



Rives Stoppa's Mesh Repair- A Single Institute Experience

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Abstract

Incisional hernia develops in approximately 2 to 11% patients who undergo laparotomy, usually after 5-10 years.(1) Recent data suggests the means of fascial closure following laparotomy influences the rate of incisional hernia repair, with the traditional “1 cm bite, 1 cm travel” producing higher levels of tissue ischemia than a “small, frequent bite” technique. This technique limits the degree of fascial disruption during normal patient motion. Transverse laparotomies, may also protect against incisional hernia, possibly due to the two-layer fascial closure and the robust vascularity of the rectus muscles. Multiple risk factors for incisional hernia include obesity, wound infection, diabetes, smoking, immunosuppression, ascites, advanced age, and poor nutritional status. Many of these factors predispose to an environment of relative ischemia or deficiency in macromolecules necessary for wound healing. Wound infection has the strongest association with a subsequent hernia, and so, surgeons prefer early reopening and drainage of infected surgical wounds to improve healing. Normal wound healing produces long-term collagen deposition and remodeling that maintain the strength of the scar. However, the resulting mature scar is only 80% as strong as the native presurgical fascia. Thus, every surgical wound represents an area of relative weakness that can be exacerbated over time with repeated strain. (2) Clinically, these present as palpable bulge over previous operated site with defect and usually bowel loops palpable through the defect. Sometimes, these can present as strangulated or obstructed hernias. They can be managed by abdominal wall reconstruction. Prosthetic mesh repair provides more strength, tension free repair and decreased recurrence rates as compared to primary tissue repair. Rives-Stoppa's retrorectus preperitoneal mesh is more complex repair, but has decreased recurrence rates and complications by preventing direct mesh contact with bowel. (1) In this study, we compare 12 cases of retrorectus preperitoneal mesh repair for incisional hernia at a single institute.

Keywords: NIL

Introduction

Nomenclature

Rives translated these principles to VHR but described placement of the mesh as retromuscular (posterior to the rectus muscle but anterior to the posterior rectus sheath). The reason Stoppa and Rives used different terminology was because of the anatomical differences in their respective operative fields. Whereas Stoppa's operation took place inferior

to the arcuate line where the posterior sheath does not exist, Rives took place superior to the arcuate line where the posterior sheath is intact. Thus, inferior to the arcuate line, the mesh is placed in the preperitoneal space, but superior to the arcuate line the mesh is placed not only preperitoneal but also preposterior rectus sheath, better known as retromuscular. The term “retrorectus” is a more precise description of this space since the specific muscle referred to by “retromuscular” is the rectus

abdominis. The differences in terminology superior and inferior to the arcuate line are illustrated in figure

(3)

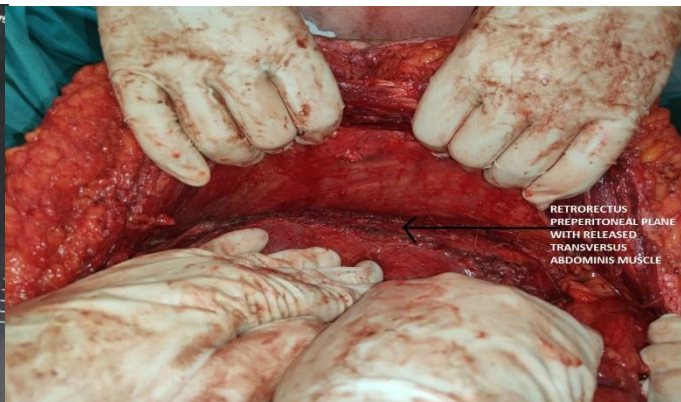
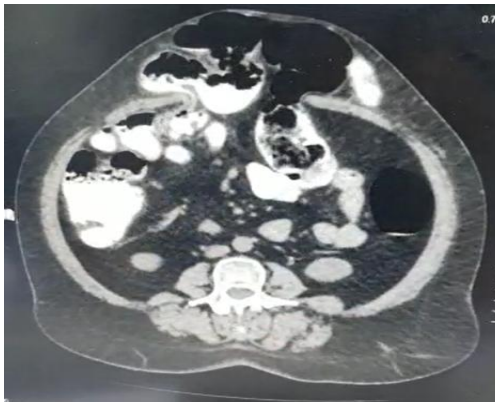


