ORIGINAL ARTICLE

Axillary Dissection in Mastectomy: Ultracision vs Monopolar Electrocautry

SAJID MALIK[1], NASEEBULLAH ZARKOON[2], HABIBULLAH ISHAQUI[3], *UMAR FAROOQ DAR*[4]

ABSTRACT

Aim: Various surgical methods applied for treatment and prognosis of patients with perforating injuries to colon.

Methods: This randomized control trial conducted at Department of Surgery, Jinnah Hospital, Lahore. One hundred and twenty eight female patients of 20 to 70 years of age with operable carcinoma breast were randomly assigned either to dissection by Ultracision or Monopolar electrocautry. Patients were followed for post-operative outcome. Data was collected on a structured proforma and analyzed using SPSS 17. Chi square and t test were used for categorical and continuous variables respectively.

Results: The mean age 56.3±5.8 years, were included in study. Mean duration of drains in ultracision group was 4.61±1.5 days while in monopolar electrocautry 5.38±1.485 days (p=0.005). Similarly rate of seroma formation was significantly lower in ultracision dissection and monopolar electrocautry (p value = 0.011).

Conclusion: It is concluded that ultracision dissection is superior to Monopolar Electrocautry when we take into an account seroma formation and duration of drains.

Key words: Ultracision dissection, Monopolar electrocautry, Mastectomy, Seroma formation

INTRODUCTION

Breast cancer is the most frequent malignancy of women.[1] One in every nine Pakistani women is likely to suffer from breast cancer. Treatment of operable carcinoma breast is mastectomy, commonly a 'Modified Radical Mastectomy' (MRM).[2] In MRM, there is extensive dissection of rich supply blood supply, capillaries and lymphatics. This leads to large dead space and may lead to postoperative hematoma formation or effusion resulting in seroma in axilla.

The risk of hematoma and seroma has been reduced with change in dissection technique and use of drains. Commonly, hemostasis is secured with use of electrocautery[3] but search for newer forms of dissection aimed at reducing tissue damage continues. Ultracision is new method of diseesction and hemostatis that uses high grade radiofrequency that ionizes the water vapor both in the air and in the tissue. Ultrasonic dissector dissects and strongly seals the lymphatics and capillaries simultaneously. It has been used in minimally invasive surgery but its use in open surgery is limited.[4]

Sanguinetti A et al[5] compared electrothermal bipolar vessel sealing system with Ultracision and described significant reduction of draining days in ultracision group (mean 1 vs 4 days, p < 0.05) and much lower seroma rate in ultracision group (10% and 30%, p< 0.05). Similarly Damani S[6] described insignificant axillary drains days (2.8±0.7 days vs 6.7±10.2 days, p = 0.065) and reduced frequency of seroma formation (8% vs 24%, p= 0.247).

Innovative advent of ultracision in past few years and fortunate availability of this valuable instrument in our country has proven its efficacy in laparoscopy and other minimally invasive surgeries. As previous studies has shown variable results of post operative drain days and seroma formation in open surgery, so that is why want to study use of Ultracision in MRM so that it can reduce the morbidity of patients.

PATIENTS AND METHODS

This randomized control trial was carried out in Department of Surgery, Jinnah Hospital, Lahore from October 2013 to January 2015 and to compare the post-operative outcome in modified radical mastectomy with axillary dissection with use of ultracision and monopolar electrocautry. Post-Operative Outcome was measured in terms of mean duration of axillary drain and frequency of seroma formation. Its duration in days for which drain was kept in axilla. It was placed in axilla at surgery and was removed when drain output is <30ml for 24 hours. It is collection of serous fluid in the dead space

Correspondence to Dr. Umar Farooq Dar e-mail: umardar84@gmail.com Cell:03214035099

