Original Article

TO EVALUATE THE COMPARATIVE STUDY OF "ONLAY" VERSES "SUBLAY" MESHPLASTY IN VENTRAL HERNIAS

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ABSTRACT:

INTRODUCTION:

Ventra hernia refer to fascial defect of the anterolateral abdominal wall through which intermittent or continuous protrusion of abdominal tissue or organ may occurs. Effective repair of ventral hernia must include a tension free approach using mesh. The treatment of ventral hernia have changed radically over the last decade, however controversy still exist concerning mesh type, mesh positioning, operation method. The prosthetic mesh can be positioned by onlay, inlay and sublay technique. As onlay, inlay mesh repair are associated with lot of post operative complications the sublay mesh repair has been proposed as the gold standard by many surgeon

OBJECTIVE:

The aim of this study was to compare the sublay mesh repair with onlay mesh repair in patients with ventral hernia in term of post operative complications.

STUDY DESIGN:

Surgical unit-III, Allied Hospital, Punjab Medical College, Faisalabad.

DURATION OF STUDY:

1 year after approval of synopsis.

SAMPLE SIZE:

Total of 334 patient, which were divided in two equal groups of 167 each; group A (167 patients) underwent onlay mesh repair and group B (167 patients) underwent sublay mesh repair.

SAMPLING TECHNIQUE:

Non probability consecutive sampling.

RESULTS:

Both techniques of operation were compared term of post operative complications, duration of operation and post operative hospital stay. Appropriate statistical test (chi square test) was applied. P value < 0.05 was taken significant. Data was analyzed by SPSS version 10. Our study showed that sublay mesh repair was associated with comparatively less frequency of post operative complications (seroma 7.8%. vs 18.6%, hematoma 6.6% vs 15.6%, wound infection 10.8% vs 22.8% and sinus formation 4.8% vs 12.0%) and these differences were significant statistically.

CONCLUSION:

For treatment of ventral hernia sublay mesh repair is associated with less post operative complications then the onlay mesh repair.

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KER WORDS: ventral hernia, sublay, onlay.

INTRODUCTION:

Ventral hernia refer to fascial defect of the anterolateral abdominal wall through which intermittent or continuous protrusion of abdominal tissue or organ may occurs [1,2]. They have commonly been classified as spontaneous, traumatic or Incisional. Several methods of hernia repair have been described. Traditionally primary repair entailed a laparotomy and suture approximation of facsia on each side of the defect. Recurrence rate after this type of repair rang from 30-55% on long term follow up [3]. As primary tissue repair is associated with unacceptably high recurrence rates, now a day's tension free mesh repair is ideal technique for hernia repair[4.]

It is now well established that mesh repair significantly reduces the incidence of recurrence to 10-25%. In fact, as per literature the best position for inserting the mesh has not been conclusive but limited studies have shown that mesh implanted on the abdominal aponeurotic layer showed better and early incorporation (higher collagen deposition, capillary density and cell accumulation, increased tensile strength) reflecting higher anchorage to the abdominal wall. Repair of incisional hernia with two layers of polypropylene sutures and onlay mesh gives better results[6].

Some studies showed that there are more changes of seroma formation in sublay groups as compared to onlay group which may be due to extensive tissue dissection and increased blood loss. The rate of post operative complications is 22.5%[7]in sublay and 11.2% in onlay repair [8]. Despite of increased post operative complications it was found that the ideal position for the repair appears to be retromusculor sublay where the force of abdominal pressure holds the prosthesis against the deep surface of muscles [9].

With the advent of anaesthesia antisepsis and greater understanding of anatomy, the scientific approach to hernia treatment has changed. Currently by the judicious use of the above three concepts ventral hernia is repaired with least morbidity, mortality and recurrence rate. Almost every surgeon has got his own techniques and may modify it to suit the situation.

Since there is considerable debate about the correct positioning of mesh in treating ventral hernia my aim of conducting his study was to find out the most appropriate repair of hernia so that in future the better technique should be adopted for the patient.

MATERIAL AND METHOD:

STUDY DESIGN: Randomized clinical trail

SETTING: The Study was conducted in Surgical Unit-III of Allied Hospital, Faisalabad.

