International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

"Comparative Study of Pre Peritoneal Vs Onlay Mesh Repair of Ventral Hernias"

Dr Suddala Sowmith, Prof Dr K Lakshmana Murthy
Prathima Institute of Medical Sciences,Karimnagar , Telangana

Submitted: 15-10-2022 Accepted: 31-10-2022

I. INTRODUCTION

As a result of man's erect posture, his abdominal wall is the site of a variety of hernias. Most of these hernias protrude through the anterior abdominal wall to form obvious palpable swellings.

Hernia is a protrusion of a viscus or part of viscus through a natural or acquired defect in the wall of its containing cavity. (1)

Ventral Hernia is a protrusion of an abdominal viscus or part of a viscus through the anterior abdominal wall occurring at any site other than groin. These defects can be categorized as spontaneous (primary) or acquired or by their location on the abdominal wall

Epigastric hernias occur from the xiphoid process to the umbilicus, Umbilical hernias occur at the umbilicus Spigelian hernias can occur anywhere along the Spigelian line.

Acquired hernias typically occur after surgical incisions and are therefore termed incisional hernias. (2)

The patient seeks medical advice for swelling, discomfort, acute pain, associated gastrointestinal symptoms or cosmetic symptoms. Diagnosis can be achieved with ease by clinical examination or by ultrasound scanning.

A number of predisposing factors have been identified that may be related to specific patient characteristics, an underlying pathologic process, or iatrogenic factors. From the surgeon's perspective, repair of hernias is a commonly done procedure. There are various surgical techniques for the repair.

Incisional hernias are unique in that they are the only abdominal wall hernias that are considered to be iatrogenic. It continues to be one of the most common complications of abdominal surgical procedures and is a significant source of morbidity and loss of time from productive employment.

Based on national operative statistics, Incisional hernias account for 15% to 20% of all abdominal wall hernias; Umbilical and Epigastric hernias constitute 10% of hernias.

Incisional hernias are twice as common in women as in men. As a result of the almost 4 million laparotomies performed annually in the United States incidence of incisional hernias is 2% to 30%,(3). Several technical and patient-related factors have been linked to the occurrence of incisional hernias. There is no conclusive evidence that demonstrates the type of suture or technique of incisional closure at the primary operation affects hernia formation. (4)

Various types of repairs have been used by both anatomical and prosthetic techniques in the repair of ventral hernia. The introduction of prosthetics has revolutionized hernia surgery with the concept of tension free repair. Although a wide Variety of surgical procedures has been adopted for the repair of Incisional hernia, the implantation of prosthetic mesh remains the most efficient method of dealing with ventral hernia

The techniques of placement of mesh include Onlay, inlay, sublay (pre peritoneal, retro rectus) and underlay but the best position for inserting the mesh has not been conclusively established till date as per literature.

Repair of ventral hernias with mesh as opposed to suture has substantially improved long-term outcomes and is accepted as the standard of care.(8,9) However, many studies demonstrate an increased risk for wound complications with mesh placement including infections, seromas, and mesh erosions.(10,11) The risks of these complications are affected by where the mesh is placed. For example, mesh exposed to intra-abdominal contents potentially increases the risks of adhesions, bowel obstruction, and fistula formation, while the mesh placed onlay would be more superficial and can succumb to infection early if wound complications to occur,(12,13) While repair of ventral hernias with mesh is considered routine, there is no consensus on the best location to place the mesh.

For laparoscopic ventral hernia repair, the mesh is routinely placed in the intra-peritoneal position. However, for open surgery, there are numerous options for mesh placement (Fig. 1).

Onlay repair places the mesh on the anterior fascia, which typically involves dissection of flaps and primary closure of the fascia below the mesh. Inlay repair places the mesh in the hernia

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

defect and secures the mesh circumferentially to the edges of the fascia. Sublay repair refers to retro-rectus or Preperitoneal mesh placement. Finally, underlay repair is when mesh is placed in the intra-peritoneal position and secured to the anterior abdominal wall.

Each mesh location has its theoretical risks and benefits. With Onlay repair, skin flaps must be created, which increases the risk of wound complications and mesh infection [(14)]. However, it is also vulnerable to superficial wound complications. However, Onlay repair is technically easy to perform.

Preperitoneal repair is often considered more challenging and complex to perform. Dissection of this plane can risk damaging the muscle, blood supply, and nerves to the rectus abdominus. In addition, this mesh location may not be appropriate for off midline defects. However, this space potentially protects the mesh from both superficial wound complications and intra-peritoneal contents. In addition, it also allows for load-bearing tissue in-growth from two directions and theoretically decreases the risk of recurrence. [(15)]

This is a prospective study to compare Preperitoneal versus Onlay meshplasty in the management of ventral hernia with regards to duration of surgery, Length of hospital stay, Post-operative complications, outcome and recurrence.

AIMS AND OBJECTIVES

The main objectives and aim of this study is to:

- To compare the effectiveness of Preperitoneal and Onlay mesh repair of Ventral Hernia and to study important controversial issues for both procedures using the following parameters.
  - Duration of operation
  - Duration of hospital stay
  - Post-operative complications (seroma, hematoma, wound infection, mesh removal and Flap necrosis)
  - Recurrence after both procedures in short term follow up.

PATIENTS AND METHODS

STUDY DESIGN:PROSPECTIVE COMPARATIVE STUDY

Study site: Prathima Institute of medical sciences
Study population: Patients with ventral hernia at surgical unit four
Study design: A Prospective, observational and comparative study.
Sample size: 47
Duration: December 2020 to September 2022

INCLUSION CRITERIA:

All patients presenting with anterior abdominal wall hernias:

- Both genders
- All uncomplicated Ventral Hernia (umbilical/incisional/ Epigastric/Spigelian hernia)
- Irrespective of comorbid conditions (except obesity) and previous surgeries

Exclusion Criteria:

- All Complicated hernias
- Recurrent hernias
- Groin Hernias
- Patients medically not fit for surgery
- Patients with previous wound infection
- Patients who are obese
- Patients less than 18 years of Age

Methodology:

47 patients presenting with ventral hernia admitted to Prathima institute of medical science , were preoperatively assessed clinically and by ultrasonography to confirm the diagnosis. 26 patients underwent Onlay and 21 patients underwent Preperitoneal mesh repair after obtaining Informed consent and satisfying the inclusion & exclusion criteria..

Procedure:

ONLAY TECHNIQUE:

The procedure begins by proper preparation of the skin. Good antimicrobial cleansing of the skin and all crevices should be done. Prophylactic antibiotics are administered. A bowel preperation is done preoperatively if it is thought that the bowel is significantly adhered in the sac. The skin incision made according to site and size of defect, subcutaneous flap raised up to 5cm around the defect, the hernial sac found, contents reduced back then primary closure of fascia defect was done using no. 1 Polypropylene.

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

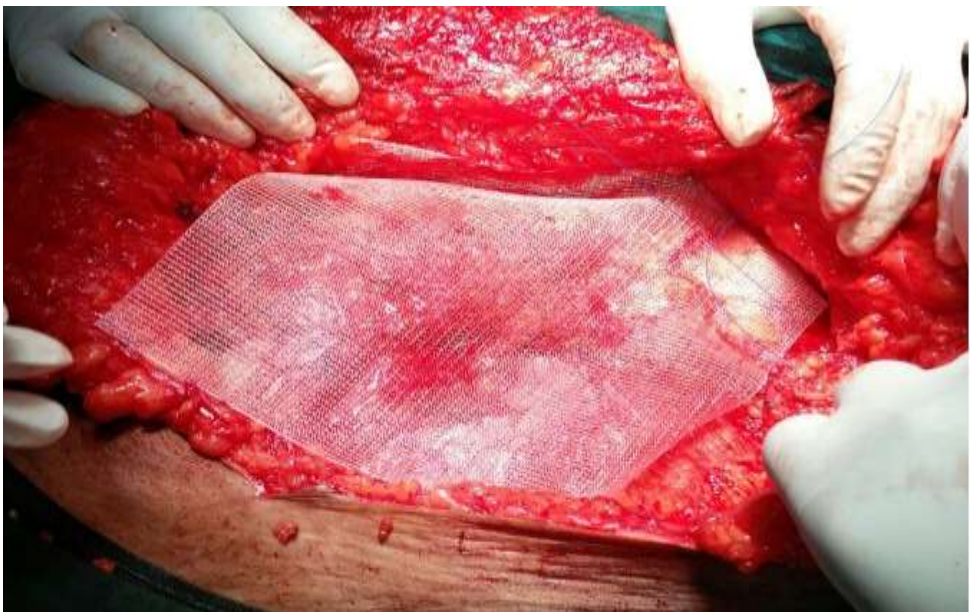


Figure 5: Onlay mesh placement

Then Polypropylene nonabsorbable synthetic surgical mesh (PROLENE Mesh)of suitable size with minimum of 3-5 cm overlap beyond the margin of defect is placed over anterior rectus sheath, then fixed in four corners and additional stiches when felt needed with 2:0 Polypropylene sutures. Then skin is closed after placing the suction drain.

