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A COMPARATIVE STUDY OF INLAY AND ONLAY MESH REPAIR IN INCISIONAL HERNIA

General Surgery

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ABSTRACT

INTRODUCTION A hernia is defined as a protrusion of contents from abdominal cavity through anatomical, preformed route, whereas an incisional hernia is defined as protrusion of abdominal viscera through a route formed after trauma induced by cutting (surgical incision, Laparoscopic trocar puncture, stab wounds).[1] With the increase in the number of abdominal operations, the number of incisional hernias has also increased considerably. It is a common complication of abdominal surgery, reported in up to 11% of patients and in up to 23% of those who develop postoperative wound infection.[2] Obesity, advanced age, malnutrition, ascites, pregnancy and conditions that increase intra-abdominal pressure are factors that predispose to the development of an incisional hernia.[3]

In this study, we have made an attempt to conduct a clinical study of 60 cases, selected at random and admitted to a General Hospital in Bangalore over 3 years from April 2014 to March 2017. Particular attention has been paid to study the clinical presentation and risk factors associated and the outcomes of different surgical techniques of mesh repair for Incisional hernia i.e a comparative study of inlay and onlay mesh repair.

KEYWORDS

Inlay, Onlay, Incisional hernia

DISCUSSION

TABLE 1: OPERATIVE PROCEDURE

Operative procedure	No. of patients	Percentage of patients (%)
Onlay	35	58.3
Preperitoneal	25	41.6
Total	60	100.0

Out of 60 cases of incisional hernia, onlay mesh repair was done in 35(58.3%) patients and in 25(41.6%) patients preperitoneal mesh repair was done. The method of mesh repair was selected by the operating surgeon.

TABLE 2: POST OPERATIVE PAIN MEASUREMENT ON WONG BAKER'S VAS (on scale of 10)

Type of operation	No. of patients	Pain measurement on VAS	
Onlay repair	35	Min- 3/10	4.68/10 (Mean)
		Max- 6/10	
Preperitoneal Repair	25	Min- 4/10	6.37/10 (Mean)
		Max- 8/10	

Post op pain on VAS scale	Onlay mesh repair	Preperitoneal mesh repair
>5	10(28.57%)	18(72.0%)
<5	25(71.42%)	7(28.0%)
Total	**35(100%)**	**25(100%)**

Post-operative pain was calculated by using the Wong Baker's visual analogue scale (VAS) of 1-10, and those with pain scale of more than 5 were considered significant. The patients who underwent underlay repair experienced more pain as compared to the patients who had an onlay mesh. For pain relieving treatment according to WHO Ladder pattern was given.

TABLE 3: OPERATIVE PROCEDURES AND COMPLICATIONS

Complications	Operative Procedure		P value
	Onlay (n=25)	Preperitoneal (n=35)	
Nil	7(28%)	35(100%)	0.002**
Present	18(72%)	5(14.28%)	
Complications related to surgery			
1. Seroma formation	8(32%)	3(8.5%)	0.04
2. Wound Infection	4(16%)	1(2.8%)	0.1
3. Wound Gaping	6(24%)	1(2.8%)	0.03

In our study 60 cases, complications related to surgery like wound infection, seroma formation, wound gaping were more found to be associated with onlay mesh repair, and the association was found to be significant ($p<0.01$).

TABLE 4: RECURRENCE IN POSTOPERATIVE PATIENTS IN INCISIONAL HERNIA

Types of Mesh Repair	No. of patients	Recurrence	Percentage (%)
Onlay Mesh Repair	25	3	12
Preperitoneal Mesh Repair	35	0	0
Total	**60**	**3**	**5**

On follow up for 1 year, 3 patients developed recurrence and these were operated by onlay mesh repair. These patients had hernia size defect >4cms in size.

Post-operative pain was calculated by using the visual analogue scale (VAS) of 1-10, and those with pain scale of more than 5 were considered significant. The patients who underwent inlay repair experienced more pain as compared to the patient who had an onlay mesh. Most cases were followed up till 1 year or more, but some patients lost follow up after 7-8 months. During the follow up period 3 patients (5%) developed recurrence. These patients were having hernia defect size >10cms and were operated with onlay mesh repair technique. In a larger comparative study of 272 hernias, Schumpelick et al found a recurrence rate of 7% for mesh repair and 33% for suture repair after a mean follow up period of 64 months.[4] Liakakos and colleagues found that the recurrence rate with mesh repair was only 8% compared with 25% after suture repair after 90 months of follow up.[5] Koller and colleagues retrospectively compared the results of sutured repair in 70 patients with mesh repair in 26 patients.[6] The recurrence rate after 24 months was 63% for the sutured group and 13% for the mesh group. The recurrence rate for the sutured repair is the highest rate reported in the literature. Cases need to be followed up for longer

periods to be able to meaningfully comment on the problem of recurrence related to the type of incisional hernia repair.

SUMMARY

- Incisional hernias were treated by mesh repair with either Onlay or Preperitoneal depending on the decision of operating team. Recent trend is to use the prosthetic mesh judiciously
- Preperitoneal mesh repair was found to be significantly better than the Onlay mesh repair. Seroma formation (32% patients) was found to be more associated with onlay mesh repair. Wound gaping was also more associated with onlay mesh repair, and it was associated with larger defect i.e. >4cms
- Wound infection was the commonest complication (12%) encountered following incisional hernia repair.
- Postoperative pain was found more significant in patients who underwent underlay mesh repair (72%) experienced significant pain as compared to those who underwent onlay mesh repair (28.57%).
- There was no mortality in our study.
- In our study 3 patients who were operated with onlay mesh repair and with hernial defect >4 cm had recurrence. In a short follow up, it is difficult to comment on recurrence. However, the short term results indicate a significant improvement in the repair of incisional hernia by the use of a prosthetic mesh compared with anatomical repairs.

CONCLUSION

Incisional hernia is a common surgical problem faced by all general surgeons as a result of a failure of fascial tissues to heal and close following surgical interventions. Such hernias can occur after any type of abdominal wall incisions and can be small, such as an insignificant bulge through the wound; or it could be a large and distressing. The choice of operative technique is critical. Incisional hernia repair was associated with high recurrence since many years, but due to the advent of prosthesis mesh, it is possible to do a tension free repair which has reduced the incidence of recurrence post repair in incisional hernia.

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