

Comparison of Single Layer Continuous Suture V/S Double Layer Continuous Suture for Small Bowel Anastomosis - A Prospective Randomized Clinical Trial

AMNA JAVED MOEEN, KARIM ULLAH, IMRAN AMIN

ABSTRACT

Aims: To compare the efficacy of single layer anastomosis with double layer intestinal anastomosis in terms of complication like leakage and to establish a safe method of anastomosis.

Material and methods: A total of 200 patients were included in the study. Patients were randomly divided in 2 groups (A and B). Group A patients underwent single layer anastomosis whereas group B patients underwent double layer anastomosis. Patients were followed up for complication like leakage.

Results: In group A 5% of patients developed leakage on the 7th post-op day whereas 15% of patients in group B showed leakage on the 7th post-op day.

Conclusion: Single layer anastomosis is a better and safe technique associated with low leakage rates as compared with double layer technique.

Keywords: Single layer continuous suture, small bowel anastomosis, double layer continuous suture

INTRODUCTION

When a segment of gastrointestinal tract is resected for benign or malignant disease, gastrointestinal continuity needs to be restored, thus intestinal anastomosis becomes necessary¹. Fundamental principles of intestinal anastomosis were established more than 100 years ago and have undergone various modifications with passage of time². Anastomosis may be done with the help of stapling devices by using double layered suturing technique or by single layer technique³. Number of different techniques have been devised at different times yet there is no single technique which is internationally accepted⁴. Thus giving rise to controversy regarding the ideal technique for intestinal anastomosis. Therefore in this study an attempt was made to find out whether single layer or double layer technique is better or safe for restoration of intestinal continuity.

In 1926 Lembert described a suturing technique in which serosal apposition was done. Senn described two layered interrupted anastomosis while Halsted advocated one layer anastomotic technique⁵.

AIMS AND OBJECTIVES

1. To compare the efficacy of single layer continuous suture technique with double layer continuous suture in terms of complication like leakage
2. To establish a safe method of intestinal anastomosis.

*Department of Surgery, Lahore General Hospital, Lahore
Correspondence to Dr. Amna Javed Moeen, Assistant
Professor Email: Cell: 0301-8486999*

MATERIAL AND METHODS

This prospective study was conducted at surgical unit I of Lahore General Hospital over a period of one year extending from January 2012 till December 2012. A total of 200 patients were enrolled in the study. Patients were randomly allocated in 2 groups (A and B). Each group containing 100 patients. Group A patients underwent single layer anastomosis while group B underwent double layered technique. Surgery was done by a FCPS qualified surgeon having 5 years of post graduation experience. Nelaton drain was placed in pelvis in all patients to detect any leakage. Patients were discharged on 10th post-operative day. All patients requiring restoration of intestinal continuity for benign diseases like typhoid, tuberculosis or traumatic perforation were included in the study. Patients requiring anastomosis for malignant diseases were excluded.

In group A mean age of patients in group A were 33.40±6.07 ranging from 20 years to 45 years. Out of 100 patients 63 patients were males and 37 were female thus giving male to female ratio of 1:1.7.

In group B mean age of group B patients were 32.94±5.28 years ranging from 20 years to 41 years. Out of 100 patients 58 were males and 42 were females thus giving male to female ratio of 1:1.38.

RESULTS

In group A 5 patients (5%) developed leakage of anastomosis on 7 post operative day. While 15 patients (15%) in group B developed leakage on 7 post operative day. Chi square test was applied and P value calculated which was 0.018 (P value<.05 significant) and hence significant.

DISCUSSION

In our study 5% of patients in group A and 15% of patients in group B developed intestinal leakage which is comparable to a study done by M Ayub et al in which 4.7% of patients with single layered anastomosis and 8.3% of patients with double layer anastomosis developed anastomotic leakage⁶.

Conventionally speaking two layered technique has been practiced widely but only recently it is observed that it causes luminal narrowing and leads to ischaemia of the anastomotic site thus giving rise to a higher percentage of anastomotic dehiscence and leakage⁷.

To overcome these difficulties extramucosal interrupted suture was tried. It gives the advantage of good serosal apposition, no lumen narrowing and minimal damage to submucosal vascular plexus⁸.

In another study done by Petz et al single layer anastomotic leakage rate was 2.8% in contrast to 6.2% in double layer anastomosis which is again in comparison with our study⁹.

In another study done by Shaukat Mirza in 2002 revealed a morbidity rate of 12% and leakage rate of 2% in patients who underwent single layer interrupted serosubmucosal anastomosis as compared with a morbidity rate of 22% and leakage rate of 8% in patients who underwent two layered continuous intestinal anastomosis. The calculated P value was less than .05 and hence considered significant¹⁰. This stands again in comparison with our leakage rates of 5% and 15% in patients undergoing single and double layer anastomosis respectively and P value of 0.018 which is less than .05 and significant.

CONCLUSION

Single layer anastomosis is a better and safe technique associated with low leakage rates as compared with double layer technique

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