PRE-PERITONEAL TECHNIQUE:

The procedure begins by proper preparation of the skin. Good antimicrobial cleansing of the skin and all crevices done. Prophylactic antibiotics are administered. A bowel prep is done preoperatively if it is thought that the colon is significantly adhered in the sac. The skin incision made according to site and size of defect, subcutaneous flap raised up to 2cm around the defect, the hernial sac found, contents reduced back then plane is created between the posterior rectus sheath and the parietal peritoneum. Defect in the peritoneum is closed with absorbable suture material (polygalactin/ catgut).

Then Polypropylene nonabsorbable synthetic surgical mesh (PROLENE Mesh)of suitable size with minimum of 3-5 cm overlap beyond the margin of defect is placed in the plane created between the posterior rectus sheath and the parietal peritoneum. Then primary closure of fascia defect was done using no. 1 Polypropylene. Suction drain placed and skin flaps approximated.

Figure 6: pre peritoneal mesh placement

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

PARAMETERS ASSESSED:

1. Duration of surgery
2. Duration of hospital stay
3. Defect size,
4. Follow up period at 1,2weeks, 1 month and 3months and 6 months

- Post-operative complications (seroma, hematoma, wound infection, mesh infection, mesh removal, chronic pain and Flap necrosis)
- Recurrence

STATISTICAL ANALYSIS:

In the data, continuous variables are reported as mean and standard deviation; whereas categorical variables are expressed as frequency /count / percentages. The study population was divided into two groups based on the surgery technique. Differences between groups for continuous variables was evaluated using Mann-Whitney U Test and categorical values are analysed with fisher exact test. A p value <0.05 was considered significant.

II. RESULTS

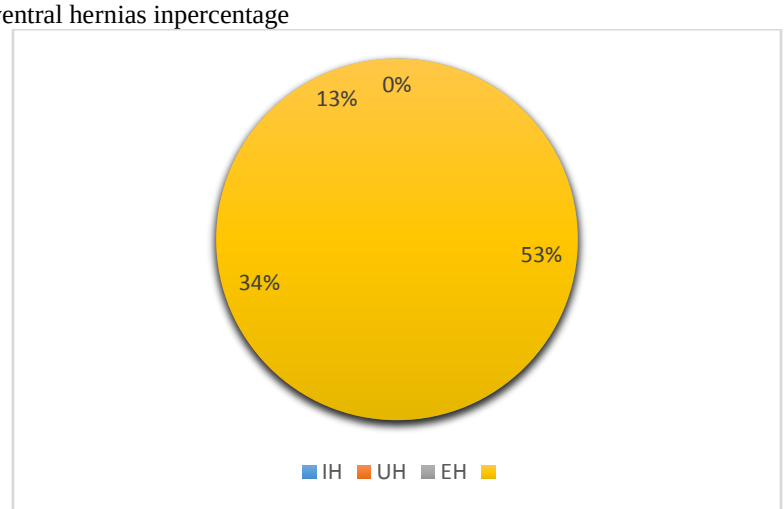
VENTRAL HERNIAS:

The percentage distribution of ventral hernias in this study is shown in Table 3 and Chart 1.

SI No.	Type of Hernia	Number(n)	Percentage
1.	Umbilical hernia(UH)	16	34.04
2	Epigastric hernia (EH)	6	12.7
3	Incisional hernia (IH)	25	53.19
	Total	**47**	

Table 3: Types of ventral hernias with respect to number and percentage

Chart 1: Types of ventral hernias inpercentage



International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Age Distribution:
The age in the study ranged from 22 years to 65 years' age group. More than 50% patients were between 31-50 age groups. Mean age in Onlay group was 47.76 years, while in Pre-peritoneal group mean age was 43.85 years.

Age in years	No. of cases	Percentage
11 – 20	Nil	0
21 – 30	2	4.2
31 – 40	14	29.78
41 – 50	16	34.04
51 – 60	12	25.5
61 – 70	3	6.38

Table 4: Age distribution in present study

Sex distribution:
In On-lay group 80.76 % (n=21) patients were female. Pre-peritoneal group 52.38 % (n=11) patients were female. Female forms (n=32) 68.08% of total study group and Female to male ratio was 2.13:1 showed that incidence of ventral hernia was more in female.

Sex	No. of patients	Percentage
Male	15	31.9
Female	32	68.08

Table 5: Sex Distribution in the present study.

Types of previous operations in case of incisional hernias:
In our study out of 25 cases with incisional hernia 6 cases (24%) had under gone Hysterectomy(TAH), 6 Tubectomy (24%),6 LSCS (24%), 2 open appendectomies (8%), 4 laparotomy(16%) ,1 oophorectomy (4%), 1 psoas abscess (4%)

SI No.	Previous operation	No of Patients	Percentage
1.	Tubectomy	6	24
2.	LSCS	6	24
3.	Hysterectomy(TAH)	5	20
4.	Open Appendectomy	2	8
5.	OOPHORECTOMY	1	4
6	Laparotomy	4	16
7	Psoas abscess	1	4

Table 6: Type of previous operation in the present study.

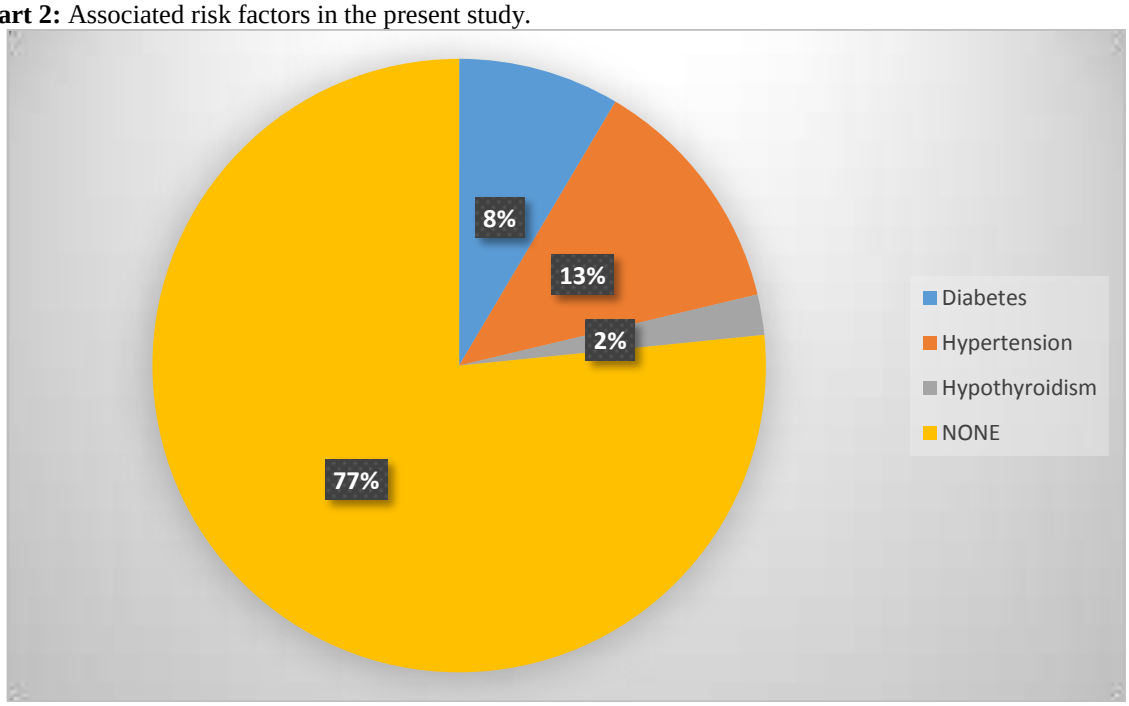
International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Associated risk factors/ illness:

Sl No.	Condition	No. of patients	Percentage (%)
1.	Diabetes	4	8.5
2.	Hypertension	6	12.76
3.	Hypothyroidism	1	2.12

Table 7: Associated risk factors in the present study

Chart 2: Associated risk factors in the present study.



