

A COMPARATIVE STUDY OF ONLAY AND RETRORECTUS MESH REPAIR IN INCISIONAL HERNIA

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ABSTRACT

BACKGROUND

Incisional hernia is a frequent complication of abdominal surgery constituting about 10% to 20% of laparotomy. There are various factors responsible, like the patient characteristics and the underlying pathological process and iatrogenic factors, like the technique of wound closure and use of suture material. Here the emphasis has been laid on the type of prosthetic reinforced repair, choice of prosthetic material, suture selection, wound closure, use of closed suction drainage and preoperative and perioperative care.

The aim of this study was to compare and analyse the merits and demerits of procedures of retrorectus mesh repair and onlay mesh repairs.

MATERIALS AND METHODS

This is a prospective study which was conducted in the surgical department of our hospital. A total of 50 cases were included in this study. Of these cases, 28 cases were operated by the on-lay mesh method and 22 by retro-rectus mesh placement. Polypropylene mesh was used in all 50 cases.

RESULTS

The operative time for retro-rectus mesh placement was insignificantly higher than that of on-lay mesh repair, whereas, complications like wound infection rate is about 10%. The recurrence rate was found to be 4% in on-lay mesh repair and 0% in retro-rectus mesh repair.

CONCLUSION

The low rate of local complications and the low recurrence rate indicate that retrorectus mesh repair has an advantage over traditional onlay repair.

KEYWORDS

Incisional Hernia, Onlay Mesh Repair, Retrorectus Mesh Repair.

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BACKGROUND

Incisional hernia defined as protrusion of viscera from the abdominal cavity through a route formed after trauma induced by cutting (surgical incision, laparoscopic trocar puncture wounds,¹ stab wounds).

The development of knowledge of aseptic surgery and anaesthesiology and chemotherapy enabled surgeons to enter the peritoneal cavity with increasing safety and led to phenomenal increase in abdominal operations. Incisional hernia is a frequent complication of abdominal surgery constituting about 10% to 20% of laparotomy.² There are various factors responsible, like the patient characteristics and the underlying pathological process and iatrogenic factors, like technique of wound closure and use of suture

material. It usually starts after surgery, as a result of failure of the lines of closure of the abdominal wall following laparotomy. They can incarcerate (6 to 15%), strangulate (2%) or cause skin necrosis and perforation, all of which markedly increase the risk of patients' life. They are also responsible for considerable economic loss to the patients and their family. So, these patients have to be operated as early as possible. Various surgical techniques have been developed for this challenging disease. Recurrence rates vary between 10% and 50% and are typically reduced by more than 50% with the use of prosthetic mesh.³ Here the emphasis has been laid on the type of prosthetic reinforced repair, choice of prosthetic material, suture selection, heavy weight versus light weight suture material,⁴ wound closure, use of closed suction drainage and preoperative and perioperative care. The aim of the present study was to evaluate and compare the efficacy of onlay mesh repair and retrorectus mesh placement for repair of incisional hernia.

MATERIALS AND METHODS

This is a prospective study which was conducted in the surgical department of our hospital for period of two years.

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Inclusion Criteria

Midline hernias upto 10 cm in diameter.

Exclusion Criteria

- Emergency surgery (incarcerated hernia)
- Parastomal hernia
- Primary umbilical, Para umbilical, Spigelian hernias
- Massive ventral hernias (>10 cm)
- Associated illness: HIV, Hepatitis B Tuberculosis, Uncontrolled Diabetes, chronic obstructive pulmonary disease like asthma.

A total of 50 cases were included in this study. The study comprised of 47 females and 3 males forming a total of 50 patients. A detailed history has been made and thorough general examination was made, and cases were studied. Routine laboratory investigations of urine and blood and chest screening were done. The other things were noted as: Type of incision and suture materials used, postoperative healing of wound, size of defect. Polypropylene mesh was used in all 50 cases. The patients were followed up for maximum of 2 years and minimum of six months. Of these cases, 28 cases were operated by the on-lay mesh method and 22 by retro-rectus mesh placement.

RESULTS

Age and Gender

25 patients, who underwent traditional on-lay mesh repair of incisional hernia (1 males and 24 females). On the other hand, 25 patients, who underwent retro-rectus mesh repair (2 males and 23 females). The age of the patients in this group ranged from 28 to 57 years old.

Complications

	Retrorectus Mesh Repair		Onlay Mesh Repair	
	No. of Patients	Percentage	No. of Patients	Percentage
Wound hematoma	3	6	1	2
Wound infection	1	2	4	8
Seroma	-	-	4	8
Wound edge necrosis	-	-	2	4
Urinary retention	-	-	-	-
Postoperative ileus	1	2	-	-
Respiratory complications	-	-	1	2
Recurrence	-	-	2	4
Postoperative Complications				

Incidence of wound infection is more common with onlay mesh repair compared to the retrorectus mesh repair.

Incidence of recurrence is more common with onlay mesh repair compared to the retrorectus mesh repair.

DISCUSSION

Incisional hernia is due to loss of continuity of fascial closure. Incisional hernias occur as a result of excessive tension and inadequate healing of a previous incision, which may be associated with surgical site infection.⁵ It is one of the major complications of laparotomy with an incidence of about 10-20%. These hernias enlarge over time, leading to pain, bowel obstruction incarceration, and Strangulation. There are so many etiological factors for incisional hernia and they should be repaired as soon as they are diagnosed to reduce the complications and reduce the recurrence rate. The rationale behind using mesh repair invariably for all cases independent of size of defect, age, sex and weight of patient was to reduce the incidence of recurrence rate. Retromuscular Mesh Placement technique was initially described by Stoppa. With smaller defects, the mesh does not need to be sutured because it is held in place by intraabdominal pressure (Pascal’s principle), allowing eventual incorporation into the surrounding tissues.

A retrospective review from the Mayo Clinic, with a median follow-up of 5 years, has documented a 5% overall hernia recurrence rate in 254 patients who underwent complex ventral hernia repair over a 13-year period. Wound hematoma incidence rate 0.7% in a trial carried out in 1999 by Flament⁶ Seroma incidence rate is 2.6% in a series published in 2003 was noted by Heniford.⁷ It most frequently arises from the use of a premuscular position technique (Chevrel) compared to a position behind the muscles and in front of the Fascia.⁸ Cutaneous damage that appears with wound edge necrosis has an incidence of 1.2%, according to the AFC study.⁹ Incidence of wound infection is more common with onlay mesh repair compare to the retrorectus mesh repair. The incidence of postoperative ileus complication following laparotomy surgery was found to be 8% according to a 1998 study¹⁰ Gleysteen, et al found 20% recurrence rate for onlay and 4% for preperitoneal mesh repair.¹¹ Onlay mesh repair: Technically simple and easy procedure when compared to other procedures Complications like obstruction and fistula formation are rare compared to other procedures.

Retrorectus Mesh Repair

Technically difficult with the higher rate of perioperative haemorrhage, it has the distinct advantage of reducing the recurrence rate and infection. The cause of incisional hernia in our study group is due to the wound infection and second cause is multiple surgeries and third due to the poor surgical techniques.

CONCLUSION

Retrorectus mesh repair technically difficult to perform Infection of mesh is higher in on-lay mesh repair Recurrence rate is higher in on-lay mesh repair than retro-rectus mesh placement This study emphasizes the fact that retro-rectus mesh placement is a simple and effective technique with less complications and recurrence, thereby encouraging surgeons to adopt this technique.

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