



## COMPARISON OF FREQUENCY OF SEROMA FORMATION IN FLAP FIXATION VERSUS CONVENTIONAL CLOSURE AFTER MODIFIED RADICAL MASTECTOMY.

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**ABSTRACT:** Seroma formation is a known complication after any surgery where excessive dissection of subcutaneous tissue leads to disruption of lymphatic channels. Seroma formation, its sequelae and frequent visits to doctor for their management are a common source of discomfort for patients. **Objectives:** Comparison of frequency of seroma formation after flap fixation versus conventional closure after modified radical mastectomy. **Study Design:** Randomized control trial. **Setting:** Department of Surgery, Allied Hospital Faisalabad. **Period:** May 1, 2016 to October 31, 2016. **Material & Methods:** After permission from Hospital ethics committee and informed consent from patients, 70 patients were randomly divided into two groups (35 participants in each group). Findings were noted and data was analyzed statistically. **Results:** It was observed that incidence of seroma formation following modified radical mastectomy was lower with flap fixation technique (14.29%) as compared to conventional closure of wound margins (42.86%). **Conclusion:** Flap fixation technique is better approach compared to conventional method to prevent seroma formation.

**Key words:**

Breast Carcinoma, Flap Fixation Technique, Modified Radical Mastectomy, Seroma Formation.

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### INTRODUCTION

For several decades breast cancer has been second leading cause of death in women worldwide. According to some estimates 1 in 9 Pakistani women develop breast cancer in their life. In fact Pakistan has the highest incidence of breast cancer in Asia.<sup>1</sup> Majority of patients have to undergo modified radical mastectomy to ensure the effective removal of malignant cells. Seroma, a collection of fluid comprised of blood and lymph, is a common complication after mastectomy.<sup>2</sup>

The pathogenesis of its formation is not fully understood but it is believed to be inflammatory exudates released due to fibrinolytic activity in response to inflammation, wound healing and surgical trauma.<sup>3,4</sup> Various studies report incidence of seroma formation from 15 to 81%.<sup>5</sup>

It is a source of significant morbidity, health care costs and hospitalization. Different approaches have been introduced to improve reduction of

post operative seroma formation. It was noticed during other surgical techniques that reduction in dead space can help decrease post operative incidence of seroma formation.<sup>6</sup>

The rationale of this study was to find a better surgical technique with decreased risk of seroma formation and improve early recovery. Flap fixation method was found to be a better surgical technique and the authors recommend its implementation in regular practice.

### MATERIAL & METHODS

This randomized control trial was carried out in General Surgery units of Allied Hospital Faisalabad. The duration of study was 6 months from May 1, 2016 to October 31, 2016. Permission was taken from hospital's ethical committee. Female patients aged 25 to 60 years with diagnosed case of breast carcinoma were included in the study after an informed consent.

Seventy patients were included in the study and were divided into two equal groups randomly, each group contained 35 participants. Patients in Group A underwent flap fixation method while conventional closure method was used for Group B (control group). Progress of patients was followed in ward and via outpatient department. Collected data was analyzed statistically.

Flap fixation method was performed as described by Almond et al. in 2010.<sup>7</sup> It involves the suturing of skin flaps to pectorals muscles with absorbable sutures (vicryl 3.0). Depending upon the size of skin flap suturing is done in two or three rows and each suture is placed about 3 cm apart. Careful placement of sutures should not produce skin dimpling.

The purpose of this technique is to decrease dead space for seroma formation. However, closure of axillary dead space is not recommended.

## RESULTS

A total of 70 patients were randomly divided in two equal groups. Group A underwent flap fixation technique and Group B underwent conventional method of flap closure. Included patients were 25-60 years old. Patients with age ranging from 25-40 years were 22.71%(n=9) and 22.86%(n=8) in Group A and B respectively while 41-60 year old patients were 74.29%(n=26) in Group A and 77.14%(n=27) in Group B. Groups were compared for incidence of seroma formation, Group A (14.29%) had lower incidence of seroma formation as compared to Group B (42.86%). A p value of 0.008 showed a significant difference in two groups.

Age (in years)	Group-1 (n=35)		Group-2 (n=35)	
	No. of Patients	%	No. of Patients	%
25-40	9	25.71	8	22.86
41-60	26	74.29	27	77.14
Total	35	100	35	100
Mean±SD	46.03±7.94		47.51±8.25	

**Table-I. Age distribution (n=70)**

Seroma Formation	Group-1 (n=35)		Group-2 (n=35)	
	No. of Patients	%	No. of patients	%
Yes	5	14.29	15	42.86
No	30	85.71	20	57.14
Total	35	100	35	100

**Table-II. Comparison of seroma formation in flap fixation versus conventional closure after modified radical mastectomy (n=70)**  
P value=0.008

## DISCUSSION

Seroma formation is commonly observed following surgeries where excessive dissection is performed. It can further complicate wound healing by promoting infection and skin necrosis. Overall it is a significant source of discomfort for patient and a burden on health care system. Patrek et al. described that frequency of seroma formation was directly associated with extent of axillary dissection.<sup>8</sup> However separate studies by Gonzalez et al.<sup>9</sup> and Hashemi et al.<sup>10</sup> reported the type of surgery and extent of dissection was the only statistically significant factor influencing seroma formation. Age of patient, size of tumor, comorbidities and neoadjuvant chemotherapy had no correlation with seroma formation. Purushotham et al. noticed reduced seroma formation and improved outcomes in patients who underwent flap fixation technique. He also observed that patient did not require placement of drains with this technique.<sup>11</sup>

The purpose of this study was to present a better surgical technique for reduction of seroma formation. Flap fixation technique was first described by Halsted in 1913.<sup>12</sup> It was observed that incidence of seroma formation following modified radical mastectomy was lower with flap fixation technique (14.29%) as compared to conventional closure of wound margins (42.86%). The results were comparable to a similar study where significant reduction in seroma formation was noticed clinically (p=0.028) and ultrasonographically (p=0.047) following flap fixation technique (10%) compared to the control group (40%).<sup>2</sup> A similar study was carried out by Van Bastelaar et al. they included 92 patients in

flap fixation group while 88 patients underwent conventional closure. Seroma formation in flap fixation group was 35.9% as compared to 59.1% in conventional group.<sup>13</sup> Another study by Sakkary was carried out in 2012 showed significantly lower seroma formation in flap fixation group ( $p=0.028$ ). He also noticed less complications such as cellulitis and flap necrosis in flap fixation group as compared to conventional group.<sup>14</sup>

## CONCLUSION




Seroma formation was less frequently observed in flap fixation technique than conventional wound closure method.

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2	Muneeza Zubair	Data collection, Reference Search.	
3	Tayyab Ahsan Tanvir	Data collection, Reference search.	
4	Jaweria Masood	Proof reading, Statistical analysis.	