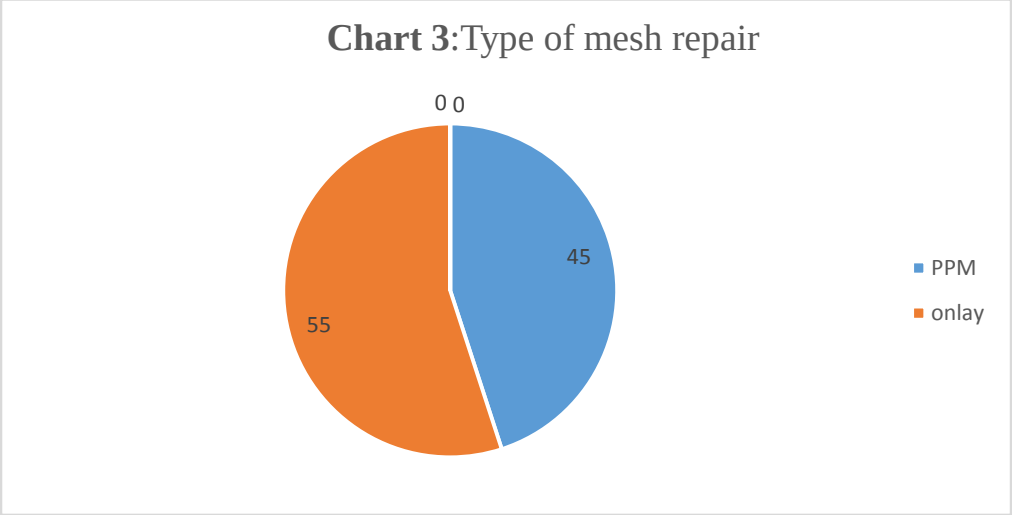
Size of the defect:
The smallest defect measured 2 x 1 cm and the largest defect measured 7 x 4 cm in thisstudy.

Type of mesh repair:
21 Patients underwent Pre-peritoneal mesh repair and 26 patients underwent onlay mesh repair.

.Sl. No	Type of Mesh repair	No. of Patients	Percentage (%)
1.	Pre-peritoneal Mesh Repair	21	45
2.	Onlay Mesh Repair	26	55

Table 8: Type of mesh repair in the present study

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018



Duration of surgery:
Mean duration of surgery in Onlay Mesh repair (60 – 100mins) was 78.81 mins compared to that in Pre-Peritoneal Mesh repair (45 – 125 mins)

Type of Mesh repair	Mean duration of surgery
Onlay (n=26)	78.80 mins
Pre-peritoneal(n=21)	80.04 mins
P value	0.397

Table 9: Mean duration of surgery in the present study.

Duration of Hospital stay:
Mean duration of Hospital stay in Onlay Mesh repair was 5.923 days, and that in Pre-Peritoneal Mesh repair was 5.142 days.

Type of Mesh repair	Mean duration Hospital stay
Onlay	5.923
Pre-peritoneal	5.142

Table 10: Mean duration of hospital stay

Post-operative complications:

Sl No	**Complications**	**Pre-peritoneal**	**Onlay**	**Percentage (%)**	
				Pre-peritoneal	**Onlay**

1.	Seroma	1	4	4.7	15.3
2.	Hematoma	0	0	0	0
3.	Wound infection	2	4	9.5	15.3
4.	Mesh infection	0	1	0	3.84
5.	Mesh Removal	0	0	0	0

Table 11: Post-operative complications

Seroma was drained. Wound infection was treated with antibiotics and regular dressings. Chronic pain was managed with pain killers and reassurance.

Recurrence:

Sl No.	Type of operation	Recurrence	Percentage (%)
1.	Pre-peritoneal	0	0
2.	Onlay	1	3.8

Table 12: Recurrence

Recurrence was observed only in one patient with Onlay mesh repair**.**

III. DISCUSSION

Ventral hernia in the anterior abdominal wall includes both spontaneous and, most commonly, incisional hernias after an abdominal operation. Incisional hernia has been a frequent complication of abdominal surgery for a long time, with a current incidence of 2-20% in most series. [44,45]

Small hernias less than 2 ½ cm in diameter are often successfully closed with primary tissue repairs. However, larger ones have a recurrence rate of up to 30-40% when a tissue repair alone is performed [17]. Hernia recurrence is distressing to patient and embarrassing to surgeons. Nowadays tension free repair using prosthetic mesh has decreased recurrence to negligible 0 – 10%[46,47]. Despite excellent results increased risk of infection with placement of a foreign body and cost factor still exist; however, operating time and hospital length of stay are shortened. Primary tissue repair is associated with higher unacceptable recurrence rate, nowadays; tension free mesh repair is ideal hernia repair technique. [48]

While repair of ventral hernias with mesh is considered routine, there is no consensus on the best location to place the mesh.

INCIDENCE

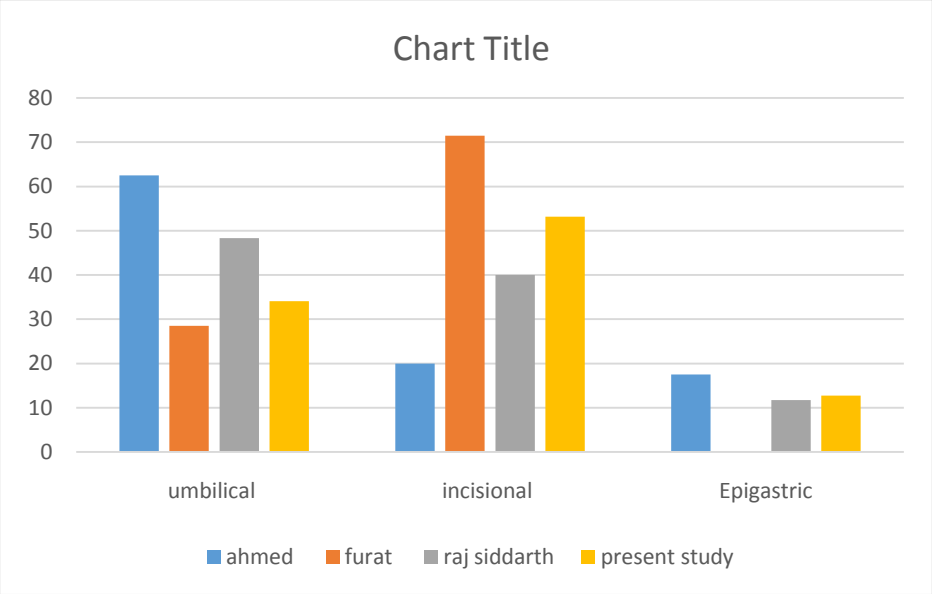
Incidence among ventral hernias in the present study is Incisionalhernia (n=25) 53.19%, umbilical hernia (n=16) 34.04%, and epigastric hernia (n=6) 12.7%.

Study	Umbilical	Incisional	epigastric
Ahmed et al[41]	62.5	20	17.5
Aly saber et al[42]	-	-	-
Furat shahi et al[43]	28.5	71.5	
Raj siddarth et al[44]	48.3	40	11.7
Present study	34.04	53.19	12.7

Table 13: Comparison of percentage of different hernias in various studies

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Chart4: Comparison of percentage of different hernias in various studies.



Incisional hernia and umbilical are more common in ventral hernias than the epigastric hernia, the incidence of different ventral hernias are comparable to the previous study except for the Ahmed et al study where incisional hernia is very low with only 20%

AGE

Ventral hernias are more common in patients aged between 30-50 years (63.82%) in our study. Youngest patient in our study was 22 years old. It was found that ventral hernias are rare after 65 years as no patient was more than 65 years in our study. Mean age in On-lay group was 47.76 years and Pre-peritoneal group mean age was 43.85 years.

