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## A practical analysis of incisional hernia treatment and repair

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### Abstract

**Background:** A common surgical ailment, incisional hernias have been reported to occur in between 5% and 11% of people who have had abdominal surgeries. This study aims to assess the severity of the problem and the several ways that mesh repair surgery can be performed in our specific setting.

**Methods:** This is a prospective study of thirty patients diagnosed with incisional hernia was carried out at the Department of Surgery, Mahavir Institute of Medical Sciences, Vikarabad, Telangana, India between July 2015 to June 2016.

**Results:** When most of the patients first presented, they had an incisional hernia in the subumbilical area. Patients who had overlay mesh repair did not have a recurrence of their incisional hernia, however two of the patients who had received inlay mesh repair did. Overlay mesh repair seems to be clearly superior to inlay repair, given that there was no recurrence over the comparative follow-up period of three to twelve months.

**Conclusions:** Based on the research findings, it has been shown that overlay mesh repair is a more favorable option compared to inlay mesh repair in the management of incisional hernias.

**Keywords:** Hernia, incision, overlay repairs, Inlay repairs, mesh, and complications

### Introduction

An incisional hernia is a bulge or protrusion that appears next to or directly along an earlier abdominal surgical incision. A ventral hernia is another name for this kind of hernia <sup>[1]</sup>. Repair of ventral hernias has always been regarded as one of the most challenging surgical procedures because of the twisted anatomy that arises from previous surgical treatments. Open surgery and meshplasty are just two of the many surgical techniques that have been used to correct the hernias. Thanks to developments in laparoscopy, ventral hernias are being repaired laparoscopically in an increasing number of instances <sup>[2]</sup>. Even though ventral hernias have been treated in a large number of cases, the most successful technique is still up for debate <sup>[3]</sup>.

As the practice of abdominal surgery increased, the issue of incisional hernias surfaced <sup>[4]</sup>. It is conceivable for there to be a small, possibly insignificant protrusion through the wound, but it is also possible for there to be a large, unpleasant protrusion. An incisional hernia is thought to occur in 5–11 percent of people after abdominal surgery. For the surgeon, each of them presents a challenging task. According to recent studies, almost two thirds of them manifest within the first five years after the treatment, and at least another third do so between five and ten years later <sup>[5-8]</sup>. They tend to enlarge if left untreated, which can be uncomfortable for the patient and potentially cause the contents of their abdomen to suffocate. Small hernias are more likely to trap the bowel, while large hernias are more likely to obstruct the colon because of adhesions in the hernial sac or orifice. Small hernias may be more prone to bowel incarceration. It's critical to keep in mind that fixing a ventral incisional hernia requires significant surgery and shouldn't be done carelessly <sup>[9]</sup>. Excellent surgical skill, careful preoperative planning, and expert judgement are all necessary to lower the risk of complications and subsequent hernias. Almost all surgeons have distinctive techniques that they may modify according to the situation. The aim of this research is to assess the relative significance of several factors that lead to the onset of this illness as well as the different approaches to treatment that are employed in our institution <sup>[10-14]</sup>.

### Methods and Subjects

This is a prospective study of thirty patients diagnosed with incisional hernia was carried out at the Department of Surgery, Mahavir Institute of Medical Sciences, between July 2015 to June 2016. After being properly informed, both patients and patient attendants provided their consent. The proforma that was supplied was used to analyze the cases, and the patients who took part in

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the study were selected at random without reference to any preset criteria. The patient's medical history was looked at in great detail because it is essential to identifying the type of hernia and its cause. Both a thorough general and a local examination were performed. Age, gender, number of children, relative incidence, clinical presentation, type of prior operation, location of prior scar, and precipitating factors like obesity, wound infection, and abdominal distension were all taken into consideration when analyzing each case. Special focus was placed on the contributing problems, which included constipation, chronic bronchitis, and an enlarged prostate. A master chart that addresses every facet of the cases has been created and is being presented. During the presentation process, only relevant and positive findings were noted in the proforma case sheet that is enclosed. The clinical diagnosis was established in every single case with no issues at all. Standard investigations were conducted to ascertain the patient's suitability for operation. Each patient underwent an abdominal ultrasound to determine the degree of the hernia problem. Depending on how big the hole was in each patient's body, mesh repair or anatomical surgery was done. Following the treatment, patients who had their mesh mended still had a vacuum drain in their bodies. Following surgery, patients were closely observed for any potential complications that might have emerged. The SPSS software was used to total the data and do statistical analysis on it.

**Results**

Researchers found that incisional hernias were most common in patients between the ages of 30 and 60. The females were more

prevalent overall, with a 4:1 male to female ratio. The past of the cut utilized during gynecological procedures. When most of the patients first presented, they had an incisional hernia in the subumbilical area. Ten patients were placed under general anesthesia for the surgical operation, while twenty patients were placed under spinal anesthesia. Thirteen patients with incisional hernias were treated, eleven with inlay repair and nine with overlay mesh repair. Regardless of their weight or the severity of their hernial defect, patients were selected at random. For the vast majority of patients, redivac drains were used, and in each case, removing the drains necessitated making different incisions (Table 1).

