Original Research Paper

Volume - 12 | Issue - 10 | October - 2022 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Surgery

A COMPARATIVE STUDY ON VARIOUS APPROACHES IN THE SURGICAL MANAGEMENT OF VENTRAL HERNIA

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ABSTRACT **Aim Of The Study:** To study and compare the various approach in the surgical management of ventral hernia namely onlay, sublay and laparoscopic intraperitoneal mesh repair. **Materials And Methods:** 60 patients presenting to Govt General Hospital, nizamabad between May 2021 to April 2022 and falling into selection criteria was randomized into three groups, one undergoing onlay mesh placement and other undergoing sublay placement of mesh and other undergoing intraperitoneal placement of mesh in ventral hernia surgery with equal number of patients in each group. All 3 groups were observed post operatively for day of ambulation, postoperative pain, seroma, wound infection, duration of hospital stay and followed up for return to work. **Results:** In aspects of patient comfort and postoperative complications, laparoscopy is better than open methods. However it is associated with increased cost. **Conclusion:** Laparoscopic repair of ventral hernia is better when compared to open methods of repair.

KEYWORDS : Ventral hernia; mesh repair; onlay method; sublay method; intraperitoneal (laparoscopic) method.

INTRODUCTION

Despite more than 200000 surgeries that is being performed every year for ventral hernias, there is no concrete evidence in the literature as to the indications for repair, the ideal approach, or the appropriate long-term outcome to determine success rates. With the different causes of ventral hernias, wide differences in defect sizes and locations and the associated medical comorbidities of every patient, it is not likely that a single approach to various ventral hernia repairs will ever be identified. With the advancement of time, changes in the management of ventral hernias is being attributed not only to the understanding of their origins but also in understanding failures of their repair. Sutured repair plays a vital role in herniorrhaphy, but research has shown that suture repair may be subject to high recurrence rates even for small hernias. The use of prosthetic mesh for the reinforcement in a hernia repair has established a strong position not only in the repair of large or recurrent hernias but also in the repair of small primary repairs. The necessity for a strong prosthetic that is tolerated well and assimilated by the body is not a new idea. Industry recognized its worth in improving patient outcomes and in supply of materials for a constantly growing market.
Research in the area of prosthetic mesh has increased over the last decade with materials designed for placement both inside and outside the abdomen. “nonstick” surfaces mesh preformed for left or right sided laparoscopic inguinal hernia repairs and recently, the development of a huge number of biologic meshes is being made from the human and xenograft sources. A perfect biomaterial currently is unavailable, but some very good and well-tolerated options are present. There is little doubt that these options have helped to reduce the rates of recurrence and the morbidity in most common surgeries performed by surgeons.

Patients have to be evaluated on a case by case basis for the ideal approach taking into account the patient's age , comorbidities , the risk of surgical site occurrence, size of defect, and physiologic and functional status. The surgeon requires to have a broad armamentarium to identify these problems. In order to identify the ideal repair for each patient, the surgeon should understand the goals of the repair.

All hernia repairs at minimum requires prevention of herniated bowel contents from becoming incarcerated in the defect which must to be accomplished with less morbidity and a minimal recurrence rate. A patch type hernia repair is adequate for achieving this goal.

However certain patients benefits need extensive reconstructive approach with medialization of both the rectus muscles and to reconstruct the abdominal wall. The reconstructive surgeon must take all of these factors into consideration to provide a comprehensive approach to abdominal wall reconstruction.

This is a prospective study conducted at Rajiv Gandhi Government General Hospital, Chennai to determine which method whether open or preperitoneal or laparoscopic method is best.

AIM OF THE STUDY

To study and compare the various approach in the surgical management of ventral hernia namely onlay, sublay and laparoscopic intraperitoneal mesh repair.

DEFINITIONS

The term *ventral hernia* is described as any protrusion of the abdominal viscera most often a piece of intestine through a defect in the anterior abdominal wall.

