

# Comparison Between the Full Thickness Continuous Hand Sewen Anastomosis with Single Layer Extra Mucosal Interrupted Anastomosis

Continuous Hand Sewen Anastomosis with Single Layer Extra Mucosal Interrupted Anastomosis

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## ABSTRACT

**Objective:** To compare both full-thickness continuous hand Sewen anastomosis with single layer extra mucosal interrupted anastomosis in terms of their effectiveness, outcomes, and complications.

**Study Design:** The current comparative study

**Place and Duration of Study:** This study was conducted at the Ayub Teaching Hospital Abbottabad from July 2022 to June 2023.

**Materials and Methods:** The sample size of the study was 100. The patients were divided into two groups each containing Group 1 consists of patients who underwent full-thickness continuous hand Sewen anastomosis, and group 2 consists of patients who had done single-layer extra mucosal interrupted anastomosis. Data collection was done in a pre-designed proforma. All the data was analyzed by using IBM SPSS version 24.

**Results:** The mean age in group 1 patients was 46 years with a standard deviation of 9.47. There were 32 (64%) male and 18 (32 %) female patients in group 1. Moreover, the mean age in group patients was 38 years with a standard deviation of 9.38. In group two there were 27 (54 %) male and 23 (46%) female patients. The average time taken by the patients during full-thickness continuous hand Sewen anastomosis was 18.74 minutes, while the time taken by those patients who had done single-layer extra mucosal interrupted anastomosis was 13.52 minutes. Similarly, the post-up hospital stay of group 1 patients was 8.67 days, while the post-up hospital stay of group 2 was 5.24 days. 5 (10%) of the patients in group 1 had developed post-up infection and only 2 (4%) of the patients in group # 02 had developed post-up infection.

**Conclusion:** The study concludes that single-layer extra mucosal interrupted anastomosis can be more effective with positive outcomes, in terms of being less time-consuming, and the complication rate is less as compared to full-thickness continuous hand Sewen anastomosis. By doing single-layer extra mucosal interrupted anastomosis there will be faster patient discharge and less chance of acquiring nosocomial infections.

**Key Words:** Full thickness; Continuous hand Sewen anastomosis; Single layer extra mucosal interrupted anastomosis

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## INTRODUCTION

The surgical process of connecting the two sections of the intestines is known as anastomosis, which is considered to be the most essential and vital technique in GIT (gastrointestinal) operation.

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Anastomotic leaks and their repercussions, such as the focal formation of pus, hemorrhage, inflammation of the peritoneum membrane, stenosis, dehiscence, and leakage are considered to be the most serious complication and lead to mortality and morbidity in gut surgeries.<sup>1,2</sup> The complications like a failure of anastomosis, the indication of the skills of a surgeon, the choice of the surgeon regarding the type of surgery, and the post-up care of the patients. there is little variation in the complication like dehiscence in both full thickness continuous hand Sewn anastomosis and single layer extra mucosal anastomosis, however single layer extra mucosal anastomosis is comparably easier than full thickness continuous hand Sewn anastomosis in the complicated cases.<sup>3</sup> The most prevalent approach is to perform a full-thickness double-layered anastomosis with absorbable staples for the innermost layer of tissue and

nonabsorbable silk stitches to the surface of the seromuscular membrane. The downside of this method is the fact that it takes more time and is difficult to do correctly, and risks of stenosis.<sup>4,5</sup> Because the stress is more equally dispersed along the intestinal wall, therefore, the single-layer continuous suturing approach is less prone to produce local constriction and damage to the tissue, more the time taken during by single layer anastomosis as 17 minutes and 24 minutes taken during full-thickness double-layer anastomosis.<sup>6</sup> Anastomosis like single layer extra mucosal intestinal can be considered effective, and less expensive than that of the traditional full thickness hand Sewn technique, therefore single layer extra mucosal can be the best option for ordinary surgical interventions.<sup>7,8</sup> Single-layer extra mucosal anastomosis is less time-consuming and effective than double-layer hand Sewn anastomosis.<sup>9</sup> The single extra mucosal layer anastomosis is the frequently used method that was proposed by Matheson of Aberdeen, in comparison to the full thickness double layer because it results in stenosis of the intestines.<sup>10</sup> Therefore, the current study Compares the full-thickness continuous hand Sewen anastomosis with single-layer extra mucosal interrupted anastomosis.

## MATERIALS AND METHODS

The current comparative study was prospectively conducted at Ayub Teaching Hospital Abbottabad in the department of surgery, after the provision of permission from the institutional review board (IRB). The study conducted was conducted from July 2022 to June 2023 for the duration of one year. The sample size of the study was 100 patients and selected random sampling techniques. Only those patients were included in the study who underwent anastomosis, and the patients of other surgical interventions were excluded from the study. The patients were divided into two groups each containing 50 patients. Both groups consist of male and female patients. Group 1 consists of patients who underwent full-thickness continuous hand Sewen anastomosis, and group 2 consists of patients who had done single-layer extra mucosal interrupted anastomosis, in order to compare them properly to know the outcome and post complications of both full-thickness continuous hand Sewen anastomosis and single layer extra mucosal interrupted anastomosis. Before the surgical interventions, the patients were properly guided about the benefits and risks associated with each type of anastomosis, moreover, informed consent was obtained from each patient before the surgical intervention. The outcomes in terms of post-up hospital, post-up infection, leakage-like dehiscence of the wound, and time taken by each type of anastomosis were assessed properly as shown in both tables of the result section. The results were properly analyzed by using SPSS version 24. For variables such as gender frequency and percentages were determined while for

parameter like age, means and standard deviation was calculated.

