoomi@yahoo.com
[6]Assistant Professor Surgery Gambat Institute of Medical Sciences.Gambat. jmuqeem142.mm@gmail.com

[*]**Corresponding Author:** Zoya Mehran
[*]Consultant Surgeon Chandka Medical College Hospital Larkana. zoya.sikander@ymail.com

ABSTRACT

OBJECTIVE: To determine the frequency of seroma formation in patients undergoing modified radical mastectomy.

BACKGROUND: Despite progress towards breast-conserving methods of treating the disease, up to 70% of women with breast cancer have a mastectomy as their first surgical treatment. Mastectomy carries a low risk of serious consequences. Seromas are often painless, however they can hurt and have been connected to lymphedema, wound infection, and issues with wound healing. The onset of adjuvant therapy may also be postponed by their occurrence.

STUDY DESIGN: A cross-sectional study

PLACE AND DURATION: Department of Surgery Chandka Medical College Larkana, from January 2010 to June 2023.

METHODOLOGY: Data was collected from patients undergoing MRM with neo adjuvant therapy. Female Patients between 15 years age up to 65 years, with stage I, II and Ill of breast cancer admitted in surgical ward and undergone modified radical mastectomy were made part of the study. Presence of seroma was checked on 5th postoperative day. All the collected data were entered into SPSS version 25. We used mean and SD for quantitative variables and presented the qualitative data in percentage.

RESULTS: This study observed that the mean ± SD of age was 43.6±8.9 years. Out of 181 patients, 149 (82.3%) were married while 32 (17.7%) were unmarried. Seroma formation was found in 28 (15.5%) patients. It was observed that seroma formation was more prevalent among patients from urban areas, married, and house wives

CONCLUSION: It is to be concluded that seroma formation was less likely prevalent in patients undergoing modified radical mastectomy, residual confounders could play a role.

KEYWORDS: Axillary Dissection, Breast Cancer, Radical Mastectomy, Risk Factor, Seroma Formation

INTRODUCTION

With approximately 1.7 million new cases reported in 2012, or roughly 12% of all new cancer cases and 25% of all cancers in women, breast cancer is the most frequent cancer in women globally [1]. In different parts of the world, between 19 and 45% of all malignancies in women are breast cancers. Cases of breast cancer are increasing quickly. According to reports, one in twenty-two women in South Asia will develop breast cancer at some point in their lives [2]. Surgery, radiation therapy, hormone therapy, and chemotherapy are all part of the multidisciplinary approach to treating breast cancer in the current day [3]. Nonetheless, the modified radical mastectomy (MRM) is the most often carried out surgical surgery [4].

In addition to oncological complications such as local or axillary recurrence following curative resection and residual disease, there are non-oncological complications following MRM that can arise early or late and contribute to morbidity. This lengthens hospital stays and delays the administration of adjuvant chemotherapy or radiotherapy [5]. Early wound complications following modified radical mastectomy include seromas, lymphedema, persistent discomfort, flap necrosis, and hematomas. Between 0.8 to 26% of instances following breast surgery have experienced surgical site problems [5–6]. With a 3% to 85% prevalence, seroma development is the most common postoperative complication following modified radical mastectomy, causing the patient to need antibiotics, reimaging, drainage, and re-admission [7, 8]. Different studies have observed varying proportion (13.6% [9], 25.4% [10], 21.9% [11]) of seroma formation in patient after mastectomy.

Seroma formation is classic example of surgical complication, which directly increase burden of disease, quality adjusted life years, increase economic burden on health system. This study will reveal the frequency of seroma formation after MRM in our local population. Besides exploring relationships of seroma formation with socio-economic factors.

METHODOLOGY

In this cross sectional Study, female Patients between 15 years age up to 65 years, with stage I, II and Ill of breast cancer admitted in surgical ward and undergone modified radical mastectomy were made part of the study. However, patients with inflammatory breast cancer, Immune compromised patients such as diabetes mellitus (DM), tuberculosis (TB), HIV, other malignant cases, Patients with metastasis, infectious diseases like Hepatitis, recent surgery, and severe endocrine, hepatic, or renal dysfunction and hypertension were excluded from the study. Presence of seroma was checked on 5th postoperative day. All the collected data were entered into SPSS version 25. We used mean and SD for quantitative variables and presented the qualitative data in percentage. Post-stratification, Chi-Square test was applied. A p-value $\leq$0.05 was considered as statistically significant.

RESULTS

In the present study, 181 patients were included to assess the seroma formation in patients undergoing modified radical mastectomy. It was observed that the mean age was 43.6±8.9 years. We observed that 122 (67.4%) belonged to urban while 59 (32.6%) were rural residential places. A total of 82.3% were married while 32 (17.7%) were unmarried in the study. Occupationally 24 (13.3%) patients were students, 60 (33.1%) were housewife while 97 (53.6%) were working women. It was reported that 06 (3.3%) patients were illiterate, 33 (18.2%) had middle level, 61 (33.7%) had matriculation while 81 (44.8%) reported to have intermediate or higher education level in the study (As shown in Table I).