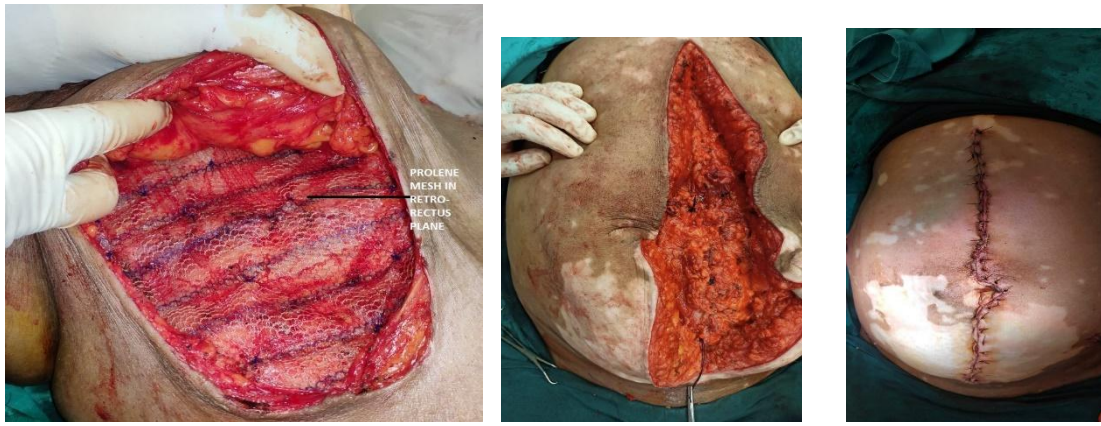
Superior to arcuate line (Rives)	Inferior to arcuate line (Stoppa)
Prefascial	Preperitoneal
Retromuscular	Retrofascial
Retrorectus	

Operative Technique

Skin incision is made through the original longitudinal laparotomy incision. The peritoneum is opened and bowel adhesions to the anterior abdominal wall lysed. The peritoneum is then closed with a running absorbable suture. The prosthesis is placed extraperitoneally anterior to the posterior rectus sheath, which is closed primarily. The prosthesis is anchored in the retrorectus position via nonabsorbable sutures that incorporate the rectus muscle and anterior rectus sheath. The medial aspect

of the anterior rectus sheath is closed primarily with an absorbable continuous suture. The choice of prosthetic material was based on the surgeon's preference. Early on, PTHE was primarily used. Now, polypropylene use became more common. All patients were given prophylactic broad spectrum intravenous antibiotics prior to induction of anesthesia. Routinely, 2 to 6 postoperative doses were administered. Antibiotics were continued in several patients who developed wound erythema in the early postoperative period.

