

# HERNIOPLASTY; SUBLAY TECHNIQUE FOR INCISIONAL HERNIA

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**ABSTRACT...**Incisional hernia is a common complication of abdominal surgery and an important source of morbidity. It may be repaired using open suture, open mesh or laparoscopic mesh techniques. **Objectives:** To examine the results of open mesh repair using "sublay technique" of hernioplasty. **Setting:** Surgical Unit-I, Department of Surgery at Allied Hospital, a tertiary care teaching hospital affiliated with Punjab Medical College, Faisalabad. **Patient & Methods:** Sixty patients (male:16, female:44) were operated for incisional hernia. Open mesh repair was done. Polypropylene mesh was placed over closed posterior rectus sheath layer and over the rectus abdominis, were available. Anterior rectus sheath was closed in front of the implanted mesh. All the patients received injectable third generation cephalosporin for 48hrs postoperatively. Postoperative recovery in terms of seroma formation, wound infection, intraabdominal adhesions leading to intestinal obstruction, enterocutaneous fistula formation and recurrence were the main factors noted and analyzed statistically. **Results:** Mean postoperative hospital stay was 03 days. Only one patient developed wound infection. None of the patients developed seroma formation, intestinal obstruction or enterocutaneous fistula. Maximum follow up till this study is 14 months. No recurrence has been reported so far. **Conclusions:** Open mesh repair using "sublay technique" does not carry risk of enterocutaneous fistula, carries low risk of seroma formation and wound infection. Proper technique is not associated with recurrence.

**Key words:** Incisional hernia, Sublay hernioplasty, Prosthetic mesh, Hernioplasty.

## INTRODUCTION

Incisional hernias develop in 3.8-11.5 % of patients after abdominal surgery<sup>1,2</sup>. The incidence depends on a number of factors including old age, female sex, obesity, bowel surgery, suture type, chest infection, wound infection and raised intraabdominal pressure<sup>1</sup>. Ninety percent of incisional hernias occur within 2-3 years of operation<sup>2</sup>.

Repair of large abdominal incisional hernias is a difficult surgical problem with recurrence being a common outcome. Recurrence rates of up to 25% after first repair and 52% after second repair have been reported<sup>3</sup> - most

occurring within 3 years of the repair<sup>3,4</sup>. Numerous methods of repair have been described including primary repair, double breasting, and use of synthetic mesh (polypropylene, mersilene, expanded polytetrafluoroethylene PTFE)<sup>3,5,6</sup>. Sublay technique of

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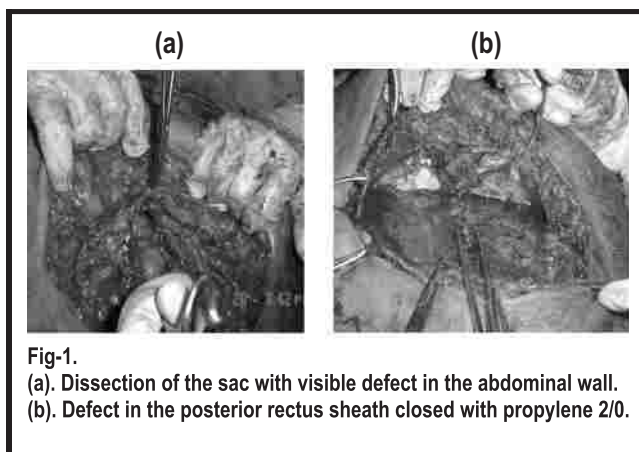
hernioplasty was used in this study for all types of abdominal wall incisional hernias as different studies have shown it to be a safe and effective method.

### METHOD AND PATIENTS

This study was carried out in Surgical Unit-I, Department of Surgery at Allied Hospital, a tertiary care teaching hospital affiliated with Punjab Medical College, Faisalabad. Sixty patients (male:16, female:44) were operated for incisional hernia.