Ventral Hernias Are Subdivided Into Two Categories

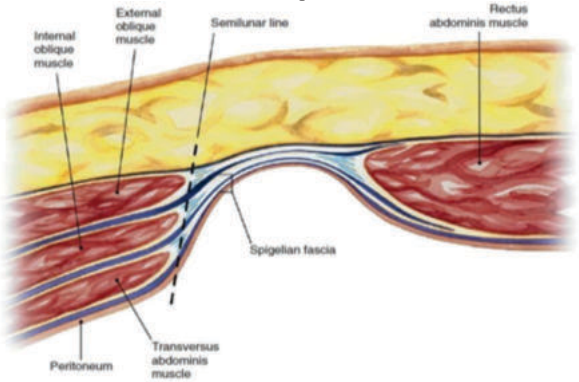
- Spontaneous (or primary) hernias and
- Incisional hernias

They Can Be Further Classified By Location.

Subxiphoid hernias are located just inferior to the xiphoid process. Epigastric hernias overlap this area, but also includes spontaneous herniation through the linea alba down to the umbilicus. Umbilical hernia is a class of spontaneous or congenital ventral hernia which is located at the umbilicus. Hypogastric hernia, spontaneous hernia inferior to the umbilicus, is rare. Suprapubic and parailiac hernia occurs along the pelvic brim adjacent to the bony prominences.

ANATOMY

The anterior abdominal wall is made of a complicated layering of muscles aponeuroses and fascia. The obvious feature is the umbilicus that represents the cicatricial remnant of the former umbilical cord and vessels. It lies at the midpoint between xiphoid process and pubis, but varies depending on amount of subcutaneous adipose tissue. The midline further is defined by the linea alba, which extends from the xiphoid process to the symphysis pubis. It is located between the medial borders of the rectus muscles and seen as a linear furrow in the anterior abdominal wall of muscular patients.



INDICATIONS FOR SURGERY

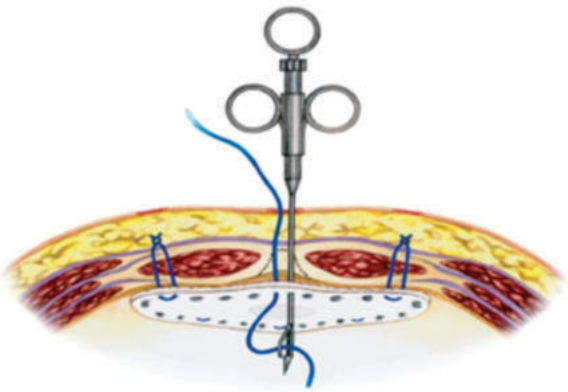
Abdominal wall hernia in adults does not spontaneously heal or close

and almost all enlarge time progresses. In majority of patients if they are an ideal surgical candidate the presence of a hernia itself is an indication for repair and it allows for the potentially dangerous sequelae of incarceration obstruction or strangulation to be avoided. Pain and limitations of daily activities are the most important indications for repair whereas cosmetic complaints are seen as least important. Nearly 25% of repairs are performed in asymptomatic patients in an attempt to avoid serious consequences. As stated, hernias tend to increase in size over time therefore delaying repair will often make it more complicated.

PRINCIPLES OF SURGICAL HERNIA REPAIR

The Mayo repair "vest over pants" was thought to be a great advance in the repair of incisional hernias which involves overlapping the layers of normal fascia and also securing with a double row of mattress sutures. But this is not an effective repair with recurrence rates of upto 54% at 10 years which are similar to the rates of standard simple fascial reapproximation. The inability to place strong fascia in apposition without tension in hernia repairs prevented the Mayo repair from attaining universal success. Even when small hernias less than 10 cm2 repaired with suture, the recurrence rate was more than 40%. The recurrence rate was only 6% when mesh repair was done. It is basic that large hernias require mesh implantation for an adequate repair. It appears that prosthetic use may be as important for small defects. The 10 year cumulative recurrence rate again shows a 50% reduction in recurrence of hernia if a prosthetic is used.

LAPAROSCOPIC OPERATIVE METHOD



MATERIALS AND METHODS

To study and compare the various approach in the surgical management of ventral hernia namely onlay, sublay and laparoscopic intraperitoneal mesh repair.

Study Centre:
Govt medical college and Govt general hospital, Nizamabad

Duration Of Study: May 2021 to April 2022

Study Design: Prospective & Observational study

Sample Size: Total no of patients: 60 In 20 pts mesh was placed overlay , 20 patients preperitoneal, 20 patients intra abdominal.