DURATION OF STUDY:

Duration of study was 12 months from April 2010 to March 2011.

SAMPLE SIZE:

Total of 334 patients, which were divided in two equal groups of 167 each, group A (167 patients), Group B (167 patients). Group A patients underwent onlay mesh repair and Group B patients underwent sublay mesh repair.

SAMPLE TECHNIQUE:

Non probability consecutive sampling.

SAMPLE COLLECTION:

INCLUSION CRITERIA:

Patients of both sexes with age more then 18 years and with following were included in the study:

1. Post laparotmy midline incisional hernia regardless of size that had been there for at least 1 year.
2. Primary hernia (umbilical or paraumblical which was diagnosed on clinical examination and confirmed on USG) of more then 4cm in diameter.

EXCLUSION CRITERIA:

1. Morbid obesity (BMI>30).
2. Chronic liver disease with child purg class C (billirubin > 3mg/dl, S/albumin < 3mg/dl, prothrombin time > 6 sec, moderate ascites, presence of encephalopathy).

3. Patients with uncontrolled diabetes (RBS>300mg/dl) and hypertension (more than 100mg Hg diastolic blood pressure).
4. Strangulated hernia with signs of obstruction (absolute constipation, vomiting and abdominal distension).
5. Pre-existing skin infection at the site of hernia with local signs of inflammation (redness, hotness and tenderness).

RESULTS:

In the period of 12 months, 337 patients of ventral hernia were selected for the study 167 patients (group A) under went onlay mesh repair and 167 patients (group B) were operated with sublay mesh repair. All patients were operated by consultants with 2 years post fellow ship experience. The number of patients were equal in both groups. In group A 56.9% males and 43.1% females underwent onlay mesh repair. While in group B 58.7% males and 41.3% females were done with sublay mesh repair.

The mean age of patients in group A was 41.1+ 12.8 years, while those in group B were having mean age of 41.6+12.3 years.

The duration of operation was 46.0+10.1 minutes in group A patients while it was 56.4+10.9 minutes in group B patients.

The duration of hospital stay was 3.5+1.0 days in group A patients while it was 4.0+1.4 days in group B patients.

As far as the post operative complication are concerned, the during the first week the percentage of seroma was 7.2% vs 3.0%, of hematoma was 6,0% vs 2.4%, of wound infection was 9.6% vs 4.2%. and of sinus formation was 4.8% vs 1.8% in group A and group B respectively. (p value < 0.05)

At 10 POD, seroma formation was 4.8% vs 2.4%, hematoma was 4.2% vs 1.8%, wound infection was 6.6% vs 3.0% and sinus formation was\s 3.6% vs 1.2% in group A and group B respectively. (p value < 0.05)

At second week, among the noticed complications the rate of seroma formation was 4.2% vs 1.8%, of hematoma was 3.6% vs 1.8%, of wound infection 4.8% vs 2.4 and of sinus formation in 2.4% vs 1.2 in group A and group B respectively. (p value < 0.05)

At 3rd week seroma formation was 2.4% vs 0.6% hematoma was 1.8% vs 0.6%, wound infection was 1.8% vs 1.2% and sinus formation was 1.2% vs 0.6% in group A and in group B respectively. (p value < 0.05)

Table 1: Distribution of patients by age

Age (Years)	Group A (n=167)		Group B (n=167)	
	No.	%	No.	%
Upto 20	8	4.8	8	4.8
21-30	34	20.4	30	18.0
31-40	55	32.9	49	29.3
41-50	39	23.3	46	27.5
51-60	19	11.4	24	14.4
61-70	12	7.2	10	6.0
Mean±SD	41.1±12.8		41.6±12.3	

Key:
n Number of patients
SD Standard deviation

Table 2: Distribution of patients by gender

Gender	Group A (n=167)		Group B (n=167)	
	No.	Percentage	No.	Percentage
Male	95	56.9	98	58.7
Female	72	43.1	69	41.3
Total	167	100.0	167	100.0

Key:
n Number of patients

Table 3: Distribution of patients by duration of operation

Duration (Minutes)	GroupA(n=167)		Group B(n=167)	
	No.	%	No.	%
30-40	73	43.7	14	8.4
41-50	46	27.5	49	29.3
51-60	38	22.8	60	35.9
61-70	9	5.4	33	19.8
71-80	1	0.6	11	6.6
Mean±SD	46.0±10.1		56.4±10.9	