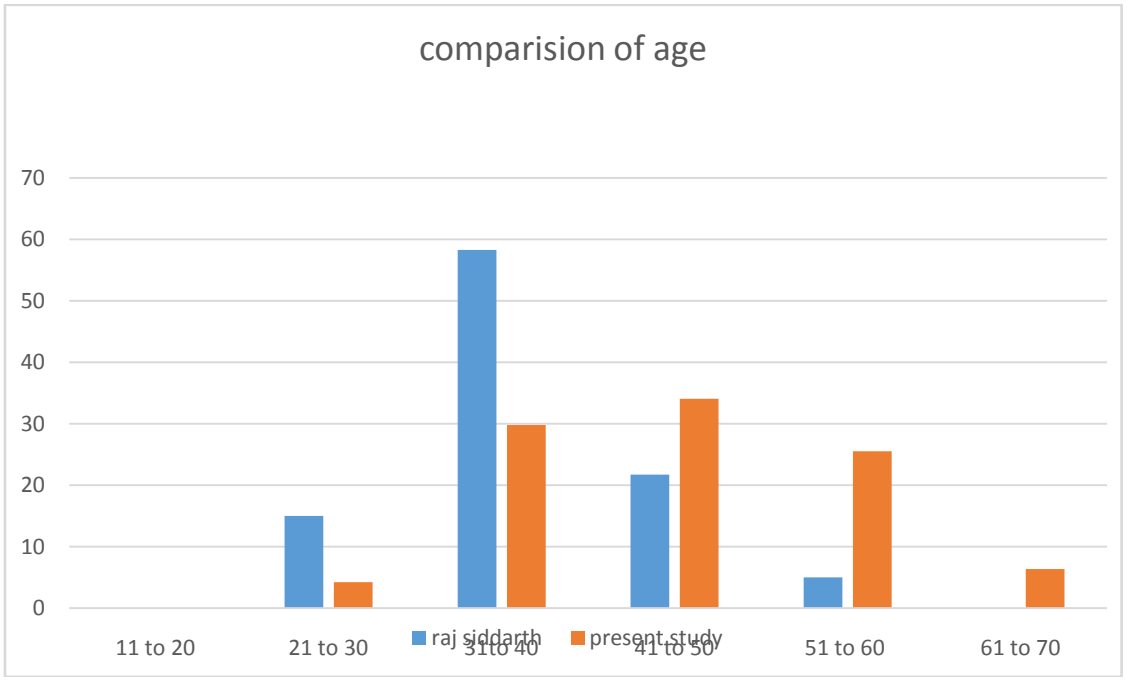
	Raj siddarth et al	Present study
11-20	0	0
21-30	15	4.2
31-40	58.3	29.78
41-50	21.7	34.04
51-60	5	25.5
61-70	0	6.38

Table 14: Comparison of age groups in previous study.

The trends in distribution of age are comparable to the previous study

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Chart5:Comparison of age groups in previous study

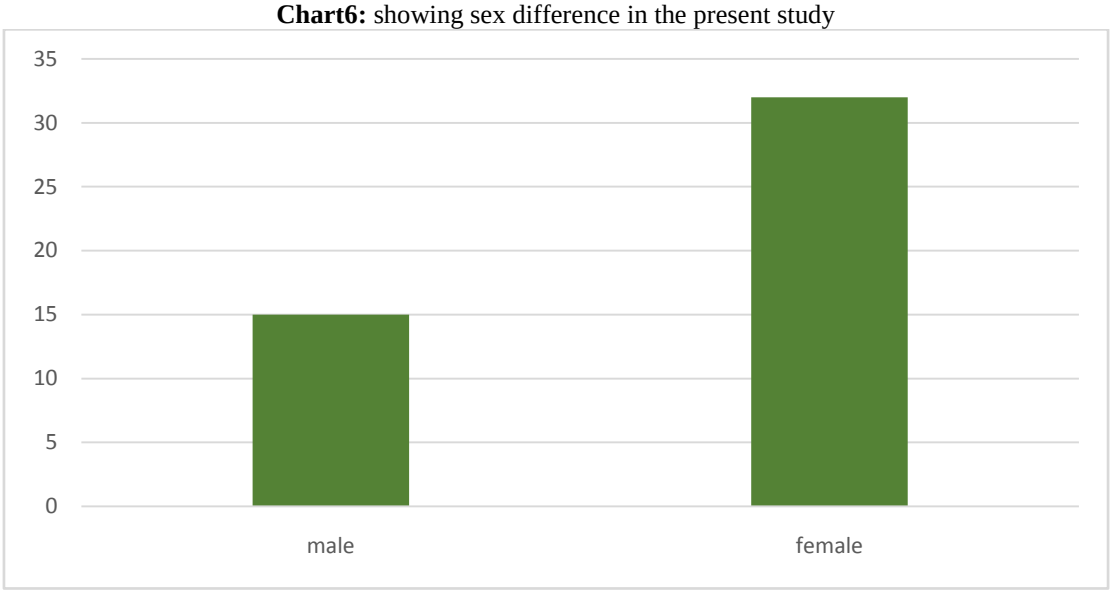


SEX

Ventral hernias are more common among females 32 patients were females and 15 patients were male. In literature the ratio is 3:1. in our study it is 2.13:1. Ahmed et al have obtained a 62.5% of female population in the study. In our study female population was 68.08%, while except for the Aly saber et al study other studies likeFurat shahi et al do show a high incidence in ventral hernia in female population in ratio greater than 2:1

In the present study most contribution to the ventral hernia came from female sex which in turn was a reflection of incisional hernias and are of obstetric and gynaecological surgeries, indicating a more possibility in reduction of ventral hernias with a proper care at the time of primary surgery and proper suturing techniques and early post-operative care.

Chart6: showing sex difference in the present study

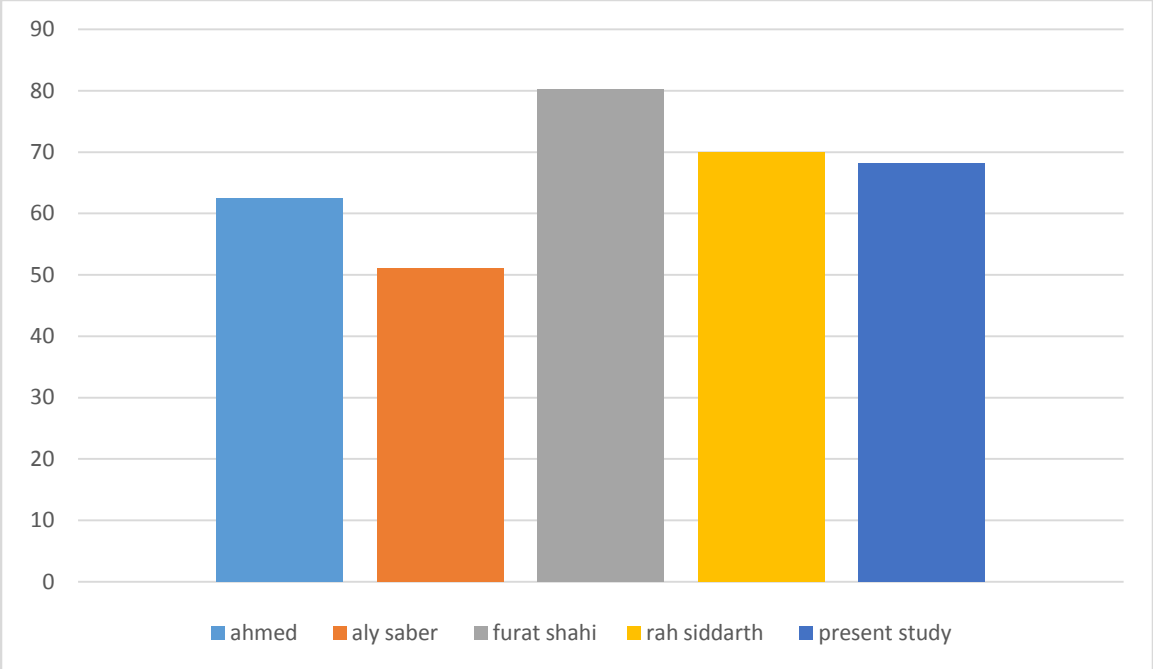


International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Study Group	Percentage of females
Ahmed	62.5
Aly saber	51
Furat shani	80.3
Raj siddarth	70
Present study	68.08

Table 15: Comparison of female population in different studies.

