

COMPARATIVE STUDY BETWEEN MIDLINE INCISION OVER PARAMEDIAN INCISION IN CASES OF LAPAROTOMYSuresh Karlatti¹, Uma R. B²**HOW TO CITE THIS ARTICLE:**

Suresh Karlatti, Uma R. B. "Comparative Study between Midline Incision over Paramedian Incision in Cases of Laparotomy". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 72, December 22; Page: 15226-15229, DOI: 10.14260/jemds/2014/4049

ABSTRACT: Prospective randomized controlled study was conducted between 2005 and 2007 which compares midline incision and paramedian incision. A total of 165 cases were randomized in to two groups 85 and 80 cases. Only cases having midline scar were excluded from the present study. 6 cases (7.5%) of incisional hernia were reported in case of midline incision as compared to one case (1.25%) in paramedian incision. One case (1.25%) of burst abdomen was reported in paramedian incision. Time taken for midline incision opening and closing was less 12.9min as compared to paramedian incision is 23.0min. This is attributed for longer incision is required in case of paramedian incision and closure is required in layered manner, anterior and posterior rectus sheath.

KEYWORDS: Midline incision, paramedian incision, incisional hernia, burst abdomen.

INTRODUCTION: The incidence of burst abdomen is reduced with the use of sufficient length of suture material and mass closure of abdomen in cases of laparotomies¹. The incidence of incisional hernia remains to be at high around 10% over worldwide prospective controlled studies.² Donaldson and his colleagues conducted a surgical audit of 850 cases who have undergone laparotomies either by midline or by paramedian incisions between 1977 and 1981, and reported no wound dehiscence, incisional hernias (6.5%).³ We therefore compared incidence of wound dehiscence burst abdomen and incisional hernia in midline and paramedian incisions.

MATERIAL AND METHODS: The study was conducted between 2005 to 2007 at District Hospital, Belgaum attached to Belgaum Institute of Medical Sciences, Belgaum. Consecutive patients who were undergoing laparotomies either planned or emergency were randomized in to two groups. Only exclusion criteria were midline scar.

Standard midline incision was taken and the abdomen was opened by incising skin, linea alba and peritoneum closure was done with using 1-0 prolene (Polypropylene) keeping in mind length of the suture is one and half times the length of the incision. Paramedian incisions were performed as per technique described by Guillou and colleagues.⁴ The skin and anterior layer of rectus sheath were incised and rectus muscle was retracted laterally and posterior layer of rectus sheath was incised in the same plane as that of anterior rectus sheath. Closure of both layers was done by using the same suture material and same technique. The details of operations, post-operative complications were recorded in pro formas. Patients were followed for one year for noting any incisional hernias.

RESULTS: One hundred sixty five cases were included in the study. But fifteen cases were withdrawn because they were lost for follow up, death occurred in five cases. In our study it was found the median age of patient was 48 years varying from 24-73 years for midline incision whereas it was 54 years varying from 26-69 years for paramedian incision (Table 1).

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In present study 85 cases were operated by midline incision and 80 cases were operated by paramedian incision. In midline incision group 3 cases were died during the course of study as compared to 2 cases in paramedian group. There was one case of burst abdomen in paramedian incision group. There was more number of incisional hernias in midline group (6) than in paramedian group (1) found during one year follow up (Table 2).

Time taken for the midline opening was, more as 2.7min varies between 1.5 min to 7.5 min and for closure of incision was 8.2min varies between 5min to 13.5 min. Time taken for paramedian opening was 9.5min varies between 6.5min to 14.5 min and for closure of incision it was 12.8min varies between 9.8min to 16.5 min. All these parameters in both groups were significant (Table 3)

There were 38 peritonitis cases operated by in midline incision group, as compared to 10 cases in paramedian incision group. Chest infection was found in 26 cases of midline incision group and 7 cases in paramedian incision group. In midline incision group 42 cases were suffering from anaemia and hypoproteinaemia as compared to only 17 cases in paramedian incision group (Table 4).

DISCUSSION: Midline incision is fast and easy to perform as compared to paramedian incision, which is more time consuming.⁶ This is because of paramedian incision is more tedious to learn and precision is required to avoid injury to inferior epigastric vessels which are present in the rectus box and also because of layered closure, anterior rectus and posterior rectus. As paramedian incision is more time consuming it is not preferred in emergency cases. Paramedian incision does not prevent incisional hernia even though the numbers are less. Chances of incisional hernia development persists even after one year and hence more period of follow up is required.^{5,7} It is significant that one case of burst abdomen is seen in paramedian incision group in spite of small number of cases studied, even though the risk factors are almost same in both groups. Our present study shows chances of incisional hernia is more in midline incisions as compared to paramedian incisions which goes in line with previous study done by Cox et.al.⁶

It is concluded that paramedian incision is preferred in planned and clean cases as compared to midline incision which are preferred in emergency cases.

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Table 1: Comparison between midline and paramedian incisions

	Midline incisions	paramedian incisions
Age of patients	48 (24 - 73)	54 (26 - 69)
Number of Pts. above 50	32	28
Number of Pts. below 50	53	52

Table 2: Comparison between midline and paramedian incisions

Number of cases	Midline	Paramedian	Total
No. of patients	85	80	165
Burst abdomen	0	1	1
Incisional hernia	6	1	7
Lost for follow up	10	5	15
Death of Pts.	3	2	5
Reopen surgery	0	1	1
Others (not available)	5	4	9

Table 3: Time taken for incision and closure mean in minutes (s. d)

Time taken	Midline	Paramedian
Opening	2.7(2min - 8 min)	10.2(5min - 12.5min)
Closure	10.2(5min -12min)	12.8(10.2min - 16.4min)
Total time	12.9	23.0

Table 4:

Risk Factors	Midline	Paramedian	Total
Perforative peritonitis	38	10	48
(Infected cases)			
Chest infection	16	14	30
Anemia, Hypoproteinaemia	17	42	59



Fig. 1: Showing midline incision suture removed on 7th day



Fig. 2: Showing paramedian incision where tension sutures placed

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Date of Submission: 06/12/2014.
Date of Peer Review: 08/12/2014.
Date of Acceptance: 15/12/2014.
Date of Publishing: 19/12/2014.