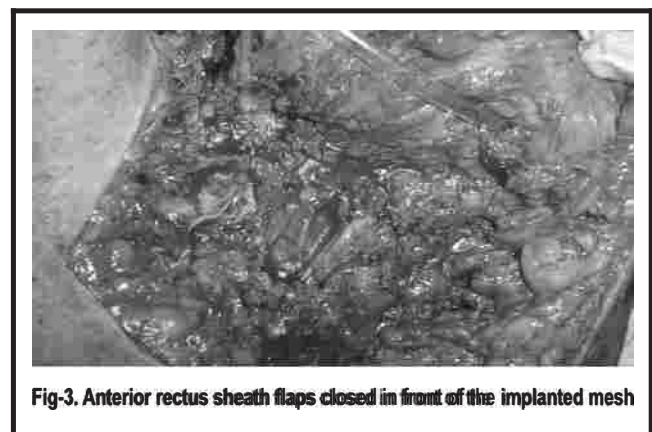
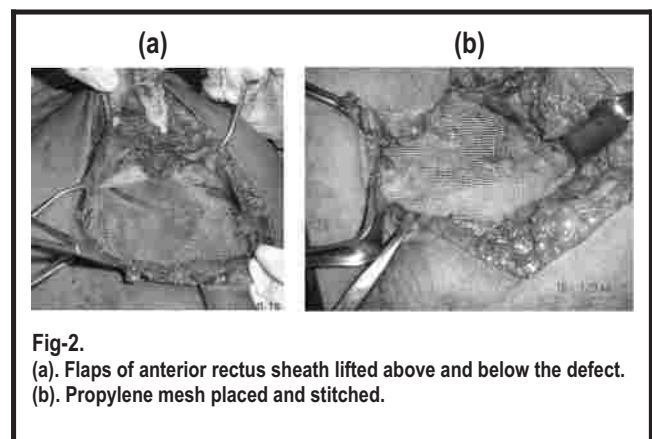
All operations were performed under general anesthesia with endotracheal intubation. Injectable third generation cephalosporin was given i.v in a dose of 2.0 g before induction. After skin preparation and draping the cutaneous scar was excised and the hernia sac dissected to expose the circumference of the abdominal wall defect. The sac was opened only if there was a definite history of obstruction or if the sac was irreducible. The rectus sheath or external oblique aponeurosis was clearly exposed around the circumference of the defect by clearing all the fatty tissue.

Flaps of the aponeurosis were formed and dissected from the underlying muscles beyond 4-5cm from the edge of the defect. The defect in the muscular and the posterior layer of the rectus sheath was approximated using polypropylene 2/0.(Fig.1)



Polypropylene mesh was placed over closed posterior rectus sheath layer and over the rectus abdominis, where available (Fig. 2).

Anterior rectus sheath was closed in front of the implanted mesh (Fig. 3). One drain placed close to mesh and another in the subcutaneous plane. The drains were removed when there was less than 50 ml of drainage in 24 hours. All the patient received injectable third generation cephalosporins for 48hrs postoperatively. Patients were mobilized as soon as possible and discharged home once the drains had been removed. Recovery in terms of seroma formation, wound infection, intraabdominal adhesions leading to intestinal obstruction, enterocutaneous fistula formation and recurrence were the main factors noted.



## RESULTS

### Sex distribution

Majority of the patients presenting with incisional hernia were female (n = 44) with male to female ratio of 1:3.

### Type of incision

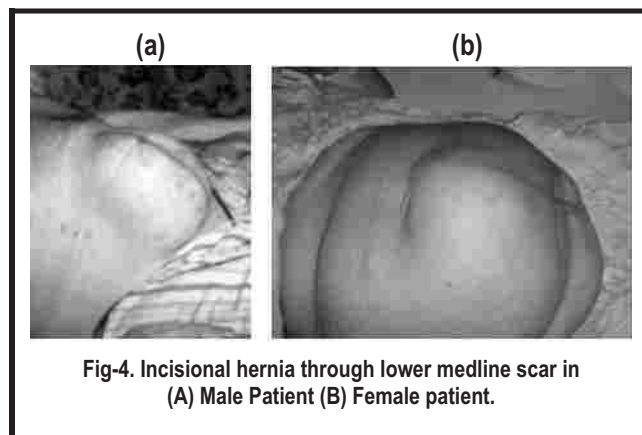
Incisional hernia mainly developed through the midline incision scar in males whereas scar of Pfannenstiel and umbilicus excising transverse incisions (for paraumbilical hernia repair) developed hernia (Fig 4 & 5) in majority of the females (Table-I).

