

Open mesh repair of different hernias. Is the technique free of complications?

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Abstract

OBJECTIVES: To study mesh related complications in various hernias and their management.

METHODS: It's a descriptive observational study of 638 hernia repairs of different types with mesh fixation in a teaching hospital as well as in private hospitals from June 2003 to June 2008. All the patients were operated by the open technique regardless of the type of hernia. Prolene mesh of varying sizes is used according to the size of defect and fixed in place by applying few stitches with prolene 3/0. Suction drain used selectively. The patients were followed up for three years and the complications associated with the use of mesh were noted. The data is statistically analyzed on SPSS version 12.

RESULTS: The mean age of the patients is 41 years with a range of 73 years and a Std of 19.089. There were 531 males (83%) and 107(16 %) females. Commonest variety is inguinal hernia (n=518, 81%) followed by Para-umbilical hernia (n=83, 13%). Wound infection was the commonest complication observed during the same admission. Mesh infection can lead to total failure and is difficult to manage. Recurrence occurred in 11(2 %) cases and 15(2%) patients complained of continued pain and discomfort over a long time.

CONCLUSION: Mesh repair of hernias is not free from complications. Intensive broad spectrum antibiotics can help control mesh infection and failure of repair. Suction drainage plays a vital role in Para-umbilical and Incisional hernias.

KEY WORDS: Mesh repair, complications, suction drains, and conservative management

INTRODUCTION:

Implantation of prosthetic mesh in repair of different hernias has gained a global acceptance and popularity. It is thought to be a potent safeguard against recurrence of hernias^{1,2}.

The use of prosthetic mesh in different types of hernias has brought a phenomenal change in the out look of hernia patients all over the world³. Today, an ever increasing number of hernias are repaired by implanting prosthetic meshes either by conventional open method or by laparoscopic approach⁴.

Beside its well known advantages and global acceptance in every day hernia surgery, a number of complications are thought to be associated with the use of mesh in different types of hernias⁵⁻¹⁵. We present our experience of mesh related complications in different open hernia repairs and their management in this study.

MATERIALS AND METHODS

It's a descriptive observational study over 5 years during which a total number of 1008 patients with different types of hernias were repaired electively in a teaching hospital as well as in private hospitals by the same surgical team. Of these, 638 (63.29 %) hernias were repaired by implanting prolene mesh of different sizes depending on the size of the defect. A drain was left in place in selected cases. The patients were followed up to a period of three years after discharge from the hospital. The follow up visits were scheduled at 1 month, 6 months, and then yearly. Of the total patients, 432(67.71%) were followed up to three years while 159 (26%) patients were lost in the follow up from day of discharge from the hospital. Another 47 patients attended follow up up to 2 years only and then disappeared. Sixteen of these patients continued to complain about chronic pain and foreign body sensation up to two years and then they

did not return while 4 of these patients developed recurrent hernia in one year time but they were lost in follow up.

The data of every patient is recorded on a proforma and their follow up records are maintained. The variables studied included immediate, early and late post-operative complications in addition to the demographic details. The statistical analysis of the data is done on SPSS version 12.

RESULTS

The mean age of the patients is 41 years with a range of 73 years and a STD of 19.089. There is a male dominance (N=531, 83%) over females (N=107, 17 %). The commonest type of hernia in this series is inguinal hernia (n=518, 81%) followed by Para-umbilical hernia (n=83, 13 %). Distribution of different varieties of hernias among male and female study population is shown in Table-I.

Table-1. Frequency of hernias and distribution among males and females

	Type of hernia				Total
	Inguinal	Para-umbilical	Incisional	Epigastric	
Male	518	4	3	6	531
Female	0	79	26	2	107
Total	518	83	29	8	638

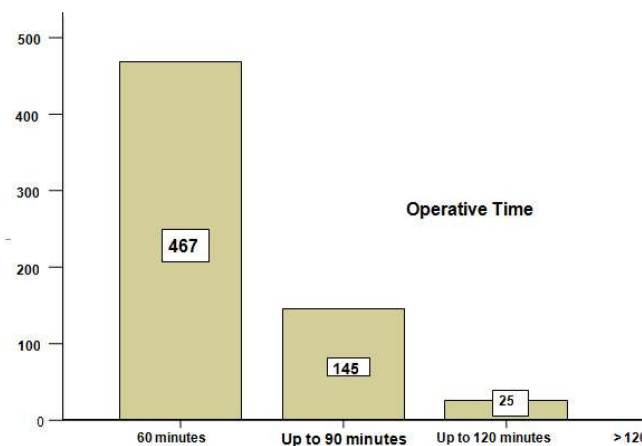
Of the total number, 34 (5 %) hernias were recurrent hernias including 21 inguinal hernias, 11 Para-umbilical hernias and 2 Incisional hernias. The patients were operated after preliminary investigations and medical fitness. All the patients were operated by open conventional technique regardless of the type of hernia. Total duration of operation is shown in Figure -I with maximum patients (467, 73%) operated with in 60 minutes.