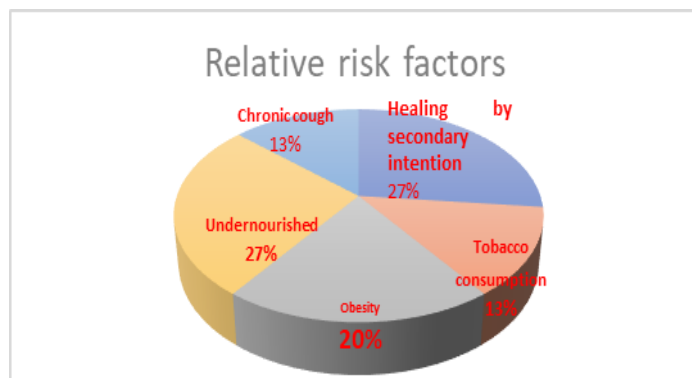


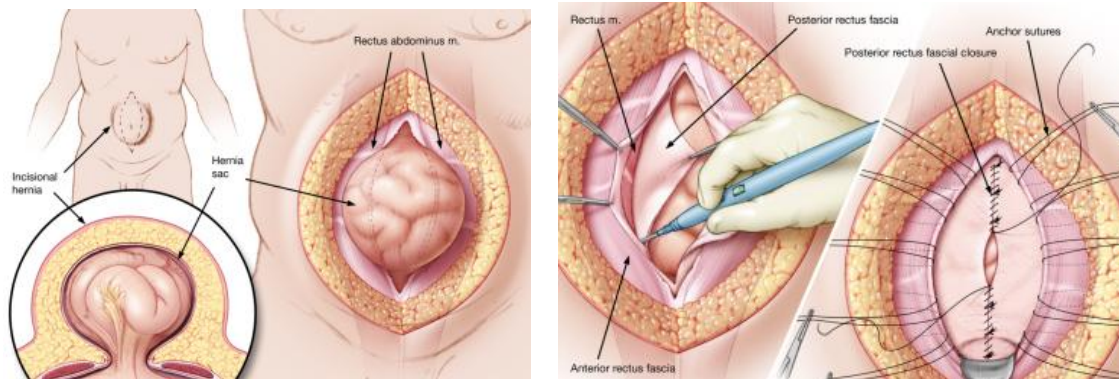
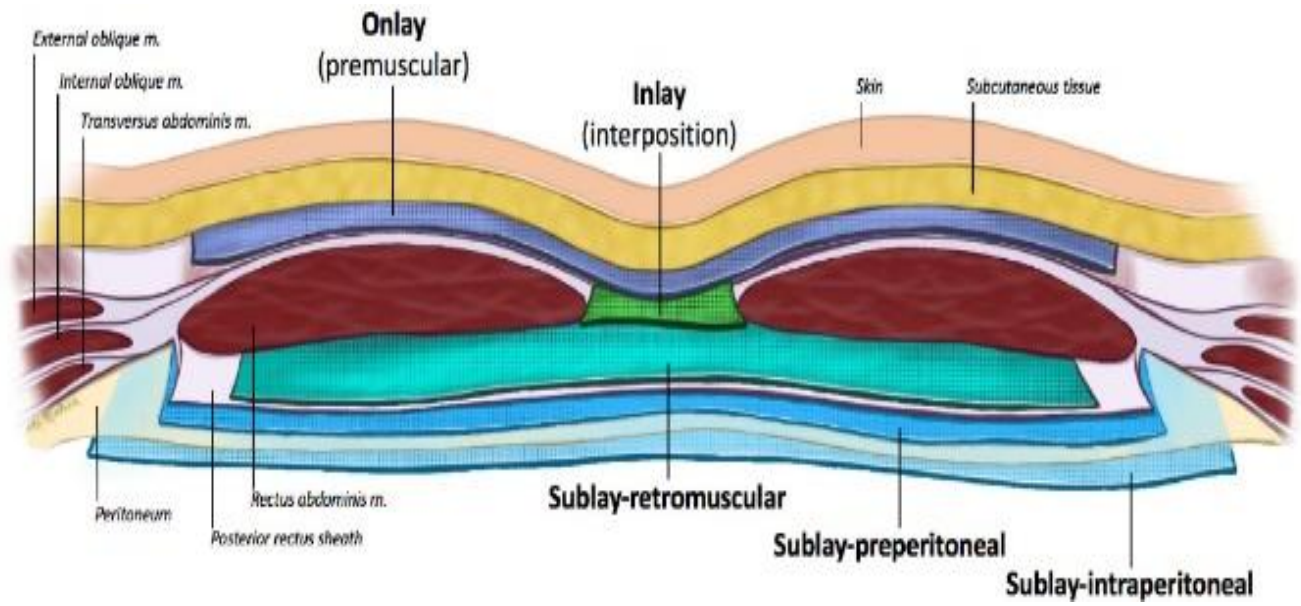
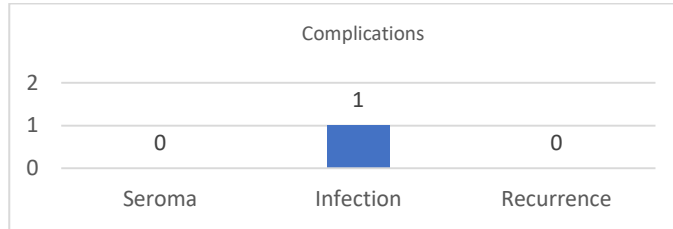
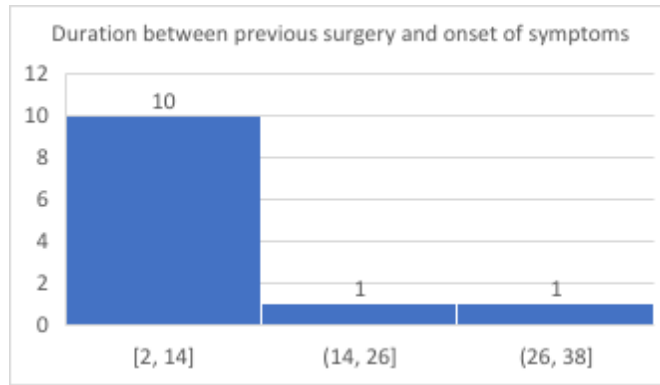