Chart 7: Comparison of female population in different studies

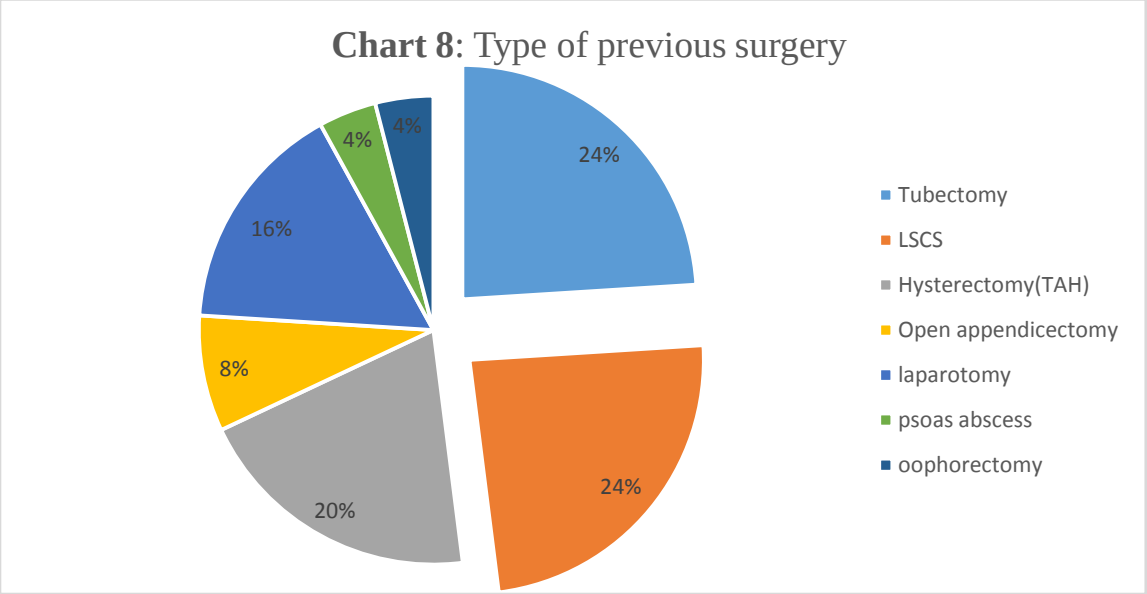


ASSOCIATED FACTORS

Among incisional hernias Gynaecological surgeries are the most common associated surgery. Tubectomy and LSCS are the most common surgeries constituting (n=12) 48% of incisional hernias followed by Hysterectomy (n=5) 20% in present study.

Four (8.5%) patients were Diabetic and six (12.76%) are hypertensive, one was Hypothyroid. In the present series postoperative morbidity was not high in diabetics, in contrast to the general observation, this might be because of the less incidence of co-morbities in the sample size and the sample size itself is small to make the conclusions for generalized population. Patients with Obesity were excluded in the study so that the individual causative factors for recurrence or complications are minimized

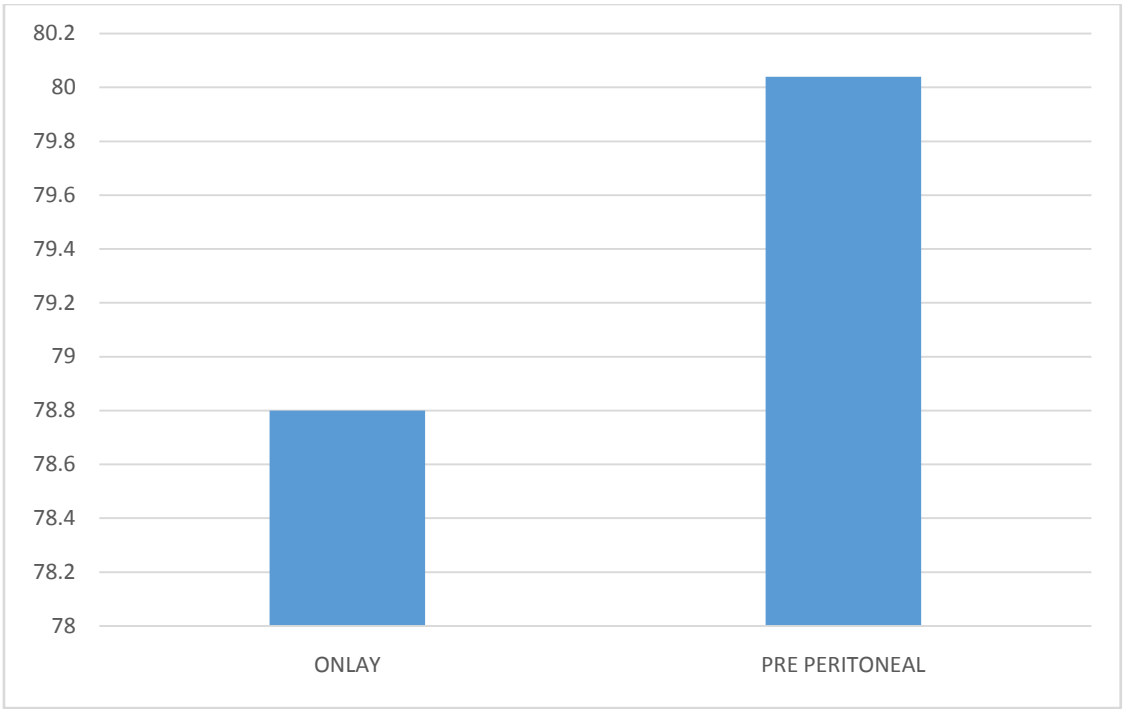
International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018



MEAN DURATION OF SURGERY

Mean duration of surgery in present study in cases that underwent Onlay mesh repair was 78.80 minutes, while in cases with Pre-Peritoneal Mesh repair mean duration of surgery was 80.04 minutes in present series and it was not found to be statistically significant (p>0.05).

Chart 9: Mean duration of surgery



In Incisional hernias (IH) time taken for Pre peritoneal mesh repair (n=17) was 73.636, it was less when compared to Onlay mesh repair (n=28) i.e. 78.92 and difference was statistically not significant (P>0.05). the mean duration of surgery in the raj siddarth et al study and aly saber et al study are more In preperitoneal mesh group and are statistically significant and the authors accounted the difference in times might be due to the time taken to create the pre peritoneal space

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

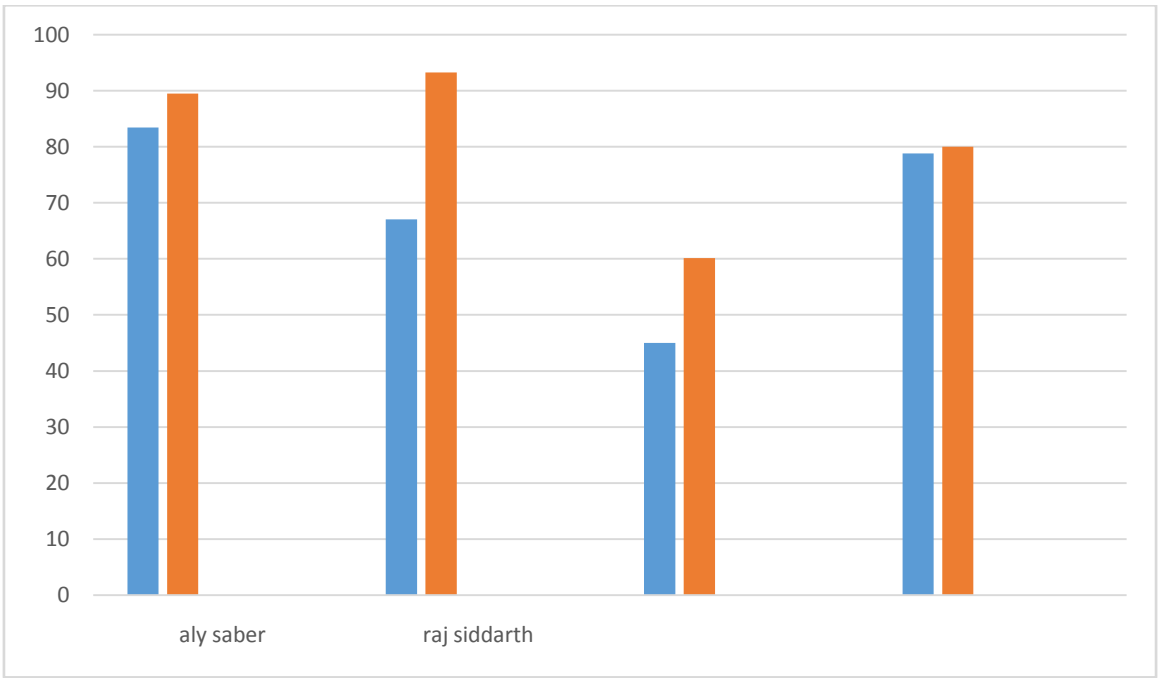
which is critical step in the pre peritoneal mesh repair, but in the present study pre peritoneal repair is shorter though it is not statistically significant , this might be because of two reasons, in the onlay repair of ventral hernias the mesh should be placed on the rectus sheath and for this the sub cutaneous tissue flap has to be raised all around the defect and this is a time taking procedure and the other reason being all the pre peritoneal repairs in the present study are performed by the professor of the investigator and onlay repairs were performed by the associate and assistant professors. Patients with previous abdominal surgeries, gynaecologic procedures, or ventral hernia repairs may have a damaged posterior sheath or damaged rectus muscle. This may leave this space difficult to develop, limited in size, or non-existent in rare circumstances. In addition, risks of damaging the blood supply, muscle, or lateral penetrating nerves pose technical concerns.

