



“COMPARATIVE STUDY OF OUTCOME OF STAINLESS STEEL STAPLES CLOSURE OF SKIN WOUND VERSUS POLYAMIDE SUTURE CLOSURE”

General Surgery

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ABSTRACT

Introduction- In today's world we all give extreme importance to scar appearance. Beside cosmesis, the technique should be easy, fast and cost effective also. The aim of study was to compare stainless steel staple closure of skin wound with polyamide suture closure in terms of time, post operative pain, healing, cosmesis and complications like wound infection and dehiscence. **Method-** 80 patients who underwent elective surgery at Mahatma Gandhi hospital of Dr. S.N. medical college, jodhpur (Rajasthan) were randomly assigned into two groups, the study group of 40 patients, who underwent stainless steel staples closure compared with another group of 40 patients who underwent polyamide suture closure. **Result-** Mean time taken in suture closure was 200.3 seconds and in staples closure it was 74.02 seconds which was statically significant. In suture group 15% patients develop wound complications and in staple group only 5% patients develop wound complications which was statically significant. In suture group 22.5% patients develop poor scar and in staple group only 5% develop poor scar. **Conclusion-** By this study, we concluded that wound complications was less with skin stapler as compared to conventional sutures. Staples are very much faster as compared to sutures. cosmetic results of skin stapler are better than conventional sutures.

KEYWORDS

Stainlesssteelstaples, Polyamidesuture, Postoperative Complications.

INTRODUCTION

Stapling is a fast, comfortable method of closing many of the wounds that present to emergency department. Studies have concluded that though the staples cost higher in comparison to sutures, the wound closure time was rapid which was statistically significant¹. This has a great impact on post operative recovery as the patient can be weaned off from the anesthesia faster and thereby reducing overall operating time and hence decreasing post operative morbidity and mortality^{2,6}. In terms of patient acceptance of a scar they conclude that staples have good acceptance in clean elective cases. Since staples are easier and faster to apply compared to sutures, the study showed that form an important surgical armamentarium for wound closure for elective and clean cases³. Nowadays patient of all ages specially women place extreme importance to the appearance of scar in addition to the symptoms of pain, tenderness and itching. An aesthetically poor scar can have a negative impact on the overall quality of life causing considerable distress, loss of self- esteem and unhappiness⁴. Technique of closure should be quick, easy, cost effective and simple, while maximizing wound cosmesis and patient satisfaction. The ultimate goal of any skin closure technique is to produce skin approximation and adequate healing with minimum wound complication like pain, infection, scarring and keloid formation^{4,5}. The aim of my study was to compare outcome of stainless steel staples closure of skin wound with polyamide suture closure in terms of time, healing and complications.

MATERIAL AND METHODS

The observational study was carried out in patients admitted in department of general surgery wards of MG Hospital of Dr. S. N. Medical College, Jodhpur from May 2022 to November 2022.

Total 80 patients underwent different elective surgery, whose skin closure was done with either Polyamide suture or stainless steel staples during the study period. Out of the 80 patients, 40 underwent skin closure with Stainless steel skin staples and the remaining 40 with non-absorbable Polyamide suture. Patients were allotted to either group according to random number table.

Inclusion Criteria :

- 1) All patients of age between 18 years to 65 years.
- 2) All patients underwent elective surgeries at MG hospital during study period.

Exclusion Criteria :

- 1) Patient undergoing emergency surgery.
- 2) Secondary closure of infected wound.
- 3) Wound dehiscence.

OBSERVATION AND RESULTS

The present study is done to compare the efficacy between polyamide suture closure and Stainless steel staple closure in clean elective surgeries. A total no. of 80 patients were recruited in the study from May 2022 to November 2022. All were clean elective surgery cases. The patients were randomly included in either skin suturing group or Staple group.

Table I : Distribution Of Study Subjects Based On Time Difference In Wound Closure Between Suture And Staple Group

Study group	Time in sec for skin closure			t value	p value
	Mean	SD	SEM		
Suture	200.3	78.05	12.34	9.178	<0.0001
Staple	74.02	38.47	6.08		

The time taken for skin closure is measured using a stopwatch timer in both the groups and entered in unit of seconds. Table-I shows the Mean Time Taken for skin closure done by suture, The mean time to close the wound was 200.3 sec. With Std. Deviation 78.05 While that for stapled it was 74.02 Sec. With Std. Deviation 38.47 with p value <0.0001 which is significant. Study shows staple closure is faster than suture.