[1]*Senior Registrar, Surgical Unit 4, Jinnah Hospital Lahore,*
[2]*Assistant Prof. Surgery, Bolan Medical College Quetta,*
[3]*Consultant Surgeon, Department of Surgery, Sheikh Zaid Hospital Quetta,*
[4]*Assistant Professor, Department of Community Medicine, Gujranwala Medical College, Gujranwala*

in axilla. It was diagnosed clinically by swelling and confirmed on ultrasound weekly for one month. Using non-probability, purposive sampling, Female Patients of 20-70 years of age with operable carcinoma breast were included. Patients with renal failure (serum creatinine more than 2mg/dl), Advanced carcinoma breast with metastasis diagnosed clinically, Hypertension BP>140/90 mmHg and with Diagnosed bleeding disorder e.g. Thrombocytopenia (Platelet <50,000/ml) were excluded. After obtaining permission from 'Hospital Ethical Committee and informed written consent 128 patients fulfilling inclusion criteria were included in this study. They were randomly divided into two equal groups (n=64) by lottery method. In Group A, ultracision was used for dissection and hemostasis, while in Group B Monopolar Electrocautry was used for dissection and hemostasis. Wound closure was achieved after inserting two redivac drains (one under flaps and second in axilla) in each group. Postoperative output in drains was recorded every 24 Hours. The drains were removed after the drain output <30 ml for 24 hrs. Patients were observed for development of seroma on weekly basis after drain removal for one month. Data was analyzed using SPSS v17.0. Mean and standard deviation was calculated for quantitative variables like age, number of days of post-operative drains in both the groups. For categorical variables like presence or absence of seroma, frequency and percentage was calculated. Independent sample t test was used for comparison of mean duration of post-operative drain. P value of ≤0.05 was considered as significant. Chi square test was used for comparison of seroma formation in both groups.

RESULTS

One hundred and twenty eight patients underwent modified radical mastectomy under either by ultracision or Monopolar Electrocautry. Out of 128 patients, 50 patients (39.1%) developed seroma after four weeks while 78 patients (60.9%) did not developed (Table 1). Mean age of the population of the sampled population was 56.3±5.8 years ranging from 43 to 68 while average duration of drains in days was from 5.6±1.4 days ranging from 2-9 days (Table 1). When we cross tabulated rate of seroma formation with treatment group there was a significant in ultracision dissection and Monopolar Electrocautry. In ultracision dissection was found batter results (p value = 0.011) when we applied chi square test (Table 2). There was no association found between staging of breast carcinoma and seroma formation (p value = 0.44) (Table 3). To compare the mean duration of the days of drains in both groups we find a significant decrease is in mean duration in ultracision dissection group as compared Monopolar Electrocautry. Mean duration of drains in ultra-cession group was 4.61±1.5 days while in Monopolar Electrocautry 5.38±1.485 days when we applied independent sampled t test (p=0.005) (Table 4).

Table 1: Descriptive statistics

Variable	No.	%
Seroma formation		
Yes	50	39.1
No	78	60.9
Age (years)	56.38±5.87	
Duration of drains (days)	5.63±1.48	

Table 2: Cross tabulation between seroma formation & treatment group

Group	Seroma Formation	
	Yes	No
Ultracision dissection	18	46
Monopolar electrocautery	32	32

P value = 0.011 (Significant)

Table 3: Cross tabulation Staging of Breast Carcinoma & Seroma Formation

Staging of breast carcinoma	Seroma Formation	
	Yes	No
Stage 1	35	19
Stage 2	43	31

P value = 0.442 (Non-significant)

Table 4: Mean duration of drains in both groups

Group	Duration of drains (days)
Ultracision dissection	4.61±1.57
Monopolar electrocautry	5.38±1.48

P value = 0.005 (Significant)

DISCUSSION

Modified radical mastectomy is a major procedure and a live saving procedure in treatment of breast carcinoma. We have two types of tools for dissection available i.e. Monopolar Electrocautry and ultracision dissection. We compared the rate of seroma formation and number of duration of drains in both groups taking into account ultracision dissection and Monopolar Electrocautry.

We randomly divided the patients into two groups 64 in each. In the end we found that seroma formation is less in ultracision group along with reduced number of days, mean number of drains in ultra-cession group. So ultracision group was found superior as compared to Monopolar Electrocautry group. Our results match with the previous study match by at all. Most of the patients in our group presented in stage two and showing lack of tools. The screening tools are available for our general population use and early diagnosis has a batter

prognosis and it lowers the morbidity associated with lower breast carcinoma.