## RESULTS

The results of the present study are shown in Table one and Table two, both groups contain 50, 50 patients through randomization respectively, while Table 1 contains the demographic characteristics, male and female ratio, and diagnosis of the patients. Table 2 contains the outcome and post-up complications of both full-thickness continuous hand Sewen anastomosis and single-layer extra mucosal interrupted anastomosis. Group 1 contains those patients who underwent full-thickness continuous hand Sewen anastomosis and group 2 contains those patients who underwent single-layer extra mucosal interrupted anastomosis. The mean age in group 1 patients was 46 years with a standard deviation of 9.47, in addition, there were 32 (64%) males and 18 (32 %) female patients in group one. Moreover, the mean age in group patients was 38 years with a standard deviation of 9.38. In group two there were 27 (54 %) male and 23 (46%) female patients. In both groups, 52 % and 58 % of the patients underwent ileum and jejunum anastomosis respectively, consequently, 26 % and 22 % underwent anastomosis of colostomy and ileostomy. Additionally, anastomosis had been done for 38 % in group one and 21 % in group two due to trauma mostly due to road traffic accidents and firearm injuries. Group two shows the outcomes of both full-thickness continuous hand Sewen anastomosis and single-layer extra mucosal interrupted anastomosis.

**Table No. 1: Sociodemographic Data of the Two Groups**

Demographic Characteristics	Group 1 Number: 50	Group 2 Number: 50
Age (Years)	46 +_ 9.47	38 +_ 9.38
Male	32 (64 %)	27 (54%)
Female	18 (32 %)	23(46%)
Patients' diagnosis		
plural enter colostomies	18 (36%)	15(30%)
Ileum and Jejunum	26 (52%)	29 (58%)
plural Colo colostomies	08 (16 %)	06 (12%)
Colostomy and ileostomy closure	13 (26%)	11(22%)
Injury (trauma)	19 (38%)	21 (21%)
Malignancy	7(14%)	5 (10%)
Infected surgeries	11(22%)	13 (26 %)

The average time taken by the patients during full-thickness continuous hand Sewen anastomosis was 18.74 minutes, while the time taken by those patients who had done single-layer extra mucosal interrupted anastomosis was 13.52 minutes. Similarly, the post-up hospital stay of group 1 patients was 8.67 days, while

the post-up hospital stay of group 2 was 5.24 days. 5 (10%) of the patients in group 1 had developed post-up infection and only 2 (4%) of the patients in group 2 had developed post-up infection. Moreover, there were 3 (6%) patients had experienced leakage with full-thickness continuous hand Sewen anastomosis, and 1 (2%) of the patients with single-layer extra mucosal interrupted anastomosis had experienced leakage postoperatively.

**Table No. 2: Outcomes and post-up complications in the two groups**

	Group 1	Group 2
Anastomosis time is taken (minutes)	18.74 + <sub>-</sub> 1.26	13.52 + <sub>-</sub> 1.71
Post-up hospital stays (days)	8.67 + <sub>-</sub> 2.34	5.24 + <sub>-</sub> 2.52
Post-up infection	5 (10 %)	2 (4 %)
Leakage (Dehiscence)	3 (6 %)	1 (2 %)
Pus formation	2 (4 %)	1 (1 %)
Patients' mortality	1 (2%)	0

## DISCUSSION

The surgical process of connecting the two sections of the intestines is known as anastomosis, which is considered to be the most essential and vital technique in GIT (gastrointestinal) operation. In the current study, the group 1 contains those patients who underwent full-thickness continuous hand Sewn anastomosis and 6% patients had experienced leakage and the group 2 contains those patients who underwent single-layer extra mucosal interrupted anastomosis and 2% patients had experienced leakage which is comparable to the conducted by Aslam V et al, 7.7 % in the double full thickness hand Sewn anastomosis and 4.2 % in the layer interrupted anastomosis.<sup>11</sup> Similarly, the average hospital stays the patients of full thickness double hand Sewn anastomosis is 8.67 days, and 5.24 days for those with single extra mucosal layer anastomosis., that is significant that the study which shows

9.9 days with double full thickness and 7.9 in single extra mucosal layer anastomosis, the of the present shows that 4% of the patients of double layer hand Sewn had developed abscesses and 1 % in the patients of single layer extra mucosal layer interrupted anastomosis that is comparable to the 3 % and 1.5 %.<sup>12</sup> Moreover, there were 5 (10%) of the patients had developed post-up infection with full-thickness continuous hand Sewen anastomosis, and 2 (4%) of the patients with single-layer extra mucosal interrupted anastomosis had experienced developed post-up infection. Moreover, there were 2 (4%) of the patients had developed pus formation with full-thickness continuous hand Sewen anastomosis, and 1 (2%) of the

patients with single-layer extra mucosal interrupted anastomosis had experienced pus formation, which is similar to the results of the study conducted by Saboo R et al<sup>7</sup>, that single-layer extra mucosal interrupted anastomosis is easy, less time-consuming, and least chances of the development of post-up complications as compared to full-thickness continuous hand Sewen anastomosis. The variations in the results among the studies may be due to post-up nursing care, which can play a vital role in the recovery of the patients, and the hospital infection control policy.

## CONCLUSION

The study concludes that single-layer extra mucosal interrupted anastomosis can be more effective with positive outcomes, in terms of being less time-consuming, and the complication rate is less as compared to full-thickness continuous hand Sewen anastomosis. By doing single-layer extra mucosal interrupted anastomosis there will be faster patient discharge and less chance of acquiring nosocomial infections.

### Author's Contribution:

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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