Inclusion Criteria

Patients admitted in the department of general surgery and diagnosed to have ventral hernia clinically. Patients who would be informed about the study; would have read, understood and signed the patient informed consent and would be willing to submit to postoperative follow-up and evaluations.

Exclusion Criteria

Age less than 18 or above 70 years.

Inguinal, femoral, obturator, parastomal and lumbar hernias are not included in study. Patients with peritonitis are not included in study Strangulated hernias are not included in the study.

OPEN REPAIR

Under strict aseptic precautions parts painted and draped. Skin incision was made according to the type of hernia. Subcutaneous tissue was opened. Sac was identified and dissected all around. Sac was opened and adhesions were released. Excess sac was removed and the defect was sutured with 1 proline. Now flaps were raised and plane was created above rectus sheath for the deployment of mesh. Proline Mesh was anchored to rectus sheath with 2-0 proline. The size of the mesh was decided as according to give a coverage of 5 cm all around the defect so as to compensate for the post operative shrinkage of the mesh. Romovac suction DT was placed under the flaps and anchored to skin. Subcutaneous tissue and skin was closed.

PREPERITONEAL REPAIR

Under strict aseptic precautions parts painted and draped. Skin incision was made according to the type of hernia. Subcutaneous tissue was opened. Sac was identified and dissected all around. Sac was opened and adhesions were released. Excess sac was removed and the peritoneum was closed. Now plane was created in the preperitoneal plane for the deployment of mesh. Proline mesh of appropriate size to give a coverage of 5 cm all around defect was placed and anchored to peritoneum with 2-0 proline.

Care was taken to avoid taking bites into the underlying bowel. Romovac suction DT was placed and anchored to skin. Now the rectus sheath was closed with 1 proline. Subcutaneous tissue and skin was closed.

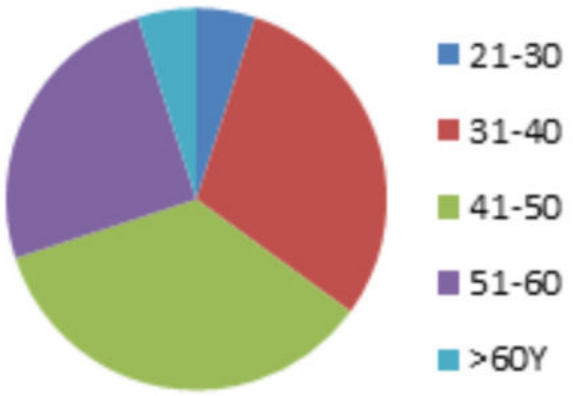
LAPAROSCOPIC REPAIR

Under strict aseptic precautions, parts painted and draped. Veress needle was inserted and pneumoperitoneum created. According to convenience and safety 10 mm camera port was introduced. Another two 5 mm working ports were introduced location based on principles of laparoscopy. Adhesions to the defect was released taking care not to injure bowel. Physio or proceed mesh of appropriate size giving a 5 cm coverage all around defect was introduced and anchored both with sutures and tackers. Pneumoperitoneum was released and ports were removed. Rectus closed with 1 proline. Skin was closed. All 3 groups were observed post operatively for day of ambulation, postoperative pain, seroma, wound infection, duration of hospital stay and followed up for return to work. The data was analysed.

OBSERVATION AND ANALYSIS

Out of the total no. of patients studied, 66% were females, 34% were males

AGE DISTRIBUTION:



POST OPERATIVE AMBULATION:

	1 DAY	2 DAY	3 DAY	TOTAL
OPEN	3	17	0	20
PRE PERITONEAL	4	16	0	20
LAPAROSCOPIC	14	6	0	20

This comparison shows that postoperative ambulation is earlier in case of laparoscopic repair followed by preperitoneal followed by open repair.

DURATION OF HOSPITAL STAY:

	OPEN	PREPERITONEAL	LAPAROSCOPIC
1-3	0	0	12
4-6	8	10	6
7-10	10	10	2
>10	2	0	0

RETURN TO WORK:

DAYS	OPEN	PREPERITONEAL	LAPAROSCOPIC
0 – 5	0	0	0

6 - 10	0	0	12
11 - 15	15	16	6
16- 20	3	4	2
>20	2	0	0

POST OPERATIVE COMPLICATIONS:

	OPEN	PREPERITONEAL	LAPAROSCOPIC
PAIN >2 DAYS	3(15%)	3(15%)	2(10%)
SEROMA	4(20%)	1(5%)	0
WOUND INFECTION	3(15%)	1(5%)	0

DISCUSSION

Incidence of ventral hernia greater among females(65%)
Incidence greatest in the age group of 40 to 50 years
Time duration , cost of surgery, cost of mesh, technical expertise required higher in case of laparoscopic repair.