Table. I Sociodemographic Factors of the Study Participants

Variable		Frequency	Percentage
Residential place	Rural	59	32.6
	Urban	122	67.4
Marital status	Married	149	82.3
	Unmarried	32	17.7

Occupational status	Student	24	13.3
	Housewife	60	33.1
	Working Women	97	53.6
Educational status	Illiterate	6	3.3
	Middle	33	18.2
	Matriculation	61	33.7
	Intermediate or Higher	81	44.8
Frequency of seroma	Yes	28	15.5
	No	153	84.5

Seroma formation was found to be in 28 (15.5%) patients (As shown in Fig. I). It was observed that seroma formation was more prevalent among patients from urban areas, married, and house wives. (As shown in Table II)

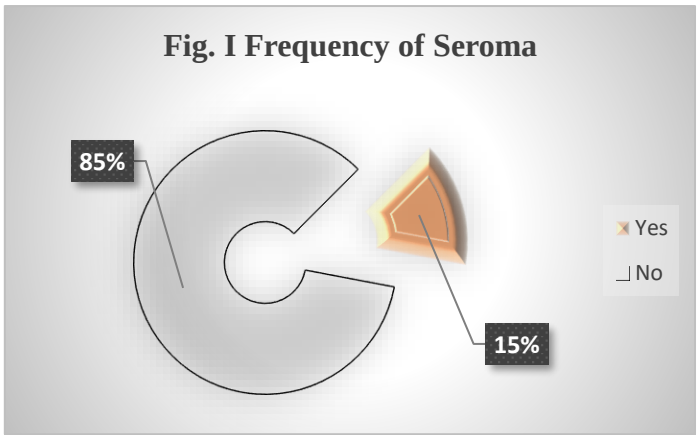

Table II. Chi Square Association between Seroma Formation and Study Variables

Study variables		**Seroma formation**				**P-value**
		Yes	%	No	%	
Residential status	Urban	25	20.49	97	79.51	0.004
	Rural	3	5.08	56	94.92	
Marital status	Married	27	18.12	122	81.879	0.022
	Unmarried	1	3.13	31	96.875	
Occupational status	Student	2	8.33	22	91.67	0.07
	Housewife	17	28.33	43	71.67	
	Working Women	9	9.28	88	90.72	
Educational status	Illiterate	1	16.67	5	83.33	0.45
	Middle	7	21.21	26	78.79	
	Matriculation	17	27.87	44	72.13	
	Inter or Higher	3	3.70	78	96.30	

DISCUSSION

One of the most unpleasant post portative occurrences after modified radical mastectomy is seroma, which causes many visits, delays the initiation of adjuvant medication, and increases the risk of surgical site infection in addition to causing discomfort for the patient and the surgeon [12, 13]. Incidence estimates range from 10 to 52% [14]. While it normally clears out in a few weeks, patients may occasionally experience persistent fluid collection that necessitates aspiration for weeks or even months. A problem that can postpone adjuvant therapy is the formation of post-mastectomy seroma, which increases the risk of sepsis and wound-related complications [15]. Previous research has demonstrated that seroma production is operator dependent [13] and most commonly affects patients with hypertension [16].

In our study, mean age was 43.6±8.9 years. Shaikh K, et al reported age to be 45.81±12.97 years [16]. The mean age of the patients was 46.3±11.9 years [64] while the findings Zieliński J, et al found mean age as 58.4 years [17]. Another study reported as 51.8±10.9 years [18].
The age relation with the formation of seroma is established as already reported that the risk of seroma formation has also been shown to be age-dependent, the risk increasing with increasing age [19].
In this study, seroma formation was found in 28 (15.5%) patients. AboAmra M, et al reported the frequency of seroma formation as 15 (13.6%) [15]. Another study documented that 15 (26.3%) patients had complication of seroma formation [16]. The study of Gonzalez EA, et al identified seroma in 57 of 359 patients (16%) [20], while another study highlighted the presence of seroma in 35% of patients [21]. The study of Özaslan C, et al noted seroma formation in 06 (12%) cases [18]. The reported variations are due to the reason that there are several factors which influence seroma occurrence; several agreement and disagreements are available in research for the association of factors like old age, high blood pressure obesity, old age and obesity [22, 23, 24].

CONCLUSION

It is to be concluded that seroma formation was less likely prevalent in patients undergoing modified radical mastectomy, but we cannot rule out residual confounders. The result of our study can be generalized to our local population as sample collected from different public sector and private hospital which cater patient from all over Pakistan with large sample size.

