

Gastrointestinal Anastomosis: Single Layered and Double Layered-A Comparative Study

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Received: June 2016

Accepted: July 2016

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ABSTRACT

Gastrointestinal anastomosis (GA) ensures proper passage of its content through the bowel. It may be single layered or double layered surgery. In this study we aimed to evaluate the single layer and double layer GA with respect to duration of surgery, hospital stay and complications. We found significantly high time required for double layered surgery compared to single layered. However there was no difference in the duration of hospital stay. Anastomotic leak was observed in 6.7% and 10% of patients undergoing single and double layered surgery respectively.

Keywords: Anastomosis, bowel, leak.

INTRODUCTION

Gastrointestinal anastomosis (GA) is done to allow early passage of the contents through the tract. Such passage is possible with sound alignment within the gastrointestinal tract (GIT).^[1] GA is gaining wide popularity in day to day surgical practice. GA may be single layered or double layered.^[2] In single layered GA, there is approximation of thickness of bowel wall entirely while in case of double layered GA, both seromucosal and mucosal layers are separately sutured via hemostatic sutures.^[3-6] In this study, a comparative analysis was made between single layer and double layer GA with respect to time required for GA, hospital stay duration and post-operative complications.

MATERIALS AND METHODS

60 patients requiring anastomosis in small or large intestinal tract were involved. This study was done in National Institute of Medical sciences, Jaipur, Rajasthan,

Inclusion criteria

- Patients ≥ 20 years
- Patients willing to consent
- Patients undergoing GA for hernia and gangrene
- Patients with tumor in bowel and requiring resection

Exclusion criteria

- Patients not giving consent
- Patients having comorbidities such as cardiac problems, hepatic problems and sepsis

RESULTS & DISCUSSION

Table 1: Distribution of patients based on disease

Disease	Number	Percentage (%)
Caecal mass	2	3.3
Ascending colon cancer	6	10
Caecal perforation	2	3.3
Cancer of transverse colon	4	6.7
Ileocaecal TB	10	16.7
Jejunal stricture	5	8.3
Ileal perforation	3	5
Terminal ileal stricture	18	30
Strangulated inguinal hernia	10	16.7

Table 2: Site of anastomosis

Site	Single layer (%)	Double layer (%)
Enterointeric	10 (33.3)	15 (50)
Enterocolic	18 (60)	13 (43.3)
Coliocolic	2 (6.7)	2 (6.7)

Table 3: Anastomosis type

Type	Single layer (%)	Double layer (%)
End-End	25 (83.3)	25 (83.3)
End-Side	2 (6.7)	4 (13.3)
Side-Side	3 (10)	1 (3.3)

Table 4: Time taken for surgery

Time (minutes)	Single layer (%)	Double layer (%)
≤ 15	2 (6.7)	-
16-20	26 (86.7)	-
21-25	2 (6.7)	3 (10)
26-30	-	21 (70)
31-35	-	6 (20)

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Table 5: Duration of hospital stay (days)

GA	Mean±sd	p
Single layer	8.11±1.23	0.361 (NS)
Double layer	9.34±2.59	

NS: Non significant

Table 6: Comparison of time required for surgery (minutes)

GA	Mean±sd	p
Single layer	18.68±1.99	<0.01*
Double layer	27.41±3.02	

*: significant

Table 7: Complications of anastomosis

Complication	Single layer (%)	Double layer (%)
Leak	2 (6.7)	3 (10)

Table 8: Final outcomes of the surgery

Outcome	Single layer (%)	Double layer (%)
Asymptomatic	28 (93.3)	29 (96.7)
Recovered	2 (6.7)	1 (3.3)
Death	-	-

In this study, a comparative analysis was done between single layered and double layered GA. Each group comprised 30 patients. The groups were compared for the time required to perform surgery, duration of hospitalisation and complications. The time taken for completion of single layered surgery was significantly low compared to double layered surgery. There was no significant difference in the duration of hospital stay in both the cases. The post-operative anastomotic leak was observed in 6.7% and 10% of patients undergoing single layered and double layered surgery respectively. Likewise, 93.3% of patients were asymptomatic in single layered and 96.7% was in case of double layered GA. No casualty was observed in both the cases. Our results were comparable to those of previous studies.^[6-10]

CONCLUSION

Gastrointestinal anastomosis is required in number of patients having problems in both small and large bowels so as to allow smooth passage of their contents. Though the result of this study follows the trends of previous researches, further study with large sample size is suggested.

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How to cite this article: Mathur AK. Gastrointestinal Anastomosis: Single Layered and Double Layered-A Comparative Study. *Ann. Int. Med. Den. Res.* 2016; 2(5):SG19-SG20.

Source of Support: Nil, **Conflict of Interest:** None declared