Regarding Post Operative Ambulation,

- Open repair - 15% ambulate on day 1, 85% on day 2
- Preperitoneal repair- 20% ambulate on day1, 80% on day 2
- Laparoscopic repair – 70% ambulate on day1, 30% on day 2

Postoperative ambulation plays an important role in the recovery of the patient. hence postoperative recovery is quick in case of laparoscopic repair group.

Regarding Duration Of Hospital Stay,

- Open --40% 4 - 6 days, 50% 7- 10 days, 10% greater than 10days
- Preperitoneal –50% 4-6 days, 50% 7- 10 days
- Laparoscopic – 60% 1- 3 days, 30% 4- 6 days, 10% 7-10 days

Regarding Return To Work Post Surgery

- Open – 75% 11 – 15 days, 15% 16- 20 days, 10% > 20 days
- Preperitoneal – 80% 11 – 15 days, 20% 16 - 20 days
- Laparoscopic – 60% 6-10 days, 30% 11- 15 days, 10% 16- 20 days

Hospital stay and return to work after surgery plays an important role in the mindset of the patient towards the illness, regarding the treatment , regarding the surgery and so on. It is better in case of laparoscopic repair.

Regarding Post Operative Complications

- Pain>2 days – open 15%, preperitoneal 15%, laparoscopic -10%
- Seroma – open 20%, preperitoneal 5%, laparoscopic – nil
- Wound infection–open 15%, preperitoneal-5%, laparoscopic –nil.

CONCLUSION

In aspects of patient comfort such as postoperative ambulation, hospital stay and return to work, laparoscopy is better than other two methods. Among the other two methods preperitoneal repair is slightly better than open type repair of ventral hernias.

In aspects of postoperative complications such as postoperative pain, seroma formation and wound infection, laparoscopy gives best result followed by preperitoneal repair followed by open repair.

However laparoscopy is associated with increased cost for the patient. And also expertise required by the surgeon should be appropriate which is high in case of laparoscopy.

Inexperienced hands it is associated with a lot of complications.

REFERENCES:

1. Richard H. Tunage, Kathryn A. Richardson, Benjamin D. Li, Abdominal wall, Umbilicus, Peritoneum, Mesenteries, Omentum". In: Townsend, Beauchamp, Evers, "Sabiston Textbook of surgery". 18th ed. New York: Saunders; 2007, p1171-1179.
2. Robert L. Bell, Neal E. Seymour, "Abdominal wall, Omentum, Mesentery and Retro peritoneum". In: Charles Brunicardi F,"Schwartz Manual of Surgery". 8th Ed, New York: McGrawHill; 2006, p.1221-96.
3. Halpin, Valerie J, "Abdominal wall hernia". In: Klingensmith, Mary E. Amos, Keith D. Green, Douglas W, "Washington manual of surgery". 4th Ed, New York: Elsevier, p.1160-1172.
4. K Cassar and A. Munro, "surgical treatment of incisional hernia", british jur surg 2002 January; 89(5):534-545.
5. M.M Poelman, B.L.A.M Langenhorst, J.F Schellekens and W.H Schereurs, " modified onlay technique for the repair of the more complicated incisional hernia", world jur of surg august 2010;14(4):369-374.
6. Thamrongoj temudan, Mohammad siadati, Michael G.Sarr. "repair of complex giant or recurrent ventral hernia by using tension free intraparietal prosthetic mesh (stoppa technique)", british jur of surg October 1996;120(4):738-741.
7. Trupka A W, Hallfeldt K K,Schmidbauer S,Schweiberer L "management of complicated incisional hernias with underlay technique implanted polypropylene mesh, An effective technique in French hernia surgery", british jur of surg July 1998;69(7):766-772.
8. Fellaciano Crovella Updates On Incisional Hernia
9. Shackelford textbook of GI surgery