In our study 60% individuals were in stage two while rest were in stage one which are also important regarding the burden in our hospitals. Our randomization was quite effective as we found no difference in distribution of age in both groups. This shows the internal validity of process of selection of our groups.

The frequency of the seroma formation was 39.1% i.e., 50 individuals developed seroma. All though this percentage was quite high when we cross tabulated with the technique we found a relative decrease in only 18 women developed seroma in ultracision dissection group while 32 developed in Monopolar Electrocautry. The difference is highly significant the ultracision dissection was found superior to Monopolar Electrocautry in terms of seroma formation.

Same happened when we compared the duration of the drains in the both groups. Duration of drains for ultracision group was 4.61±1.5 days as compared to 5.38±1.485. Independent sample t test produced highly significant results i.e., (p value=0.005). Similarly the current study has proved that ultracision dissection is a batter tool in terms of complication at the end of the post-operative complications i.e., duration of drains and seroma formation. So we should prefer it and we should use it.

REFERENCES

1. Gilani SI, Khurram M, Mazhar T, Mir ST, Ali S, Tariq S, et al. Knowledge, attitude and practice of a Pakistani femalecohort towards breast cancer. JPMA 60:205; 2010: 205-8.
2. Baloch AH, Shuja J,Daud S, Ahmed M, Ahmad A, Tareen M, et al. Various aspects, patterns and risk factors in breast cancer patients of balochistan. APJ Can Prev; 2010; 13: 4013-6.
3. Shamim M. Diathermy vs. Scalpel skin incisions in general surgery: double-blind, randomized, clinical trial. Worl Jr Surg 2009; 33: 1594-9.
4. Manorouas A, Markogiannakis H, GenetzakisM, Fillippakis G, Lagoudianakis E. Modifiedradical mastectomy with axillary dissectionusing the electrothermal bipolar vessel sealing system. Arch Surg 2008; 143: 575-80.
5. Sanguinetti A, Docimo G, Ragusa, M, Calzolari F, D'Ajello F, Ruggiero R, Parmeggiani D, Pezzolla A, Procaccini E, Avenia N. Ultrasound scissors versus electrocautery in axillary dissection: our experience. Gior di chir 2010; 31:151-3.
6. Damani SR, Haider S, Shah SSH. Comparison of modified radical mastectomy using harmonic scalpel and electrocautery. J Surg Pak 2013; 18: 1-6.
7. Globocan 2008. Fast Stats. Most frequent cancers: both sexes. file://globocan.iarc.fr/ factsheets/ populations/ factsheet.asp?uno=900#BOTH (Accessed on January 08, 2013).
8. Kohler BA, Ward E, McCarthy BJ. Annual report to the nation on the status of cancer, 1975-2007, featuring tumors of the brain and other nervous system. J Natl Cancer Inst 2011; 103:714-8.
9. Chlebowski RT, Kuller LH, Prentice RL. Breast cancer after use of estrogen plus progestin in postmenopausal women. N Engl J Med 2009; 360:573-79.
10. Dizon DS, Tejada-Berges T, Steinhoff MM.. Breast Cancer. In: Principles and Practice of Gynecologic Oncology, 5, RR Barakat, M Markman, ME Randall. (Eds), Lippincott, Williams, & Wilkins, Baltimore 2009. p.910
11. Myers RE, Johnston M, Pritchard K. Baseline staging tests in primary breast cancer: a practice guideline. CMAJ 2001; 164:1439
12. Lanng C, Hoffmann J, Galatius H, Engel U. Assessment of clinical palpation of the axilla as a criterion for performing the sentinel node procedure in breast cancer. Eur J Surg Oncol 2007; 33:281
13. Siegel R, Ward E, Brawley O, Jemal A. Cancer statistics, 2011: the impact of eliminating socioeconomic and racial disparities on premature cancer deaths. CA Cancer J Clin 2011; 61:212-17.