Table-II Type of hernia * Complications during same hospitalization Cross tabulation

Type of hernia	Complications during same hospitalization							Total
Wound infection	Reaction	Mechanical failure	Seroma	Pain	Mesh infection	Hematoma		
Inguinal	14	3	4	7	1	1	3	518
paraumbilical	5	1	2	3	0	3	3	83
Incisional	0	0	0	1	0	2	1	29
Epigastric	0	0	0	0	0	1	0	8
Total	19	4	6	11	1	7	7	638

Table-III Type of hernia * Late Complications after discharge Cross tabulation

Type of hernia	Complications after discharge				Total
Type of hernia	Pain	Recurrence of hernia	Thickening of spermatic cord	Testicular atrophy	
Inguinal	10	4	7	2	518
paraumbilical	2	7	2	0	83
Incisional	2	0	0	0	29
Epigastric	1	0	0	0	8
Total	15	11	9	2	638

Figure-I. Total duration of operation:

Various early complications during the same admission occurred in 9 % (n=55) of the patients. Their distribution according to the type of hernia is displayed in Table- II.

Wound infection has an alarmingly high incidence in our series (n=19, 3 %). Most of these infections are superficial and effectively controlled by intensive antibiotic therapy so that the failure of repair is saved and mesh rejection prevented effectively. Four of recurrences occurred during 2 years follow up but patient discontinued follow up afterwards. Remaining 07 recurrences occurred between 24 to 36 weeks. The complications observed during the follow up period of up to three years in different hernias are shown in Table-III.

A remarkably low incidence of wound infection in paraumbilical and incisional hernia is attributable to the placement of suction drain which prevents hematoma formation and secondary infection. Seven (2%) recurrences occurred in paraumbilical hernias where suction drain did not work. Mesh

infection with massive reaction , although, treated conservatively in 5 patients with vigorous antibiotic therapy led to the formation of a weaker scar which later on gave way and recurrence of hernia occurred. Follow up was not 100% and about 26% patients were lost in the follow up. Majority of the patients (n=457, 90 %) were discharged within 4 days while patients who were complicated had a longer stay up to 15 days (P <0.001). Late complications were mostly chronic pain and foreign body sensations with 2 cases of unilateral testicular atrophy.

DISCUSSION

A number of non-infectious and infectious complications are attributed to the use of mesh in the repair of most of the hernias^{5, 13, 16}. The type of mesh as well as their composition seems to affect complications following their use and specific materials are related to specific complications. We present 638 patients of different types of hernias repaired by implanting polypropylene mesh of varying sizes depending upon the size of defect. Prolene meshes are monofilaments, non-absorbable, inert, sterile and porous synthetic materials commonly used for this purpose. The use of mesh in hernia repair has brought a phenomenal change in the overall outcome of hernia repair especially in terms of recurrence of hernia¹⁷. We experienced wound infection as the commonest complication in our series (n=19, 3%) and this was more so in the inguinal hernias. Most of the wound infections are superficial and very easy to control on conservative measures. On the contrary deep seated mesh infections are always dreaded complications and if not treated vigorously can lead to total failure and rejection of prosthetic mesh. A number of similar studies have reported an increased infection rate in mesh hernia repair testifying our results¹⁸⁻²⁸. Grant AM²⁹, however claims no difference in the incidence of infection between mesh and non-mesh repair of groin hernias. A severe local reaction occurred in 4 (0.62%) patients which resolved in few days without any consequences. Seroma and hematoma occurred in 11(2 %) and 7(1.09%) patients respectively. Only 3 seromas and one hematoma needed

evacuation. We report a recurrence of 11 (2 %) hernias of which 4 are inguinal and 7 are para-umbilical hernias. All of the recurrent para-umbilical hernias had severe reaction and wound infection in the post-operative period which was effectively controlled by vigorous antibiotic therapy and local wound care. There is probably a weaker scar after resolution of the infective process which resulted in recurrence. A significantly low recurrence rate in inguinal hernias in our study (0.77%) is consistent with the results of other similar reports³⁰⁻³². Chronic pain and a foreign body sensation poses a real problem and though it occurred in only two cases but a similar study by Bay-Nielsen M³³ claims 22.9% study population having chronic pain and more so in the adult males.

CONCLUSION

Although mesh repair is an efficient method of hernia repair, a number of complications may be associated and can lead to failure. An aggressive antibiotic therapy and wound care may control even massive infections.

COMPETING INTERESTS

None Declared

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