RECENT TRENDS IN THE MANAGEMENT OF INCISIONAL HERNIA

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ABSTRACT

Objective: *To improve our Surgical techniques in the management of Incisional hernia in accordance with the recent trends.*

Material and Methods: *This study was conducted in Surgical B Ward of Khyber Teaching Hospital Peshawar. All the operations were performed from January 2002 to June 2004. Each patient was then followed up for at least 2 years. A total of 36 patients were selected for mesh repair using recent techniques. Patients were divided into two groups. In group I, sixteen hernias were considered to be subjectively medium in size and were repaired using first technique. In group II, twenty hernias were considered to be large in size and repaired. A standard Proforma was designed for every patient noting intra-operative and post operative complications, post operative hospital stay and follow up etc.*

Results: *Total 36 patients in which 20 females and 16 males with age from 18 to 60 were included in this study. There were no intra- operative complications. The main post- operative complications were wound infection (5.5%), seroma formation (11%) and haematoma formation (5.5%). The mean post operative hospital stay was 8 days. All the patients were followed up for at least two years. 2 patients had recurrence in group I (5.8%), while in group II no patient reported recurrence till the last day of follow up.*

Conclusions: *We advocate these new methods of mesh repair because they have modest complications rate and low recurrence rate.*

Key Words: *New techniques of Mesh repair, Incisional hernia, Recurrence.*

INTRODUCTION

Incision hernia is an important complication of abdominal surgery.[1] In prospective studies with adequate follow up primary Incisional hernia developed in 11-20% of abdominal surgical wounds.[2] The etiological factors are obesity, bowel surgery, suture materials, chronic cough, tension on the suture line and wound infection.[3,4] Smoking has also been attributed as a risk factor.[5,6] Ninety percent of Incisional hernia occurs with in three years of operation.

Recurrence is more common in large Incisional hernias after repair. Thirty three percent will recur within three years. In literature review, overlapping techniques are thought to produce better results than simple mesh repair, because they reduce excessive tension on the repair.[8,9]

The techniques which we used in our study were originally described by Browse and Hurst.[10] They introduced the combined use of anterior rectus sheeth or external oblique and polypropylene mesh in Incisional hernia repair. Our first technique is derived from the study of Whitely et al[11] and the second one from the study of Khaira.[12] He modified the first technique by introducing an additional overlap and two points of anchor for the mesh.

MATERIAL AND METHODS

This study was conducted in Surgical B Unit KTH Peshawar. All the operations were performed between January 2002 and June 2004. Each patient was followed up for at least two years. All the abdominal Incisional hernias other than inguinal hernias, presenting for the first time or after recurrence were included in this study. A standard proforma was designed for every patient to include their age, sex, weight and risk factors, pre and postoperative complications and follow up

NO. OF PATIENTS AND SEX INCIDENCE

Sex	No of Patients	Percentage
Female	20	56%
Male	16	44%
Total	**36**	**100%**

Table 1

visits etc. Cardio respiratory status of all the patients was assessed pre-operatively. The blood and urine examination, blood sugar, ECG and X-ray chests were done. 1.5 gram of injection Cefuroxime was given intravenously at induction and continued for 48 hours postoperatively. Ten patients were obese (BMI >30) and were put on DVT (deep vein thrombosis) prophylaxis in the from of subcutaneous LMW (Low molecular weight) heparin. All the operations were performed under general anesthesia. Two types of mesh repair techniques were used.

