



A COMPARATIVE STUDY OF ONLAY VS RETRORECTUS MESHPLASTY WITH OR WITHOUT TAR (TRANSVERSE ABDOMINIS RELEASE) FOR VENTRAL HERNIA REPAIR

General Surgery

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ABSTRACT

Background: Early treatment of hernia is very important to reduce the risk of obstruction and or strangulation. Numerous techniques have been described for hernia repair and hernioplasty, but tension free mesh placement is widely used in current practice. **Aim :** To compare the outcome in Ventral hernia repair between the 2 techniques "Onlay" and "Retrorectus" meshplasty (with or without TAR) for ventral hernia repair. **Materials And Methods:** This retrospective comparative study consisting of 50 patients with ventral hernia managed by Onlay v/s Retrorectus mesh repair with or without TAR. **Results:** As per our study retrorectus mesh repair with transverse abdominis release is reliable and durable, with less recurrence and wound complication tend to be less severe. **Conclusions:** Retrorectus meshplasty was superior to onlay meshplasty¹ in terms of post-operative wound infections, post hospital stay, less morbidity and recurrence. Transverse Abdominis Release (TAR) seems to be the ideal approach for complex ventral hernia, very large defects with good immediate outcomes.

KEYWORDS

Ventral Hernia, Onlay and retrorectus meshplasty, TAR (transverse abdominis release).

INTRODUCTION:

Ventral Hernia: Any hernia on the ventral abdominal wall. Ventral hernia may include.

Primary: a. Umbilical b. Epigastric c. Spigelian d. Lumbar. Ventral abdominal hernias are common in surgical practice. This term includes umbilical, paraumbilical and epigastric hernia. Another type of ventral hernia is incisional hernia that occurs in 15 to 20% of patients undergoing laparotomy.² The overall incidence of incisional hernia is slightly higher in the laparotomy incision compared with transverse incision. Hernia surgery is one of the most commonly performed procedures worldwide.

MATERIALS AND METHODS :

This retrospective comparative study consisting of 50 patients with ventral hernia managed by Onlay v/s Retrorectus mesh repair with or without TAR in Department of Surgery, Government Hospital, Jamnagar during the period of two years.

Inclusion Criteria:

- Patient age between 10 to 70 years includes both males and female.
- We include all incisional hernia in this study large paraumbilical hernia as well as recurrent incisional hernia.
- Patients requires surgical interference such as Component Separation Technique (CST), Transverse Abdominal Release (TAR).
- Patients who were admitted to surgical wards of our Hospital, diagnosed to have ventral hernia and managed by onlay & Retrorectus mesh repair are included in this study.

Exclusion Criteria

- Patients having Inguinal, femoral, obturator, parastomal and lumbar inflamed, obstructed or strangulated ventral hernia were not included in the study.
- Patients with bleeding disorders, malignancy, immunocompromised

Pre-operative Preparation :

All patients underwent thorough clinical examination and a detailed history and details of earlier operation were asked for. All patients were evaluated for systemic disease and treated for the same than posted for elective operation. All routine investigations were done.

Group A - Only Meshplasty:

The procedure was done under general anaesthesia, spinal or epidural anaesthesia in supine position.

Generous skin incision was used to permit adequate exposure of hernial sac and defect and old operative scar was excised if present (as in incisional hernia). The sac was opened and contents were reduced after lysis of the adhesions. The excess sac was excised. The fascia was cleared of superficial fat for a distance of 5-6 cm from the edge of the defect. The defect was then closed with prolene 1-0 interrupted sutures. A prolene mesh was cut to the approximate size with a 5 cm overlap of the defect and sewed longitudinally using 2-0 polypropylene suture to the exposed anterior sheath or external oblique fascia on the lateral sides. Additional quilting sutures were applied at cranial, caudal edges of the mesh and to the central part of the mesh along with the underlying fascia. Suction drains were laid over the prosthesis and brought out through separate stab wounds. Skin closed with monofilament 2-0 vertical mattress sutures.

Group B - Retrorectus Meshplasty:

The procedure was done under general anaesthesia, spinal or epidural anaesthesia in supine position. Generous skin incision was used to permit adequate exposure of hernial sac and defect and old operative scar was excised if present (as in incisional hernia) with dissection of the sac and subcutaneous fat from the anterior sheath on each side, the fascial scar at the inner edge was incised. To uncover the rectus muscle, where an open space was created bluntly along the length of the posterior rectus sheath. This layer was then closed using Vicryl 2-0 suture in the midline. A prolene mesh was then cut to the appropriate size with a 5 cm overlap of the defect and placed between the posterior rectus sheath and rectus muscle above the arcuate line and in the preperitoneal space below the arcuate line. The mesh was anchored to the posterior rectus sheath using a polypropylene suture. Quilting sutures were applied at cranial, caudal edges and to the central part of the mesh and underlying fascia. Suction drain (No. 16) were placed on both sides between the mesh and rectus muscle. The anterior rectus sheath was closed using prolene no. 1 suture. Skin was close with monofilament 2-0 vertical mattress sutures.