In Aly saber et al study, the mean operative time for onlay repair was 67.04±13.19minutes while in Sublay group was 93.26±24.94 minutes {P≤0.0001} .in Raj siddarth et al study 45 min, while in cases with pre-peritoneal Mesh repair took more time and the duration of surgery was 60.15 min in present series (P < 0.0001). In Ahmed Ibrahim et al study the mean total time taken to perform surgery in the onlay group was 75–90 (83.41 ± 10.24) min compared with 80–100 (89.52 ± 7.25) min in the sublay group (P = 0.324) which is not significant in this study

Mean Duration (in minutes)	Ahmed Ibrahim et al	Aly saber et al	Raj siddarth et al	Present study
Onlay	83.41	67.04	45	78.80
Pre-peritoneal	89.52	93.26	60.15	80.04

Table 16: Comparison of duration of surgery in different series

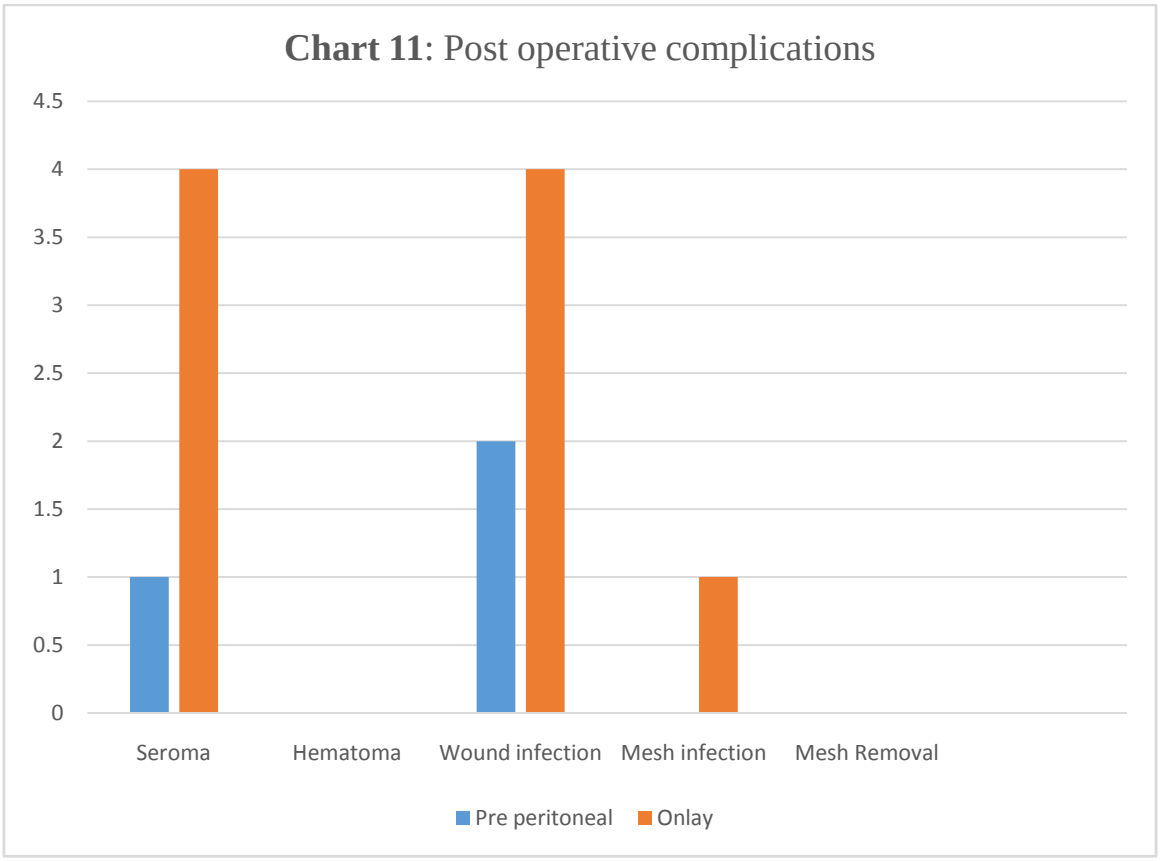
Chart 10: Comparison of duration of surgery in different series



International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

COMPLICATIONS

The most common complication observed was seroma in 5 patients. Out of 5 patients 4 were in pre-peritoneal and 1 in onlay mesh repair group. This complication was managed with seroma drainage. Onlay technique had more chances of seroma formation, due to the fact that onlay technique requires wide mobilization of subcutaneous tissue flaps leading to creating devascularising skin flaps with seroma formation or infection. Insertion of foreign material temporarily establishes an effective barrier between the circulatory system of the subcutaneous tissues and that of the deeper parietal layers. In Pre peritoneal repair, the bare posterior surface (below the arcuate line) of the of the rectus muscles which is rich in lymphatic is capable of absorbing any collecting seroma. The superficial location of the mesh also puts it in danger of becoming infected if there is a superficial wound infection.



Wound infection was found in 6 cases. Out of these 2 were in preperitoneal group and 4 were in onlay group. These patients were treated with appropriate antibiotics and regular dressing. No patient required removal of mesh because the infection was superficial and responded well to antibiotics. One patient in the onlay group has mesh infected and it is being conservatively by regular dressings in the operation theatre and mesh was successfully conserved but the hospital stay was prolonged.

Present study has difference in complication rates in favour of pre peritoneal mesh repair which was comparable to other series. The highest complications were noted in the raj siddarth et al study with 53.33% in onlay group and 20% in pre peritoneal group, Aly saber et al reported 24% complications in the onlay group and 2% in the pre peritoneal group.

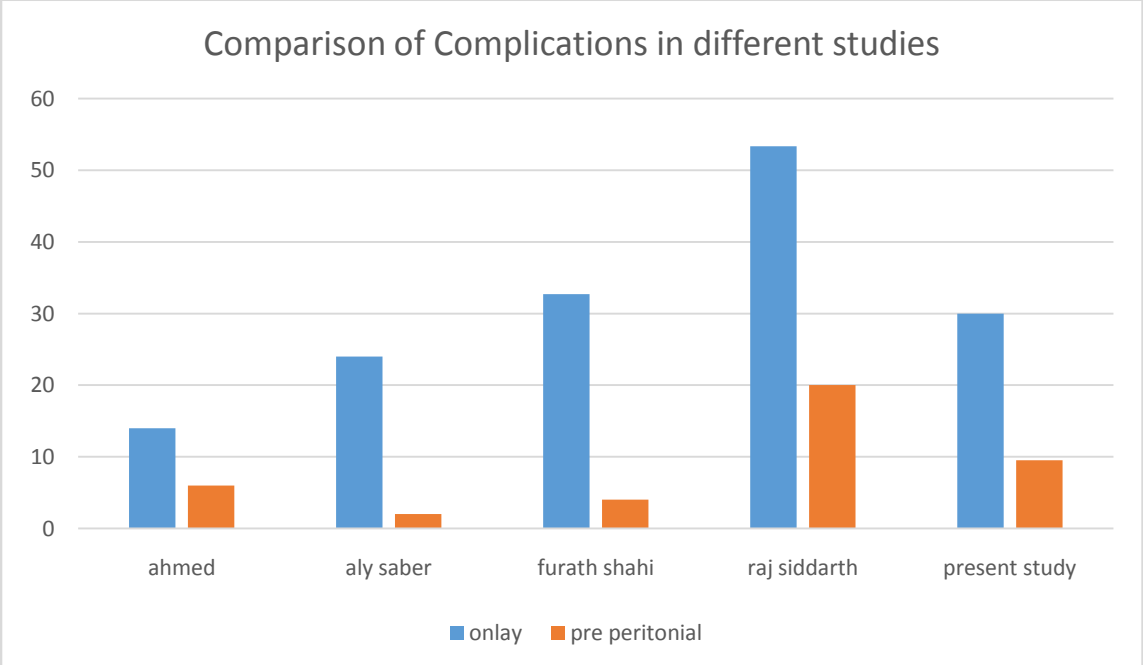
The difference in complications in the present study in terms of percentage is high in the onlay group but on statistical analysis it was found to be not significant with p value of 0.0768

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Table 17: Comparison of Complications in different studies.