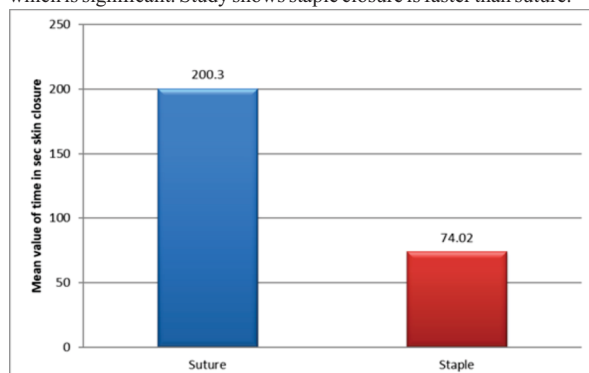


Fig. 1: Distribution of study subjects based on time difference in wound closure between suture and staple group

Table II : Showing Distribution Of Study Subjects Based On Complication Between Suture And Staple Group

Post op complications	Suture		Staple	
	N	%	N	%
Erythema	1	2.50	0	0.00
Infection	2	5.00	0	0.00
Seroma	3	7.50	0	0.00
Wound gapping	0	0.00	2	5.00
Nil	34	85.00	38	95.00
Total	40	100.00	40	100.00

Chi square 2.222, P value 0.136 (NS)

Following table depicts according to complications wise distribution of study subjects in both groups. Suture group 6(15%) and staple group 2(5%) patients having infection. Suture group Seroma 3(7.50%), followed by Infection 2 (5%), Erythema 1 (2.50%) had complications and 34 (85%) no complications. Staple group wound gapping 2 (5%) had complications and 38 (95%) no complications.

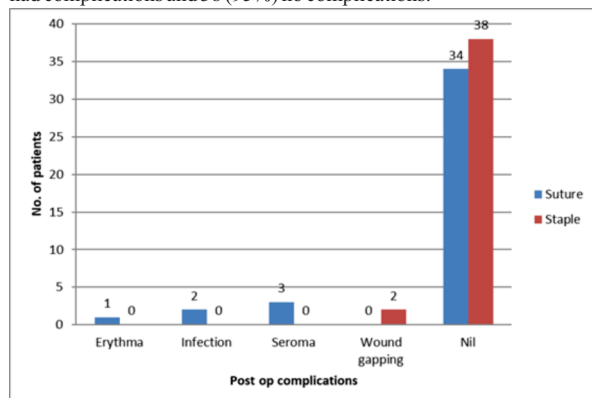


Fig. 2 : Showing distribution of study subjects based on complication between suture and staple group

Table III: Shows Distribution Of Study Subjects Based On Scar Appearance

Scar appearance	Suture		Staple	
	N	%	N	%
Fine	10	25.00	29	72.50
Average	21	52.50	9	22.50
Poor	9	22.50	2	5.00
Total	40	100.00	40	100.00

Chi square 18.51, P value <0.0001

Patients were followed up for wound appearance during hospital stay on Day-1 Day-3 and Day-7. After discharge cosmetic evaluation was done at 1-month and 2-month follow-up. For evaluation of wound cosmesis, scar appearance divided in 3 groups and number allotted to them poor (1), average(2), fine(3). Follow up done for Total 80 patients in which 40 in suture group (Poor-22.50%, average-52.50%, fine- 25%) and other 40 in staple group (poor-5%, average- 22.50%, fine-72.50%)

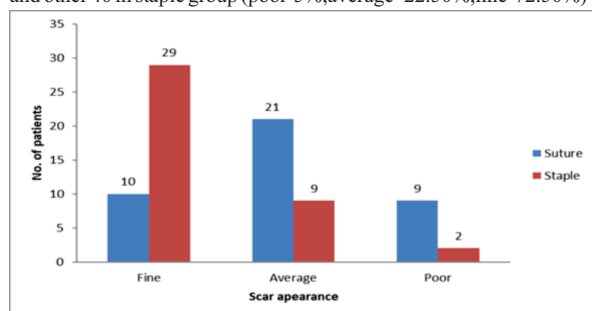


Fig. 3 : Shows distribution of study subjects based on scar appearance

CONCLUSION

We found that, incidence of post-operative wound complication was less with skin staples. Time taken for closure was less with staples. Staples were well liked by operators and resulted in a substantial and worthwhile saving in time for wound closure. Skin staplers provided better cosmesis than the Polyamide sutured closure.

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