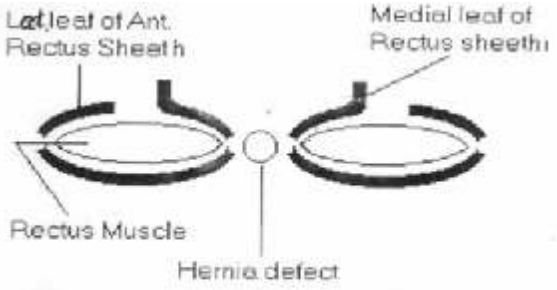

Fig. 1

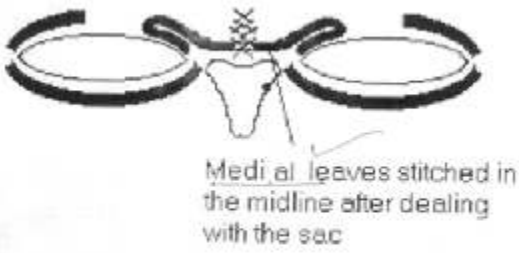

Fig. 2

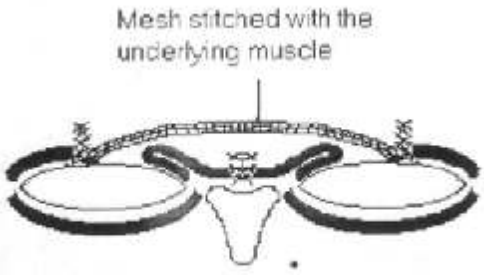

Fig. 3

Technique No. 1

FIRST TECHNIQUE

A total of 16 medium size Incisional hernias were repaired by this method (group I). In this technique a single overlap for the muscle and fascia and one point of anchor for the mesh was used. After skin preparation and drapping, an elliptical incision, removing the scar was made. In this group 12 hernias were reduced without opening the sac while in 4 cases, the hernial sac was opened, the contents dealt with and the peritoneum repaired with 2/0 catgut. A circumferential incision was made down to the muscle, 2.5 cm from the edge of the defect (fig 1). The medial edges of the anterior rectus sheath were reflected medially and were sewed together in continuous fashion with prolene 0 suture over the defect (fig 2). The fascial defects so created on either side were covered by poly-propylene mesh without tension and sutured to the free edge of the fascia/sheath around its circumference (fig 3). A vacuum drain was inserted and subcutaneous layer and skin were closed in interrupted fashion.

SECOND TECHNIQUE

A total of 20 Incisional hernias were repaired by this method (group II). In this technique a double overlap, that is one for the muscle and fascia and another for the mesh was used. In this group 4 hernial sacs were opened and dealt with as described previously. After complete exposure of the rectus sheath or external oblique around the defect, it was incised about 2.5 cm from the edge of the defect (fig 4). The medial leaves were elevated from the underlying muscle on both sides and the lateral margins sutured continuously with zero prolene sutures (fig 5).

In transverse or sub costal hernias, the circumferential incision had aponeurotic or fibrous scar tissue on either side. In the midline hernias, the lateral leaves were then elevated from the underlying muscle (fig 6). The mesh was then inserted between the fascia and muscle on both sides and sutured to the under surface of the anterior rectus sheath. In the transverse hernias, the mesh was sutured to the surface of the external oblique muscle. Again a vacuum drain was inserted and the skin closed with prolene 2/0 suture.

RESULTS

A total of 36 patients were operated during January, 2002 to July 2004. Among these, 20 were females and 16 were males (Table 1). The age range was 18 years to 60 years (Median age = 39

TYPES OF INCISIONAL HERNIAS

S. No	Types	No of Patients	Percentage
1	Midline infra- umbilical	24	67%
2	Midline Supra- umbilical	4	11%
3	Kocher,s incision	4	11%
4	Lateral paramedian	4	11%
	Total	**36**	**100%**

Table 2

years). Out of 36 incisional hernias, 24 were in midline infra-umbilical incisions, 4 in midline supra-umbilical, 4 in right subcostal (Kocher's) and 4 in right paramedian incisions (Table 2). 16 hernias were considered subjectively to be medium in size (defined as 5cm to 7cm) and were repaired using first technique (group I) and 20 were considered to be large in size (defined as more than 7cm) and assigned to the second technique (group II).