Complications IN %	Ahmed Ibrahim et al	Aly saber et al (seroma)	Furat shahi et al	Raj siddarth et al	Present study
Onlay	14	24	32.69	53.33	30
Pre-peritoneal	6	2	4	20	9.5

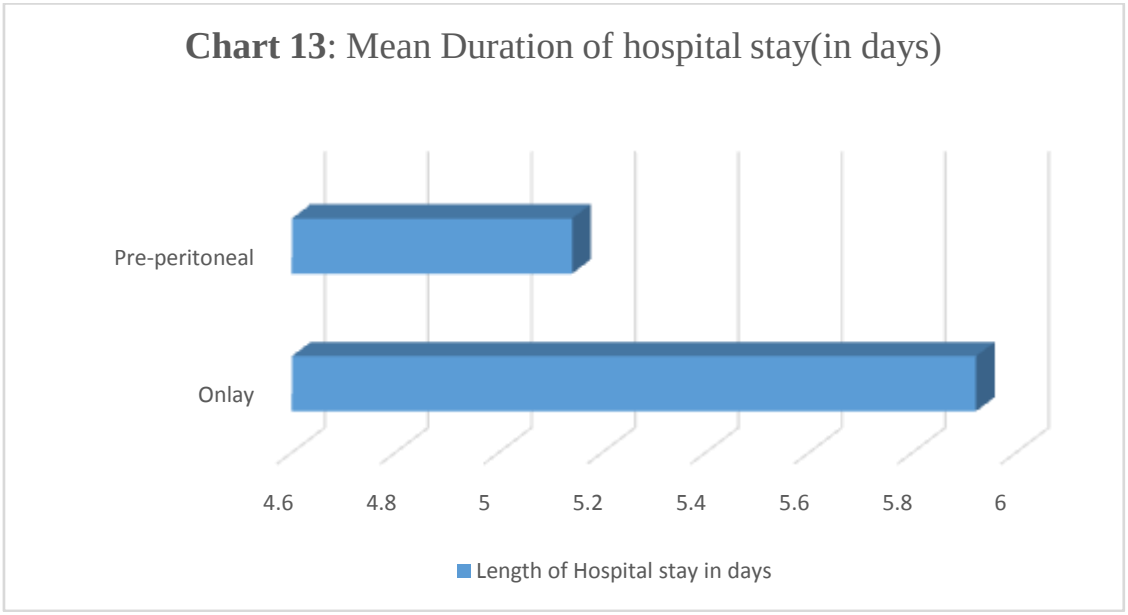
Chart 12: Comparison of Complications in different studies.



HOSPITAL STAY

The duration of postoperative hospital stay is an indirect indication of degree of morbidity in terms of postoperative complications. Average postoperative hospital stay period in present series for onlay Mesh repair was 5.923, as compared to 5.142 days average hospital stay for Pre-Peritoneal Mesh repair with (P value 0.4354) which is statistically not significant and is comparable to ahmed Ibrahim et al series, but raj siddarth study has a significant more time of hospital stay in the onlay group.

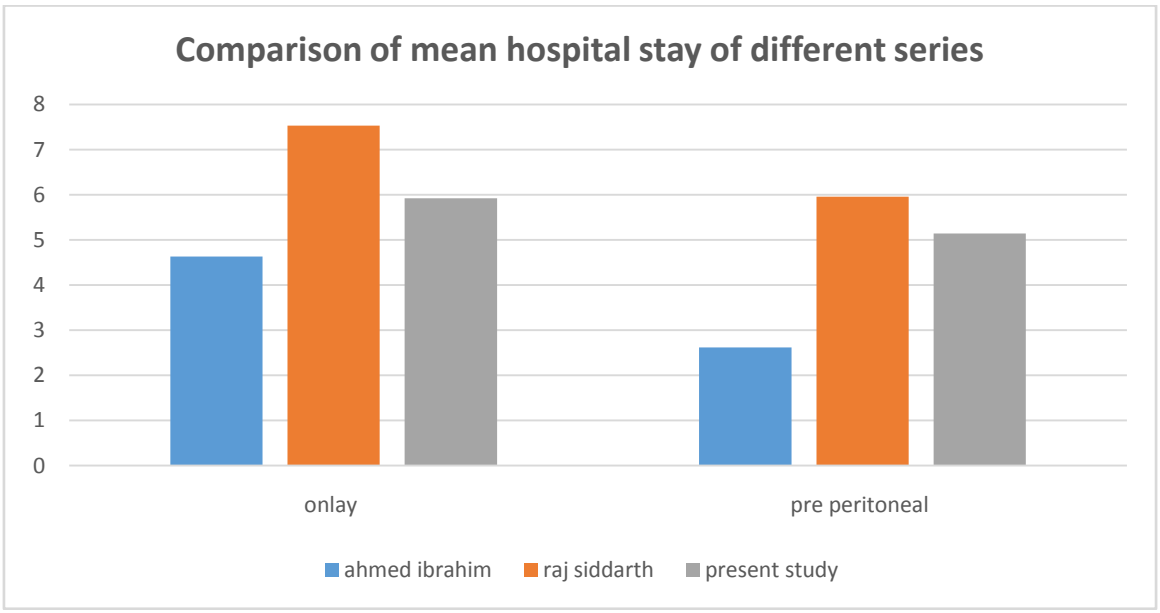
International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018



Mean hospital stay in days	Ahmed Ibrahim et al	Raj siddarth et al	Present study
Onlay	4.63	7.53	5.923
Pre-peritoneal	2.62	5.96	5.142

Table 18: Comparison of mean hospital stay of different series

Chart 14:Comparison of mean hospital stay of different series



International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

The difference can be accounted to post-operative complications which were relatively more in Onlay group and increases post-operative morbidity,

No recurrence of hernia was noticed in Pre-Peritoneal Mesh repair, in present series where as in the onlay group recurrence occurred in 1(3.8%) cases after a 100% follow up for minimum 6 months and is statistically insignificant (P>0.05)