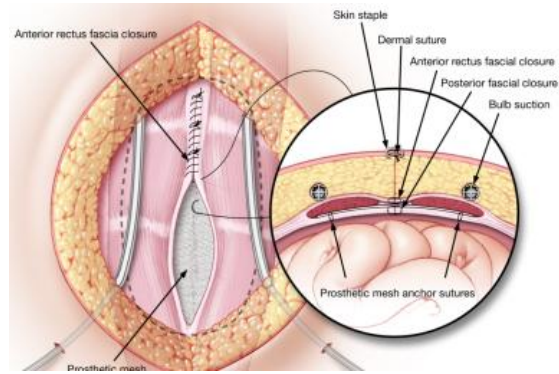
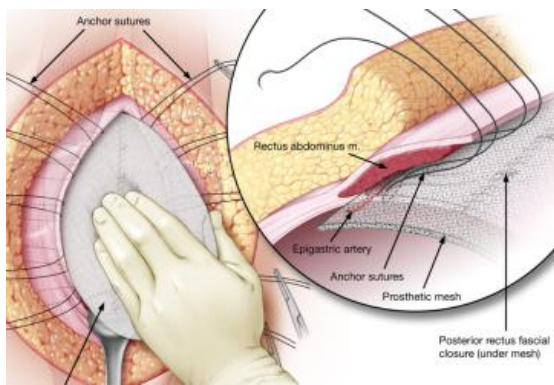
Operative Outcome And Discussion

All patients in the study were discharged and then followed up for 6 months to check for various complications and outcomes.

Previous surgery	Frequency
Open TL	4
Primary closure over traumatic abdominal wound	1
LAR for rectosigmoid carcinoma	1
Open hysterectomy	1
Laparoscopic cholecystectomy	2
Open appendectomy	1
Onlay mesh repair for traumatic hernia	1
Bilateral herniorrhaphy	1







Conclusion

After following up the 12 cases for 6 months, various results can be drawn out. Out of these 12 cases, (4) had undergone open tubal ligation. (10) had previous surgery between 2 to 14 years before the onset of symptoms. (4) had their previous surgery wound healed by secondary intention which made their scar weak due to faulty collagen deposition. (4) were undernourished. None of them had any complications post meshplasty, except 1 where the patient had wound gape. The rate of complications is lesser than the other studies, where one of them had recurrence rate of 1.7%, seroma formation 6.8% and infection rate of 5.1%. These results are much better than that of onlay mesh repair, where recurrence rate ranges from 4-6% and infection rate ranges from 7-10%. Avoidance of only mesh repair has been suggested due to poor mesh incorporation, excessive tension and increased seroma/infection rates.⁽¹⁾ To conclude, retrorectus preperitoneal mesh repair is better than other methods of mesh repair for incisional hernia as it achieves 4 key elements of hernioplasty- 1) use of prosthesis provides mechanical strength and reinforcement to counteract increased intra abdominal pressure. 2) use of large size mesh

provides excess cover of fascial edge and provides tension free closure. 3) direct contact of mesh with bowel is prevented by primary closure of posterior rectus sheath and/or peritoneum. 4) robust vascularity of rectus abdominis muscle that lies atop mesh, provides faster tissue incorporation of prosthesis, conferring greater resistance to infection and seroma formation. The sample size being small, this is a limited study.

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