**Table 1:** Surgical technique used for treatment of incisional hernia

Sr. No	Type of repair	Kings North		Present study	
		No. of cases	%	No. of cases	%
1.	Sublay	33	63.4	0	0
2.	Overlay	16	30.7	19	63.33
3.	Inlay	1	1.92	11	36.67
4.	Ramirez abdominoplasty	2	3.84	0	0

The most frequent risk factor still associated with wound failure is infection. Patients who had overlay mesh repair did not have a recurrence of their incisional hernia, however two of the patients who had received inlay mesh repair did. Overlay mesh repair seems to be clearly superior to inlay repair, given that there was no recurrence over the comparative follow-up period of three to twelve months. The incisional hernia is visible in via the tubectomy scar, and Table 2 enumerates potential post-operative consequences from repairing an incisional hernia.

**Table 2:** Post-operative complications of incisional hernia repair

Sr. No.	Complication	Inlay repair (N=12)	Overlay repair (N=18)	IL vs. OL P-Value*
1.	Seroma	3 (25%)	2 (11.1%)	0.364, NS
2.	Wound dehiscence	1 (8.3%)	-	0.400, NS
3.	Recurrence	2 (16.6%)	-	0.152, NS
4.	Total	4 (33.3%)	2 (11.1%)	0.184.NS

**Discussion**

The causes of wound gaping and infection accounted for thirty percent of the total. Obesity accounted for twenty percent of the cases, diabetes mellitus sixteen and a half percent, and postoperative respiratory problems sixteen and a half percent. In 16.6% of the patients, no issues were found [15, 16].

Thirteen percent of the patients appeared with an incisional hernia within six months following their most recent procedure, according to an assessment of their medical histories. Within a year of surgery, 23% of patients reported having swelling at the operated location, and three years after the procedure, 30% of patients reported edema. This indicates that within three years of their surgery, around 53.3% of patients had an incisional hernia. Ten patients were placed under general anesthesia for the surgical operation, while twenty patients were placed under spinal anesthesia. Of the thirty patients diagnosed with incisional hernias, eighteen underwent overlay mesh surgery while the remaining twelve underwent inlay repair. Regardless of their weight or the severity of their hernial defect, patients were selected at random. A redivac drain was placed in most patients, and in all cases, a second incision was made to remove the drain [17-19].

Five patients were identified with postoperative cough; treatment included benzyl inhalation, chest physiotherapy, and cough medicine. One patient underwent a Foley catheterization operation in order to treat urine retention. In three patients who

had undergone inlay mesh repair and two who had undergone overlay mesh repair, seroma accumulation in the suture line was addressed with drainage and dressing. This finding's statistical significance was not significant (P=0.364, NS). In order to treat wound dehiscence (F=0.400, NS) in one patient having inlay repair, secondary suturing was necessary. Serious wound infection cases were nonexistent. There were no deaths in this specific study that were related to surgical operations. Two patients who underwent inlay mesh repair reported recurrent incisional hernias (p = 0.152; not significant). None of the patients who received overlay mesh repair showed any signs of recurrence. A 6.66% recurrence rate was found in my investigation, which was in line with the JB Shah series' conclusions. Less than a year passed following the operation for both recurrences. Due to the short follow-up period, it was not possible to determine the actual recurrence rate. Incisional hernias were treated for my study using polypropylene mesh and the same kind of suture material [20, 21]. This was carried out because polypropylene mesh, which is currently the most widely used material for the repair of all forms of hernias, meets the criteria of an ideal prosthesis. Twelve of the thirty cases had an inlay repair, while eighteen of the cases had an overlay mesh repair. Two patients in each group experienced a seroma collection in the suture line following surgery. The wounds of these patients were dressed appropriately and with drainage. In one patient who had received primary suturing earlier, wound

dehiscence needed to be addressed with secondary suturing. Two of the patients in this study's inlay mesh corrected group suffered recurrences of their incisional hernias. Not a single patient in the group that underwent overlay mesh repair had a recurrence. According to Roland *et al.*'s study, individuals who underwent mesh repair had a 24 percent chance of recurrence. Roland and colleagues' analysis revealed a statistically significant recurrence rate. My investigation revealed that there was no statistically meaningful outcome. Nevertheless, the follow-up time was too little and uneven to draw firm conclusions about the true recurrence rate [22-25]. Raised contact between the prosthesis and the viscera resulted from the use of inlay mesh repair in incisional hernia repair procedures, which raised the risk of wound infection, wound dehiscence, and subsequent wound recurrence. After the issue was resolved, there was no recurrence as overlay restoration offers a tension-free closure and makes treating infections easier. In conclusion, my research's findings show that overlay mesh repair works better than inlay repair at preventing incisional hernia recurrence.

### Conclusion

Incisional hernias are iatrogenic injuries that result from medical intervention; one of the best strategies to prevent them is to avoid creating incisions in the midline, especially in the infra umbilical region. Delicate hands doing the procedure are equally as important as having a precise aseptic technique and gently closing the abdominal wound. Ensuring that high-risk individuals receive the necessary preoperative preparation is equally important for lowering the chance of recurrence. In individuals who have had an incisional hernia repaired, an overlay mesh repair is better than an inlay mesh repair in terms of keeping the hernia from reoccurring.

**Conflict of Interest:** None

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