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A Comparative Study of Midline Hernioplasty Versus Bilateral Conventional Hernia Repair in Patients with Bilateral Inguinal Hernia

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ABSTRACT

This study was carried out to compare the outcomes of both the techniques of hernioplasty namely midline and conventional in terms of duration of surgery, post operative pain, post operative analgesic requirement, hospital stay, return to work, patient compliance, post operative complications and recurrence. Total of 30 patients randomly selected were included in the study. They were divided in the two groups of 15 each, out of which one group underwent the conventional method while the other group was operated through the midline approach.

The result outcomes suggested that the conventional approach was associated with little longer duration of surgery, requirement of analgesia and to work as compared to the midline approach. While the results were equivalent for both the groups in terms of post operative pain, hospital stay and compliance. The recurrence rate for the midline approach was 6% while it was 0% for the conventional approach. Thus both the approaches have their own pros and cons.

KEYWORDS : inguinal hernia, bilateral variety, midline hernioplasty, conventional hernioplasty.

INTRODUCTION

A hernia is an abnormal protrusion of a part or whole of a viscus through anormal or an abnormal opening in the wall of the cavity which contains it. The common hernia which are encountered in daily practice are inguinal(70%), incisional(15%), umbilical and epigastric hernia(10%), femoral hernia(5%).

About 25% of males and 2% of the females develop inguinal hernia. Approximately 75% of all hernias occur in the groin; two third of these are indirect and one third of them are of direct variety. The incidence of bilateral hernia may range from 7% to 15%.[1]

Hernia repair from ages has been a challenge for the surgeons to combine strength, durability, cosmesis together. With the advent of time various methods have been tried from basic tissue repair to darning, and now to laparoscopic approach. However repair is a must be it any method for any hernia, and specially bilateral inguinal one.[2] This study thus intends to compare the two methods namely single midline incision versus conventional bilateral two separate incisions in their various aspects.

MATERIALS AND METHODS

This study was carried out on 30 patients at the department of general surgery, L.G. hospital, Maninagar. All cases were selected on a randomized basis and divided into two groups of each 15 each. After admission they had undergone thorough routine pre-operative investigations and assessment for fitness. Patients who were fit were explained the procedures, their advantages, disadvantages, risks, and were operated after taking written and informed consent.

Duration of the surgery was calculated in minutes. Post operative pain was calculated by the visual analogue scale at 24 hours. Post operative stay was calculated in days.

Data was recorded on a proforma. Chi square tests and t-tests were used to find out statistical difference between the groups. P value of < 0.05 was considered as statistically significant and highly significant if $P < 0.001$.

TECHNIQUE OF CONVENTIONAL METHOD:

After induction of anesthesia, painting, draping and isolation of the part was done. Position given was supine. First the hernia repair was done on the side having bigger hernia. A 5 to 6 cms incision was kept about 1cm above and parallel to inguinal crease. Skin, fascia of camper and scarpa and external oblique sheath also cut in the same line and direction. Inguinal canal opened and cord identified and separated. Sac identified and separated. In direct variety sac was not opened and reduced back. In the indirect variety the sac was opened, contents reduced and then transfixed with vycril 2.0. Prolene mesh of 6X3 inch was fixed first just medial to pubic tubercle. Lower margin fixed to the upturned part of inguinal ligament and the upper margin fixed to the conjoined tendon with prolene 1.0. A slit was made for the cord and a stitch also taken just lateral behind the cord. Adequate hemostasis achieved. External oblique sheath closed with prolene 1.0 in continuous locking manner. Skin closed with ethilon 2.0. Sterile dressing applied. Similar procedure done on opposite side.[3,4,5]

TECHNIQUE OF MIDLINE APPROACH:

Painting and draping was done after induction of anesthesia. A vertical midline incision of about 4 to 5 cms in length stating just above the pubic symphisis was put . Skin subcutaneous tissue was cut in the line of incision. Anterior fascia with linea alba is cut in the line of incision, and preperitoneal space reached. This space is completely dissected to a point lateral to anterior superior iliac spine and to downward in front of bladder and then outward behind the illiopubic ramus in bogro's space. Finally paritelisation of the cord done. Direct sac is reduced back during peritoneal dissection. In indirect variety, if the sac is small than it is reduced in toto, while if it is large than it is cut and the distal sac left in situ. Prolene mesh of 6X6 inches was kept in preperitoneal space, fixed with prolene 1-0 on pubic tubercle, cooper's ligament and over psoas major muscle. Similar procedure done on opposite and mesh fixed after dissection. In the midline the two mesh are joined by suturing. Anterior fascia with linea alba is closed with prolene 1-0 continous interlocking manner. Subcutaneous tissue is closed with vycril 2-0. Skin apposed with ethilon 2-0 and sterile dressing applied.[3,4,5]

RESULTS AND DISCUSSION

As already mentioned this prospective randomized study was carried out in 30 patients at L.G. hospital, Maninagar, who were divided into two groups of 15 each and operated upon by two types of approaches namely the midline approach and the other the conventional

one. Operative and post operative data was collected and the results achieved.

The duration of surgery was calculated in minutes. Post operative pain was measured with the help of visual analogue scale at 24 hours. Total post operative analgesic requirement, hospital stay and return to work were calculated in days. The following are the results confounded.