Key:
n Number of patients
SD Standard deviation

Table 4: Distribution of patients by hospital stay

Age (Years)	Group A(n=167)		Group B(n=167)	
	No.	%	No.	%
3-4	140	83.8	153	91.6
5-6	18	10.8	7	4.2
7-8	6	3.6	5	3.0
9-10	1	0.6	2	1.2
11-12	2	1.2	0	0
Mean±SD	4.0±1.4		3.5±1.0	

Key:
n Number of patients
SD Standard deviation

Table 5: Distribution of patients by postoperative complications on first week

Complications	Group A (n=167)		Group B (n=167)		P value
	No.	%	No.	%	
Seroma	12	7.2	5	3.0	0.001
Haematoma	10	6.0	4	2.4	0.001
Wound infection	16	9.6	7	4.2	0.01
Sinus formation	8	4.8	3	1.8	0.01

Key:
n Number of patients

Table 6: Distribution of patients by postoperative complications on 10th postoperative day

Complications	Group A (n=167)		Group B (n=167)		P value
	No.	%	No.	%	
Seroma	8	4.8	4	2.4	0.01
Haematoma	7	4.2	3	1.8	0.01
Wound infection	11	6.6	5	3.0	0.01
Sinus formation	6	3.6	2	1.2	0.001

Key:
n Number of patients

Table 7: Distribution of patients by postoperative complications on second week

Complications	Group A (n=167)		Group B (n=167)		P value
	No.	%	No.	%	
Seroma	7	4.2	3	1.8	0.01
Haematoma	6	3.6	3	1.8	0.01
Wound infection	8	4.8	4	2.4	0.01
Sinus formation	4	2.4	2	1.2	0.01

Key:
n Number of patients

Table 8: Distribution of patients by postoperative complications on third week

Complications	Group A (n=167)		Group B (n=167)		P value
	No.	%	No.	%	
Seroma	4	2.4	1	0.6	0.001
Haematoma	3	1.8	1	0.6	0.01
Wound infection	3	1.8	2	1.2	0.05
Sinus formation	2	1.2	1	0.6	0.05

Key: n Number of patients

DISCUSSION:

Ventral hernia refer to fascial defect of the anterlateral abdominal wall through which intermittent or continues protrusion of abdominal tissue or organ may occur[1,2].They are commonly classified as spontaneous, traumatic or incisional. Several methods of hernia repair has been described. Traditionally primary repair and suture approximation of fascia on each side of defect can be performed in small hernia. As primary hernia repair is associated with unexpectedly high reoccurrence rate. Now a day, tension free mesh repair is the ideal technique for hernia repair[4]. It is now recommended that mesh repair reduce the incidence of reoccurrence by 10 to 25%.

In this study mean total time taken for operation in "onlay" was 46.0±10.1 mint. As compared with " subley" which was 56±10.9 mints. This is compared to study conducted by Godara et all in which they mentioned 49.35±8.29 mints in " onlay" and 63.15±15.0 mints in "sublay". The difference in time can

be counted due to more dissection time needed for creating preperitoneal space, securing hemostasis is another burden on time.

Post. Operative complication like seroma, hematoma, wound infection and sinus formation are more common in "onlay" as compared to "sublay" in our study which is not comparable with Godra e tall in which they found it equal in both groups.

Duration of hospital stay gives us an indirect indication of degree of morbidity in term of post. Operative complications. The mean duaration in "onlay" was 4.0±1.4 days as compared to " sublay" 3.5±1.0 day. This is contrary to study of Godra et all in which they found 4.6 days in " onlay" and 6.8 days in " subley" group.

Patients were followed on 1st, 2nd, 3rd wk. and 1 month for post. Operative complications and return to routine activity. Our study showed that pts. With "sublay" technique returned to their routine activity early as compare to " onlay" tech. which is not comparable to study by Godra et all who mentioned vice versa.

CONCLUSION:

On the basis of the parameters discussed above we can safely conclude that "subley" mesh repair in Ventral hernia is associated with less post operative complications than "onlay" mesh repair.

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