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EVALUATION OF MIDLINE INCISION VERSUS PARAMEDIAN INCISION FOR EMERGENCY LAPAROTOMIES

General Surgery

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ABSTRACT

Prospective randomized controlled study was conducted between October,2015 and September,2017 evaluating midline incision and paramedian incision in case of emergency laparotomies. A total of 60 cases were randomized into two groups of 30 each. Time taken for midline incision opening and closing was less 9.86 min as compared to paramedian incision is 19.08 min. This is due to opening and closure of abdomen in layered manner in paramedian incision. Three cases of burst abdomen were reported in midline incision as compared to one case in paramedian incision. Cases having previous abdominal scar were excluded from the present study. 4 cases of incisional hernia were reported in case of midline incision as compared to one case in paramedian incision.

KEYWORDS

Midline incision, Paramedian incision, Incisional hernia, Burst abdomen.

INTRODUCTION

Laparotomy (from the Greek laparos = soft, referring to the abdomen) is a skill every surgeon caring for general surgical patients should possess and master to a level which makes him or her confident to perform whenever called upon. However the choice of incision depends upon the need of the hour. Different incisions are related with different complications. The incidence of burst abdomen is reduced with the use of sufficient length of suture material and mass closure of abdomen in cases of laparotomies[1]. The incidence of incisional hernia remains to be at high around 10% over worldwide prospective controlled studies.[2] We therefore compared incidence of wound dehiscence burst abdomen and incisional hernia in midline and paramedian incisions.

METHODS

A prospective study of 60 patients undergoing emergency laparotomies for acute abdomen in surgical emergency OR at AIIMS, New Delhi and DDU Hospital, New Delhi was conducted during a period from October, 2015 to September, 2017.

Patients were randomized into two groups.

Group A:

Midline incision was taken and the abdomen opened in layers by incising skin, linea alba and peritoneum. Closure was done with using no 1 prolene suture.

Group B:

Paramedian incisions were performed as per technique described by Guillou and collegues.[3] The skin and anterior rectus sheath were incised and rectus muscle was retracted laterally and posterior layer of rectus sheath was incised in the same plane as that of anterior rectus sheath.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 Vicryl no 1 suture.

Intra operative details like time taken for opening abdomen and closure of abdomen were recorded. Patients were looked for immediate post operative complications like SSI and Burst abdomen and followed up for one year for any incisional hernias.

RESULTS

Sixty cases were included in the study. In our study, the median age of patient was 45 years varying from 22-75 years. 30 cases were operated by midline incision and 30 cases were operated by paramedian incision. Time taken for both opening and closure was significantly less (p-value <.0001, result was significant at p<0.5) in midline incision group as compared to paramedian group (Table 01). There were 16 cases of perforation peritonitis operated in midline incision group as compared to 14 cases in paramedian incision group. In midline incision group 8 cases were suffering from anaemia and hypoproteinaemia as compared to 7 cases in paramedian incision group (Table 02). There were 3 cases of burst abdomen in midline incision group and 1 case in paramedian incision group. Incisional hernias were more common in midline group (4) than in paramedian group (1) found during one year follow up (Table 03). In midline incision group 4 cases died during the course of study as compared to 2 cases in paramedian group.

Table 01: Abdomen opening and closure time in two groups

	Midline incision	Para median incision	p-value
Opening Time	3.4 min (2.5-7)	6.9 min (5-11)	< .0001
Closure Time	6.46 min (6-10)	12.18 min (11-15)	<.0001
Total time	9.86 min	19.08 min	

Table 02: Various risk factors in two groups

Risk factors	Midline Incision	Para-median Incision
Old age group (Age > 60 yrs)	13	15
Anaemia	5	4
Hypoprotienemia	3	3
Infected cases (Perforation)	16	14

Table 03: Post-operative Complications in two groups

	Midline Incision	Para-median Incision
SSI	05	06
Burst Abdomen	03	01
Incisional Hernia	04	01

DISCUSSION

Midline incision is always incision of choice in emergency laparotomies when fast entry and closure is anticipated. Midline incisions are usually preferred in trauma patients as well as patients who are haemodynamically compromised and may not withstand long duration of surgeries. Midline incision is fast and easy to perform as compared to paramedian incision, which is more time consuming.[4] Our present study shows chances of burst abdomen and incisional hernia is more in midline incisions as compared to paramedian incisions which goes in line with previous study done by Cox et.al.[4] however it must be emphasized that paramedian incision does not prevent incisional hernia even though the numbers are less. To conclude, midline incision is preferred for emergency laparotomies especially in trauma patients however paramedian incision can be opted for haemodynamically stable patients where planned emergency procedures are to be performed.

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