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MESH REPAIR

COMPARE THE COMPLICATIONS INLAY VERSUS SUBLAY MESH REPAIR IN EPIGASTRIC HERNIA

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ABSTRACT... Objectives: Compare the complications of inlay versus sublay mesh repair in epigastric hernia. **Study Design:** Observational study. **Setting:** Surgical department of multiple hospitals and compares the results, JPMC, Civil Hospital Karachi and Naushahro Feroze. **Period:** March 2015 to February 2016. **Methodology:** 94 patients presenting with upper abdomen midline swellings aged between 25 to 60 years attended as outdoor patient at a tertiary care hospital. Patients associated with chronic obstructive pulmonary disease like asthma, abdominal malignancies and cirrhosis with end stage liver disease, multiple hernia, patients with prior hernia repair with mesh and defects < 4cm were excluded. **Results:** Out of the 94 patients, the majority was found to be male. 61 (64.89%) males and 33 (35.10%) females. Mean age was found to be 41.57+4.54 years. Inlay mesh repair group observed high complications as compared to sublay mesh repair group. Wound Infection observed 4(8.5 %) cases inlay mesh repair group and 2(4.25%) cases in sublay mesh repair group. Seroma Infection observed 3(6.38 %) cases inlay mesh repair group and 1(2.12 %) cases in sublay mesh repair group. Recurrence occurred inlay mesh repair group was observed in 2(4.25%) cases. Short Hospital stay was observed in sublay mesh repair group. **Conclusion:** We conclude that sublay mesh repair is a better alternative to only mesh repair for all forms of ventral hernia cases.

Key words: Epigastric hernia, Mesh plasty, Inlay mesh repair, sublay mesh repair.

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INTRODUCTION

A projection of the abdominal viscera through a weakness in abdominal wall is known as the physiological phenomena of a hernia.[1] several procedures have been described for hernia repair and hernioplasty, with tension free mesh placement being vastly practiced in surgery.[2] Ventral hernia repair is among the most frequently performed surgical operation globally and the two operative techniques most frequently used in cases of ventral hernia are the onlay and sublay repair.[3] Although, it remains uncertain as to which repair technique has shown to be more successful.[1] Successful repair of abdominal hernias involves detailed understanding of anatomy regarding the anterior abdominal wall and all its involved layers.[4] Originally, high density mesh was introduced with only mesh hernioplasty techniques. Followed by the introduction of mesh in sublay position, which doesn't necessitate the need for suturing the mesh at the edges of the defect.[5] In a recent Cochrane review, the author's research established that mesh repair is superior to suture repair because of its lower recurrence rate.[5] This study aims to investigate the post-operative complications regarding inlay mesh repair in epigastric hernias as compared to sublay mesh repairs as well as to evaluate the effectiveness as to which method is better overall.

MATERIAL & METHODS

This study was conducted at surgical department of multiple hospitals and compares the results, JPMC, Civil Hospital Karachi, Naushahro Feroze and Jamshoro, from March 2015 to February 2016. All patients presenting with upper abdomen midline swellings aged between 25 to 60 years attended as outdoor patient at a tertiary care hospital. Patients associated with chronic obstructive pulmonary disease like asthma,

abdominal malignancies and cirrhosis with endstage liver diaease, multiple hernia, patients with prior hernia repair with mesh and defects < 4cm were excluded.

RESULTS

Out of the 94 patients, the majority was found to be male. 61 (64.89%) males and 33 (35.10%) females. Ratio between the male and female is 1.84:1. Mean age was found to be 41.57±4.54 years (20 to 60 years) (Table-I). Mean Operative Time (Min) 60-90(82.3+5.9) in inlay mesh repair group and 60-90 min (69+6.6) in sublay mesh repair group (Table-II).

Inlay mesh repair group observed high complications as compared to sublay mesh repair group. Wound Infection observed 4(8.5 %) cases inlay mesh repair group and 2(4.25%) cases in sublay mesh repair group. Seroma Infection observed 3(6.38 %) cases cases inlay mesh repair group and 1(2.12 %) cases in sublay mesh repair group. Recurrence occurred inlay mesh repair group was observed in 2(4.25%) cases (Table-II).

Drain Removal (days) were 4-8 days(5.90±0.63days) in inlay mesh repair group and 2-6 days (3.92+1.09 days) in sublay mesh repair group. Short Hospital stay was observed in sublay mesh repair group (Table-II).