Post-operative phase:

In the postoperative period, nasogastric aspiration can be done, second hourly in first 24 hours. The nasogastric tube was removed once the patient passed flatus. Foley's catheter was removed on postoperative day one. Suction drain was removed once the drainage falls to 25 to 30 cc. Injectable antibiotics were continued for five days. Postoperatively, deep breathing exercises, movement of limbs in bed was advised as soon as patient recovered from anaesthesia. Early limited ambulation was done once the patient was able to bear the pain.

In all cases of either onlay or Retrorectus techniques, we starts antibiotics. Injection Augmentine 1.2gm i.v 8 hourly, for 5 days

followed by oral antibiotic Tab Augmentine 625mg thrice daily Post operative infections have been observed and graded. pus culture and sensitivity taken and Tab Augmentine were continued till culture and sensitivity arrived then further antibiotics given according to that.

RESULTS:

Duration Of Surgery:

Duration (minutes)	Onlay (n=25)	%	Retrorectus (n=25)	%	Total (n=50)	%
70-79	7	28	0	0	7	14
80-89	7	28	1	4	8	16
90-99	5	20	2	8	7	14
100-109	6	24	0	0	6	12
110-119	0	0	8	32	8	16
120-129	0	0	8	32	8	16
130-140	0	0	6	24	6	12

Duration of surgery higher in retrorectus meshplasty

No Of Days Drain Was Kept:

Duration (days)	Onlay (n=25)	%	Retrorectus (n=25)	%	Total (n=50)	%
2 - 3	8	32	16	64	24	48
4 - 5	17	68	9	36	26	52

Drain required for longer duration in Onlay meshplasty.

Post-op Antibiotics:

Duration (days)	Onlay (n=25)	%	Retrorectus (n=25)	%	Total (n=50)	%
7 - 10	18	72	22	88	40	80
10 - 14	7	28	3	12	10	20

Longer antibiotics required in onlay meshplasty

Post-operative Wound Infection:

	Onlay (n=25)	Retrorectus (n=25)	Total (n=50)
Wound Infection	7	2	9

Wound infection more in onlay meshplasty.

Post Operative Hospital Stays:

Duration (days)	Onlay (n=25)	%	Retrorectus (n=25)	%	Total (n=50)	%
0 - 8	13	52	18	72	31	62
9 - 16	12	48	7	28	19	38

Post operative hospital stay significantly higher in onlay meshplasty.

Ventral Hernia Repair With Retrorectus Meshplasty

	Without TAR (n=20)	With TAR (n=5)	Total (n=25)
Retrorectus	20	5	25

Retrorectus mesh repair with TAR is reliable and durable less recurrence and less wound complication.

Retrorectus Meshplasty



Elliptical incision given

Plane created between rectus muscle and posterior rectus sheath



Retrorectus Mesh repair

Post Operative

ONLAY MESHPLASTY



Preoperative photograph

Defect has been closed

Onlay Mesh Plasty

DISCUSSION:

In this study, we operated 25 patients with onlay and 25 patients with Retrorectus meshplasty. In which total 40 patients had incisional hernia and 4 patients had umbilical and 6 patients had Epigastric hernia. The observations made and discussed below.

DURATION OF SURGERY:

In our study the average operating time was 84 minutes for onlay technique and almost 116 minutes for the Retrorectus meshplasty technique. The difference of time can be accounted due to more dissection time needed for creating preperitoneal space. Securing reasonable haemostasis is another burden on time. Ease of operation is largely subjective (surgeon factor being constant) and depends on individual surgeon's experience, exposure and planning, quality of assistance, conductive facilities like light, cautery, instruments quality and sutures etc.³

Post Operative Complications:

In the present study, we encountered 18% of cases with postoperative wound infection. The rate of wound infection was more for onlay meshplasty than Retrorectus meshplasty.⁴ There was no other post operative complication found as no seroma no recurrence. Post operative duration of drain in situ was higher in onlay meshplasty.⁵

Duration Of Hospital Stay:

In present study, the mean duration of hospital stay in onlay group was 10 days v/s. 8.6 days in Retrorectus group (P=0.0194) which was statistically significant. The hospital stay was significantly higher for onlay meshplasty.

Transverse Abdominis Release (TAR) :

In our study total 25 cases treated with retrorectus meshplasty. Out of which, 5 cases requires TAR. By releasing transverse abdominis muscle it extends the retrorectus dissection lateral to the linea semilunaris and permits adequate abdominal wall reconstruction for large hernia defect >8 cm and it provide adequate prosthetic placement.⁶ Patient with very large primary and incisional abdominal wall hernia requires mobilization or large musculofascial flaps of the abdominal wall.⁷

CONCLUSION-

As per literature, the best position for inserting the mesh is meshes implanted on the abdominal aponeurotic layer (retrorectus) showed better and early incorporation (higher collagen deposition, capillary density and cell accumulation) and increased tensile strength reflecting tighter anchorage to the abdominal wall. From my study it can be safely said from the above parameters that Retrorectus meshplasty was superior to onlay meshplasty in terms of post-operative wound infections which leads to increase post-operative antibiotics and post-operative hospital stay and also in terms of recurrence and post-operative morbidity less in retrorectus meshplasty as compared to onlay meshplasty. Post-operative quality of life is better in retrorectus

meshplasty.

Transverse Abdominis Release (TAR) seems to be the ideal approach for complex ventral hernia, very large defects with good immediate outcomes. This is a versatile, easy to learn technique of hernia repair.

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