Table 1: Results

Parameter	Conventional approach (mean)	Midline approach (mean)
Duration of surgery (mins)	78	61
Pain VAS score at 24 hours	4.4	4.1
Post operative analgesic requirement (days)	4.8	4.4
Hospital stay (days)	3.4	3.2
Return to work (days)	16	14
Recurrence rate	0%	6%

The mean of duration of surgery calculated for conventional approach was 78 mins, while that for the midline approach was 61 mins. This means that the conventional approach required a little longer time to get completed. But in all it finally depends upon the surgeon and his experience for time taken to complete the operation.

The pain score was calculated at 24 hours using the visual analogue scale. All patients were asked about the experience of their pain and which was jotted down on the VAS score. The average VAS score for conventional approach was 4.4 and that for midline approach was 4.1. This makes it evident that the pain scores for both methods were mostly equal and did not have a major difference.

The mean post operative analgesia requirement calculated for conventional approach was 4.8 days while that of the midline method was 4.4 days. This makes it evident that the group operated by the conventional method required a little more of analgesia than the other group.

The mean hospital stay for the conventional method was 3.4 days and for the midline method was 3.2 days. This means that there is no any significant difference between the period of hospital stay between the two groups.

The patients were reviewed when they were able to return to work in the post operative period. The average period to return to work for conventional method was 16 days and that for the midline approach was 14 days. Thus the latter had a little advantage to return to work earlier.

The recurrence rate for the midline approach was 6% while it was 0% for the conventional method.

Table 2: Post operative patient compliance

Patient compliance	Midline hernioplasty	Bilateral conventional approach
Good	10	9
Average	3	6
Poor	2	–

Any operative procedure apart from any of the technicalities and advancements in it should give its prime importance to patient compliance. Calculating the patient compliance in both groups it was concluded that bilateral conventional approach had a better patient compliance as compared to the midline hernioplasty.[6]

Table 3: Complications

Complications	No of patients	
	Midline hernioplasty (preperitoneal)	Bilateral conventional approach (lichenstien)
Post op pain	3 (20%)	5 (33.3%)
Wound infection	4 (26.6%)	2 (13.3%)
Wound seroma/ hematoma	4 (26.6%)	2 (13.3%)
Scrotal edema/ hematoma	2 (13.3%)	2 (13.3%)
Urinary retention	1 (6.6%)	2 (13.3%)
Recurrence	1 (6.6%)	–

The above table shows that in the study in midline hernioplasty out of 15 patients:

- 3 patients (20%) complained of long term pain, which improved with time on follow up.
- 4 patients (26.6%) had wound infection which subsided with prolonged oral antibiotic coverage.
- 4 patients (26.6%) had wound seroma which got subsided in a short period of time with gradual dressing.
- 2 patients (13.3%) had scrotal swelling which gradually resolved on follow up along with scrotal support.
- 1 patient (6.6%) had post operative urinary retention which was relieved by analgesic with hot fomentation.
- 1 patients (6.6%) had recurrence of hernia on follow up.

The above table also shows that in bilateral conventional hernioplasty out of the 15 patients:

- 5 patients (33.3%) complained of long term pain, which improved with time on follow up.
- 2 patients (13.3%) had wound infection which subsided with prolonged oral antibiotic coverage.
- 2 patients (13.3%) had wound seroma which got subsided in a short period of time with gradual dressing.
- 2 patients (13.3%) had scrotal swelling which gradually resolved on follow up and with scrotal support.
- 2 patients (13.3%) had postoperative urinary retention which was relieved by analgesic and hot fomentation.

This concludes that in the group operated through midline approach almost all the patients developed some or the other complication and the highest was in the form of wound infection or seroma(27%), followed by post op pain(20%), scrotal edema(15%) . While those who had under gone bilateral conventional approach developed lesser complications, majority of them suffered from minor complications like post operative pain(35%), followed by wound infection, seroma, scrotal edema and urinary retention each of (15%). This implies that the midline approach was more prone to develop complications.

CONCLUSION

Over all this study helps to arrive at the following conclusions with respect to the two procedures:

Midline hernioplasty uses abdominal pressure to fix the mesh against the abdominal wall adding strength to the repair. It covers the whole of myopectineal orifice. There is less post operative morbidity and duration of surgery is also less due to a single incision. This approach is difficult to perform and has a long learning curve. Owing to major dissection it is more prone to have post operative complications in the form of scrotal edema, wound seroma or infection. However recurrences have also been identified more with this approach.[7]

This study thus concludes that bilateral conventional hernia repair is appropriate for inguinal hernia in the sense that it is easy to perform, less dependent on experience of surgeon, and has a short learning curve. There is good patient compliance, less chances of wound infection or seroma formation. There are also less chances of recurrence in this approach.

Because of two separate incisions this method may have increased duration of surgery, post operative morbidity. It does not cover the myopectineal orifice which is the site for direct, indirect and femoral hernia.

Thus it concludes that each procedure has it advantages and disadvantages in its own way. It therefore depends upon the surgeon, his experience and patients choice to select a particular procedure for a particular patient.[8]

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