RECURRENCE

Chart 15:comparison Recurrence rates in two groups

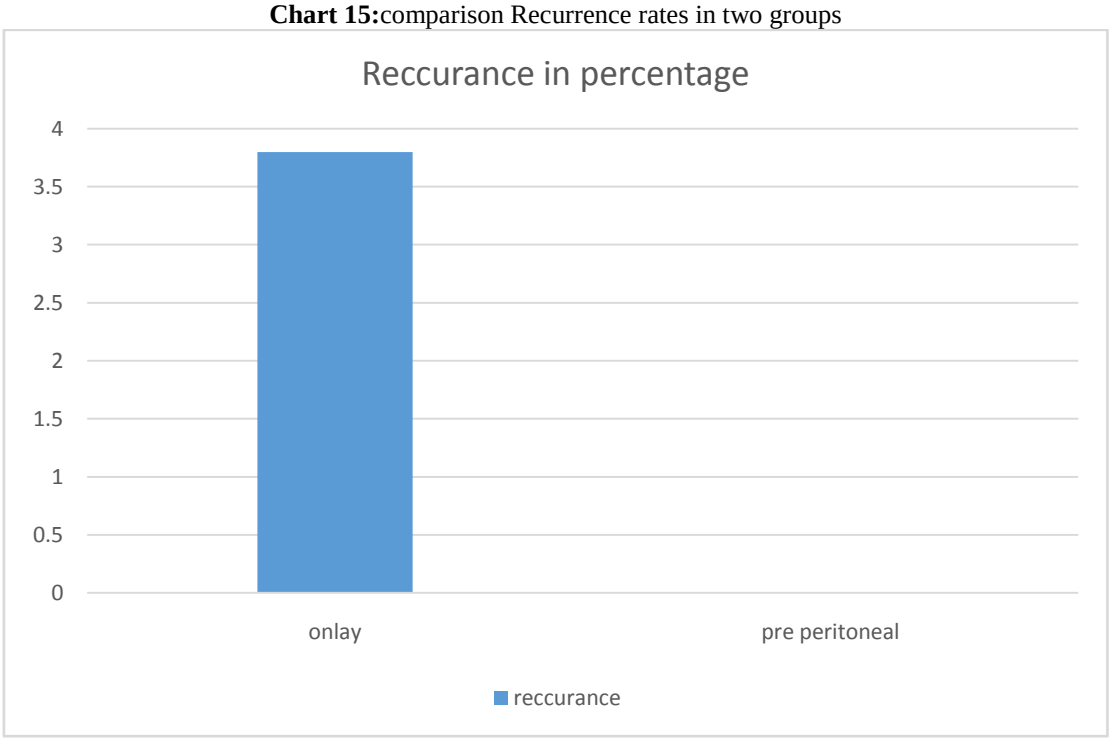
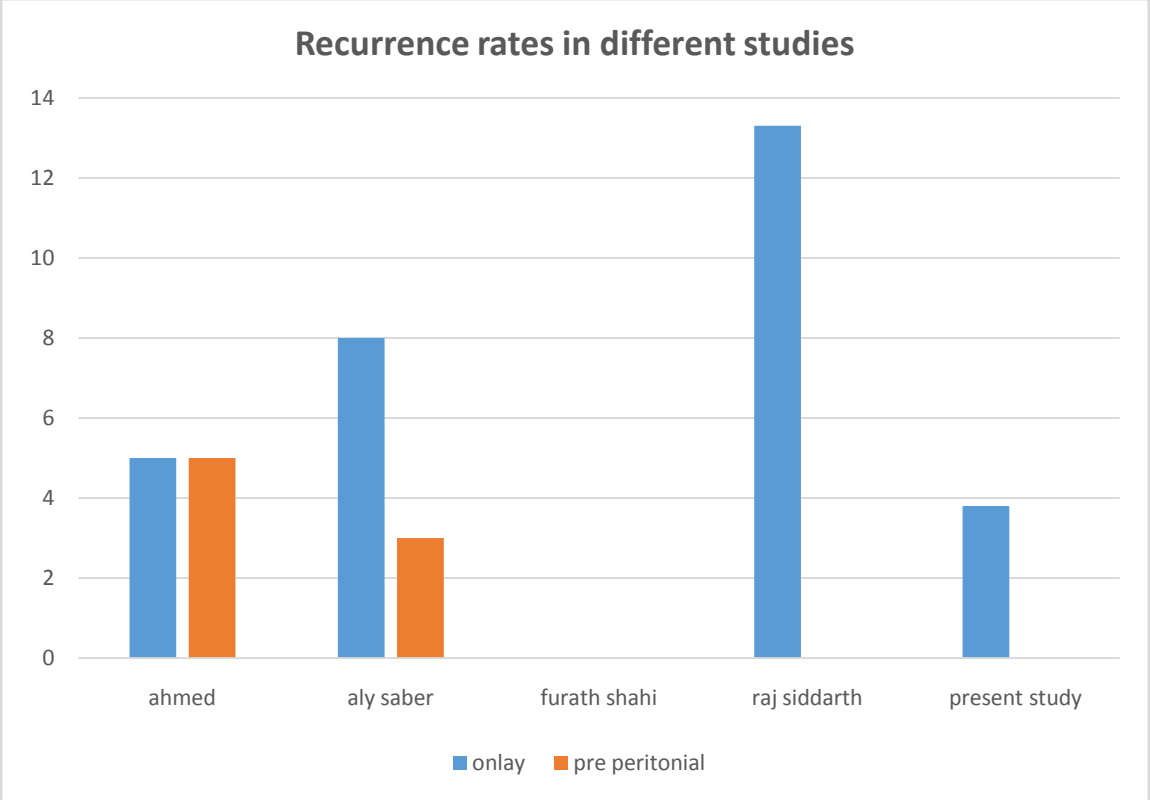


Table 19: Recurrence rates in different studies.

Recurrence Rate in %	Ahmed Ibrahim et al	Aly saber et al	Raj siddarth et al	Present study
Onlay	5	8	13.33	3.8
Pre-peritoneal	5	3	0	0

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 577-595 www.ijdmsrjournal.com ISSN: 2582-6018

Chart 14:Recurrence rates in different studies.



When considering the best location for mesh placement, a number of features are important to consider. First, mesh tissue integration may reduce long-term recurrence, with theoretically improved rates with greater mesh-tissue overlap [61]. Second, wound complications increase the risk of recurrence. Thus, techniques that avoid of the development of devascularizing flaps may be preferred. Third, the ideal mesh placement should have tissue coverage to minimize exposure to superficial surgical site infections (SSIs) as well as intra-peritoneal contents. Last, technical ease may affect surgeon choice of procedure as well as risks for postoperative complications.

Preperitoneal mesh placement protects the mesh from exposure from superficial wound complications, intra-abdominal adhesions, and contamination. Creation of devascularizing skin flaps is avoided. While Onlay allows for tissue ingrowth from two directions, the skin flaps are not loadbearing. Mesh placed in the onlay location is vulnerable forcing the surgeon to create devascularizing skin flaps and leaving the mesh susceptible to superficial wound complications.

Pre peritoneal repair is not without its own set of challenges. The surgical approach can be perceived as more technically challenging than other techniques, particularly in patients who have had prior abdominal surgeries. Patients with previous abdominal surgeries, stomas, gynecologic procedures, or ventral hernia repairs may have a damaged posterior sheath or damaged rectus muscle. This may leave this space difficult to develop, limited in size, or non-existent in rare circumstances. In addition, risks of damaging the blood supply, muscle, or lateral penetrating nerves pose technical concerns. Furthermore, the semilunar lines limit the lateral extent of the sublay repair and potentially limiting the amount of mesh overlap. Off-midline incisions may not be ideal hernias to approach with this technique. While those new to sublay repair may find it technically daunting, experience has demonstrated ease in learning and adopting this approach. However, studies to evaluate the learning curve are needed.

IV. CONCLUSION AND SUMMARY

Preperitoneal mesh repair is a good alternative to Onlay mesh repair that may be applicable to all forms of ventral hernias. The mesh related overall complication rate is low such as seroma formation, wound infection as well as less Hospital stay and low recurrence rate. In addition, Pre peritoneal mesh placement protects the mesh from exposure from superficial wound

complications, intra-abdominal adhesions and contamination. As study period was limited it requires larger number and longer duration of follow up to definitely establish the effectiveness of pre peritoneal mesh repair.

REFERENCES

[1]. SABISTON ,Ttext book of surgery, 20/E PAGE NO:1092
[2]. Mark A. Malangoni, Michael J. Rosen. chapter 46, Hernias. In: Townsend CM Jr, Beauchamp RD, Evers BM, Mattox KL, eds. Sabiston Textbook of Surgery, 19TH edn. Philadelphia, PA: Elsevier Saunders; 2012. p. 1128-9.
[3]. SABISTON ,Text book of surgery, 20/E PAGE NO:1106.
[4]. Rucinski J, Margolis M, Panagopoulos G. Closure of the abdominal midline fascia: Meta-analysis delineates the optimal technique. Am Surg 2001;67:421-6.
[5]. Stock FE. Repair of large herniae with nylon mesh. Lancet 1954;1:395-6.
[6]. Horwich M. Hernia repair using nylon tricot implant. Br J Surg 1958;45:320-2.
[7]. Usher FC, Fries JG, Ochsner. Marlex mesh, a new plastic mesh replacing tissue defects: II clinical studies. Arch Surg 1959;78:138-45..
[8]. Luijendijk RW, Hop WC, van den Tol MP, de Lange DC, Braaksma MM, IJzermans JN, et al. A comparison of suture repair with mesh repair for incisional hernia. N Engl J Med 2000;343(6):392–8.
[9]. Burger JW, Luijendijk RW, Hop WC, Halm JA, Verdaasdonk EG, Jeekel J, et al. Long-term follow-up of a randomized controlled trial of suture versus mesh repair of incisional hernia. Ann Surg 2004;240(4):578–83.
[10]. Nguyen MT, Berger RL, Hicks SC, Davila JA, Li LT, Kao LS, et al. Comparison of outcomes of synthetic mesh vs suture repair of elective primary ventral herniorrhaphy: a systematic review and meta-analysis. JAMA Sur 2014;149(5):415–21.