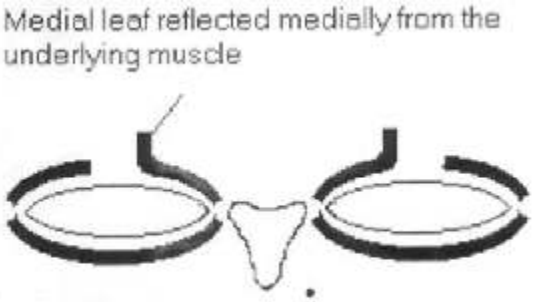

Fig. 4

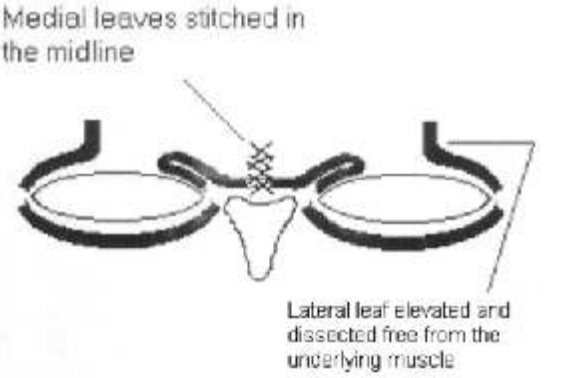

Fig. 5

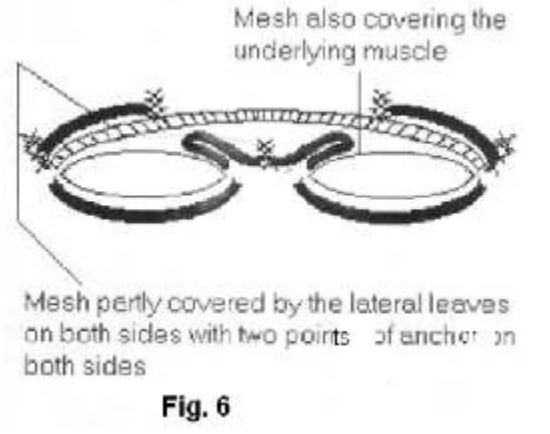

Fig. 6

Technique No. 2

No intra- operative complications were recorded. The suction drains were removed once they contained less than 50ml of blood and serum. Patients were mobilized as early as possible. Postoperative complications are shown in the Table-3. Seroma formation was the commonest complication (4 patients) but luckily settled with one or two needle aspirations. Two patients (5.5%) had superficial wound infection and two patients (5.5%) developed mild haematoma in the wound, they were treated conservatively. The mean postoperative hospital stay was 8 days. All the patients were available for follow up. They were followed up by either physical examination or contacted on telephone at 1,6,12 and 24 months. Two patients had recurrence in group I after 8 months (5.5%) while in group II, no patient has reported recurrence till the last day of follow up (Table 4).

DISCUSSION

The mesh repair techniques[13] for Incisional hernia have generally developed in an experimental way. Several authors have reported favorable result with mesh repair.[,] They include a combination of fascia and mesh[10,11] sandwich of mesh and rectus sheeth, and a “complex mesh peritoneal sandwich” etc. But the overlapping techniques using combined fascia and mesh produce better results with low recurrence rate.[16,18] In simple suture repair of Incisional hernia, the edges are brought together under tension which then leads to wound dehiscence or Incisional herniation due to tissue ischemia and the cutting of sutures through the tissues.[19] With prosthetic mesh this tension is reduced. More over polypropylene mesh by inducing an inflammatory response sets up a scaffolding effect, that in turn induces the synthesis of collagen.[20]

MAIN POSTOPERATIVE COMPLICATIONS

S. No	Complications	No of Patients	Percentage
1	Wound infection	2	5.5%
2	Seroma formation	4	11%
3	Wound haematoma	2	5.5%
4	Urinary retention	2	5.5%
	Total	**10**	**27.5%**

Table 3

Generally speaking controversy still exists in literature about the effectiveness of mesh repair against simple suture repair. According to Loh A et al,[8] inadequate length of follow up is the main reason for superior results with mesh repair. On the other hand Liakakos et al[20] in his prospective study, comparing primary closure against mesh repair had concluded that the recurrence rate was less with mesh repair at a mean follow up of 6.7 years. In our techniques, tension is automatically reduced when the medial leaves of the fascia are reflected over the defect. We also provide considerable overlap to the mesh by putting it behind the anterior rectus sheeth with one or two points of fixation. This method has also been used for Incisional hernias developing in transverse or sub costal incisions. Wound infection and seroma formation are the main complications. Wound infection is usually superficial but can be severe enough and may result in the removal of mesh.[21]

RECURRENCE RATE

S. No	Name of Group	No of Patients	Percentage
1	Group I	2	5.5%
2	Group II	0	0%
	Total	**2**	**5.5%**

Table 4

Formation of seroma usually responds to one or two needle aspirations. Seroma formation was reported to be 6 % by Usher et al, [16] 6% by Molley et al.[18] and 6 % by Lewis.[22] The time of occurrence of seroma formation is between 3 to 17 days and usually subsides with in a week.

In our study the recurrence rate is 5.5% at a medium follow up of 24 months. Mostly, recurrence (up to 90%) occurs with in three years. Therefore it may be argued that our follow up may have been of short duration.

CONCLUSION

We advocate the use of these recent techniques of Incisional hernia repair as they are applicable to all sites of abdominal, Incisional hernias, the complication rate is low and there is low recurrence rate.

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