Variable	No. Patients	Percentage
Gender		
Male	61	64.89%
Female	33	35.10%
Age		
20-35 years	49	52.12%
36-50 years	29	30.85%
51-60 years	16	17.02%

Table-I. Demographic Variable N=94

Variable	Inlay mesh repair Group (n=47)		Sublay mes h repair group (n=47)	
	No: of Patients	% Age	No: of Patients	% Age
Operative Time (Min)	60-90(82.3±5.9)		60-90(69±6.6)	
Drain Removal (days)	4-8(5.90±0.63)		2-6 (3.92±1.09)	
Drain Removal (days)	4-8(5.90±0.63)		1–6 (3.92±1.09)	
Hospital Stay (days)	3-8(4.4±1.3)		1-5(2.9±1.09)	
Postoperative Complications				
Seroma	3	6.38 %	1	
Wound Infection	4	8.5 %	2	
Mesh rejection	0	0%	0	0 %
Recurrence	2	4.25%	0	0 %
Chronic pain	1	2.12 %	0	0 %
P value	<0.001			

Table-II. Operative and postoperative complications (n=94)

DISCUSSION

Abdominal wall hernia is a common surgical problem encountered in clinical practice. The outcome of the surgery is based not only on the technique used but on the experience of the operator, meticulous dissection, tension free repair etc.[6] Many methods are available to deal with these hernias. Commonly practiced techniques for hernia repair use mesh, which is placed either in a sublay or onlay position.[7] This study was conducted on a population of total 94 patients, predominantly male. The correction of ventral hernia is a complex challenge in surgical practice with the use of numerous types of mesh to close the defect and strengthen the musculofascial tissues to prevent return.[8] The refinement of the sublay technique decreased the recurrence rates and resulted in an overall better outcome making it to be declared the standard of care of ventral ernias.[1] In this study, each technique had an equal amount of patients who underwent the procedure to repair the hernias. Both techniques had an operative time range of 60 to 90 minutes of duration, with a mean time of 82 total minutes for the inlay mesh repair technique, while on the other hand, the sublay technique required lesser operative time with a mean of 69 minutes

With the sublay mesh repair surgical intervention, the hospital stay was also lesser with a range of 1 to 5 days, as compared to inlay mesh repair which is lengthy of up to 8 days. On average, sublay required lesser hospital stay with an average of 2.9 days, whereas inlay mesh repair was longer comparably on average requiring 4.4 days. However in the study of Bushra Jameel Reported[9] reported that duration of hospital stay gives us an indirect indication of degree of morbidity in term of post. Operative complications. The mean duration in "onlay" was 4.0±1.4 days as compared to "sublay" 3.5±1.0 day.

Drain has an important role in reducing the seroma and hematoma formation. Drain was used in this series in all the patients as also reported by others.[10] Sublay mesh repair presents as superior requiring a minimal 2 to 6 days for drain removal with an average 3.9 days until drains are removed, as compared to a longer process with the inlay mesh repair, which requires a minimal 4 days before drain removal can occur and an average of 5.9 days with the inlay mesh technique.

The data collected and analyzed from this study can conclude that with the sublay mesh repair technique, patients have a shorter hospital stay and a quicker recovery back to their normal functioning life, as well as fewer complications arising post-operatively. Some complications that could occur after the procedure include seroma formation, wound infection, mesh rejection, chronic pain and return of the hernia.[11] The data collected from patients who underwent sublay mesh repair technique had fewer complications as compared to those who underwent inlay mesh repair as their technique. For example with the sublay mesh repair method, patients reported no recurrences of the hernia or other complications such as mesh rejection or chronic pain.

However, of the patients who undertook the inlay method, 4.25% had a recurrent development of the hernia and 2.12% reported experiencing chronic pain as a complication post-operatively. Another criteria indicating that sublay mesh repair technique results in slightly better outcomes is by the development of wound infections. With sublay mesh repair, only 2 out of a total 47 patients or 4.25% developed a wound infection, which is comparably less than those who underwent inlay mesh repair, with 8.5% of their patients resulting in wound infections. The last post-operative complication which also indicates sublay mesh repair technique to be superior than inlay, is seroma formation, with 6.38% of the inlay mesh repair patients developing this complication. Whereas, only 2.12% of the sublay mesh repair patients developed the seroma formation complication post-operatively. While in the study of Bushra Jameel Reported[9] reported that 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 onlay and group sublay respectively. (P value < 0.05).

CONCLUSION

With the patient data collected from this study, it is suggested that sublay mesh repair is a better alternative to only mesh repair for all forms of ventral hernia cases. Therefore, overall complications with sublay mesh repair were lower than when compared to onlay, such as with regards to recurrence rates, wound infection, drainage time, hospital duration stay, and seroma formation.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Muhammad Paryal Tagar	Conception and design, Critical revision of the article for important intellectual content	
2	Dr. Khawar Saeed Jamali	Statistical expertise, Critical revision of the article for important intellectual content	
3	Dr. Muhammad Jawed	Drafting of the article	
4	Dr. Sarang Tagar	Data collection	