CONFLICT OF INTEREST

The authors declared no any conflict of interest

SOURCE OF FUNDING

There was no any funding involved

REFERENCES

1. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. Eur J Cancer. 2013;49(6):1374-403.
2. DeSantis CE, Ma J, Goding Sauer A, Newman LA, Jemal A. Breast cancer statistics, 2017, racial disparity in mortality by state. CA Cancer J Clin. 2017;67(6):439-48.
3. Hudis CA, Norton L. Adjuvant drug treatment for resectable breast cancer. Oncologist. 2017;2(6):351-8.
4. Thompson AM. Axillary node clearance for breast cancer. J Royal Coll Surg Edinburgh. 2009;44(2):111-7.
5. Prospero E, Cavicchi A, Bacelli S, Barbadoro P, Tantucci L, D'errico MM. Surveillance for surgical site infection after hospital discharge: a surgical procedure-specific perspective. Infect Control Hospital Epidemiol. 2016;27(12):1313-7.
6. Ruvalcaba-Limón E, Robles-Vidal C, Poitevin-Chacón A, Chávez MacGregor M, GamboaVignolle C, et al. Complications after breast cancer surgery in patients treated with concomitant preoperative chemoradiation: a case-control analysis. Breast Cancer Res Treatment. 2016;95(2):147-52.
7. Kumar S, Lal B, Misra MC. Post-mastectomy seroma: a new look into the aetiology of an old problem. J Royal Coll Surgeons Edinburgh. 2015;40(5):292-4.
8. Coveney EC, O'Dwyer PJ, Geraghty JG, O'Higgins NJ. Effect of closing dead space on seroma formation after mastectomy-a prospective randomized clinical trial. Eur J Surg Oncol. 2013;19(2):143-6.
9. AboAmra M. Seroma formation after modified radical mastectomy. Al Azhar Assiut Med J. 2017;15(4):168.
10. Shaikh K, Shabbir MN, Ahmed I, Soomro S, Najam MS. Frequency of early complications after modified radical mastectomy in breast cancer in tertiary care centre. Pak J Surg. 2013;29(1):17-22.
11. Chandrakar N, Shinde RK. Study the early complications of modified radical mastectomy performed. Int Surg J 2019;6:239-43.
12. Ashikari R H. Modified radical mastectomy. Surg Clin North Am 1984;64:1095–102.

13. Tejler G, Aspegren K. Complications and hospital stay after surgery for breast cancer: a prospective study of 385 patients. Br J Surg 1985;72:542–44.
14. Budd D C, Cochran R C, Sturtz D L, Fouty W J Jr. Surgical morbidity after mastectomy operations. Am J Surg 1978;135:370–6.
15. Spratt J S, Donegan W L, Surgical management. In: Donegan W, Spratt J S, eds. Cancer of the Breast. Philadelphia: W. B. Saunders, 1979;302–49.
16. Kumar S, Lal B, Misra M C. Post-mastectomy seroma: a new look into the aetiology of an old problem. J R Coll Surg Edinb 1995;40:292–4.
17. Zieliński J, Jaworski R, Irga N, Kruszewski JW, Jaskiewicz J. Analysis of selected factors influencing seroma formation in breast cancer patients undergoing mastectomy. Arch Med Sci. 2013;9(1):86.
18. Özaslan C, Yilmaz KB, Doğan L, Atalay C, Altinok M. Effect of mechanical closure of dead space on seroma formation in modified radical mastectomy. Turk J Med Sci. 2010;40(5): 751-5.
19. Boman L, Bjorrell H, Cedermark B, Theve N O, Wilking N. Effect of early discharge from hospital after surgery for primary breast cancer. Eur J Surg 1993;159:67–73.
20. Gonzalez EA, Saltzstein EC, Riedner CS, Nelson BK. Seroma formation following breast cancer surgery. Breast J. 2003;9:385–8.
21. Hashemi E, Kaviani A, Najafi M, Ebrahimi M, Hooshmand H, Montazeri A. Seroma formation after surgery for breast cancer. World J Surg Oncol. 2004;2:44.
22. Banerjee D, Williams E V, Ilott J, Monypenny I J, Webster D J T. Obesity predisposes to increased drainage following node clearance: a prospective audit. Ann R Coll Surg Engl 2001;83:268–71.
23. Woodworth P A, Mcboyle M F, Helmer S D, Beamer R L. Seroma formation after breast cancer surgery: incidence and predicting factors. Am Surg 2000;66:444–51.
24. Ten Wolde B, Van den Wilenberg FJH, Keemers-Gels ME, Palat F, Strobbe LJA. Quilting prevents seroma formation following breast cancer surgery: closine the dead space by quilting prevents seroma following axillary lymph node dissection and mastectomy. Ann Surg Oncol 2014;21:802–7.