### Postoperative complications

One patient developed wound infection. She was an obese woman with hernia through the Pfannenstiel incision. Luckily the infection was superficial to the anterior rectus sheath and settled with conservative measures and 5 days of injectable 3<sup>rd</sup> generation cephalosporin therapy.

**Table-I. Type of abdominal incision developing hernia**

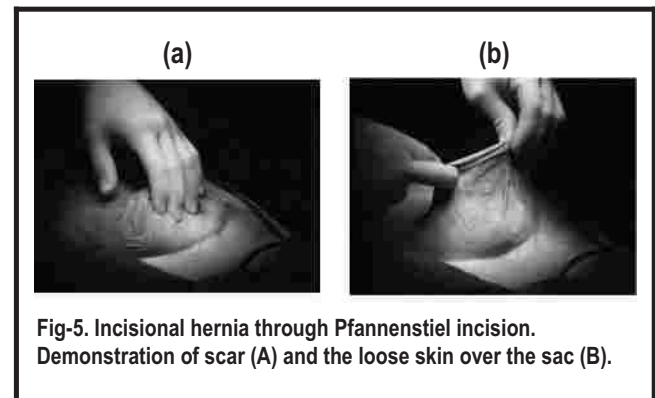
Incision	Male	Female	Total
Midline laparotomy	10	06	16
Pfannenstiel	00	16	16
Transverse umbilicus excising	04	10	14
Transverse supraumbilical	00	08	08
Appendectomy	02	04	06
Total	16	44	60



Other complications like seroma formation, intestinal obstruction and enterocutaneous fistula was noted in none of the patients with sublay mesh.

### Hospital stay

Majority of the patients were sent home on 3<sup>rd</sup> postoperative day with advice to take oral antibiotic (amoxi-clavulanic acid) for 5 days. One patient remained in hospital for 7 days due to wound infection.



### Follow-up

48 patients out of total 60 patients operated were available for follow-up. Maximum follow up till this study is 14 months. No recurrence has been reported so far.

## DISCUSSION

The use of a prosthetic mesh to repair large incisional hernias is well established. Different techniques have been described including primary closure and inlay, sublay & onlay methods of mesh placement with reference to rectus sheath<sup>3-6</sup>. Different studies have compared the results of these different types of hernioplasties. Langer and Christiansen compared their results using primary repair with historical data using a mesh and suggested that the use of mesh gave a better repair with less recurrence<sup>7</sup>. A number of studies have documented the advantages of sublay mesh repair over other techniques of hernioplasty. This technique has the advantage of low rate of recurrence. The mesh placed in front of the closed posterior rectus sheath does not form adhesions with the intraabdominal contents. At the same time the mesh is protected from exogenous infection by the layer of anterior rectus sheath closed superficial to

it<sup>7,8</sup>. Maddern and Guy J reported the rate of wound infection was 9.6% after suture repair and 8.1% after mesh repair. The recurrence rate was 29.1% with suture repair, 19.3% with onlay mesh repair, and 7.3% with sublay mesh repair<sup>8</sup>. Our study has shown only one patient with wound infection and no other complication was noted.

Hospital stay has been considerably short in our study. We feel that sublay mesh is comfortable to the patient with little need for analgesia. Early mobility can be offered in the postoperative period in these cases.

Recurrence rate with 14 months follow up is zero. Follow up in our study is short and should be extended to another one year.

## CONCLUSION

Open mesh repair using “sublay technique” does not carry risk of enterocutaneous fistula, carries low risk of seroma formation and wound infection. Proper technique is not associated with recurrence.

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## PREVIOUS RELATED STUDIES

- M. Mostafizur Rahman, Motior Rahman. An early experience with lichtenstein hernioplasty. Professional Med J 2004; Vol: 11, No. 1, 83-86

