Results of mesh repair for incisional hernia in Bir Hospital

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ABSTRACT

INTRODUCTION: Incisional hernia is a postoperative complication after abdominal surgery. The aim of this study is to find the outcome of mesh repair.

METHOD: This Retrospective study was carried out from January 2006 to December 2009 in Department of Surgery, Bir Hospital comprising 121 cases (M-48, F-73). Patients were operated and mesh repair was done irrespective of the size and site of incisional hernia.

Results: The most common post operative complication was seroma formation 29% and wound infection 14%. The recurrent rate was 6.6% after the mesh repair during 9 months follow up.

CONCLUSION: Mesh repair is the standard treatment for all incisional hernia, especially if the defect is large. We found that most of the incisional hernia occurred after the mid-line incision specially after emergency laparotomies.

KEY WORDS: Patients, incisional hernia, mesh, repair, infection.

INTRODUCTION

Any extrusion of peritoneum and intra-abdominal contents through a weak post-operative scar on the abdominal wall is called an incisional hernia. Each year approximately 2 million laparotomies are performed, with an incisional hernia rate of 2-11% in US.1 Approximately 100,000 incisional ventral hernia repairs performed annually in U.S.1,2 Recurrence rates after incisional hernia repair are between 10% and 50%.2,3,4,5 More than 50% of incisional hernias present within first 2 years after primary operation.2,3 It is one of the most important complication of abdominal surgery specially performed for emergency conditions.1

The predisposing factors for incisional hernia are advanced age, immunocompromised state (renal failure, steroid use, diabetes, malignancy), obesity, abdominal distension from obstruction or ascites, poor technical abdominal closure, unsuitable suture material, post operative wound haematoma, wound infection, wound dehiscence, pulmonary complications (atelectasis and chest infection).2,3 Wound infection is most significant independent factor for incisional ventral hernia. In patients with post-operative wound infection, there is a 23% risk of incisional hernia.3 Studies suggest that transverse incisions have lower rate of incisional hernias than midline incisions.4 Some patients undergoing operation have a very high chance of wound haematoma and infection, dehiscence and recurrence.3

First sign of incisional hernia is usually an asymptomatic bulge noticed by the patient. Over time, incisional hernias enlarge and become painful with movement, straining, or coughing. Uncommon symptoms are vomiting, constipation, or severe pain; but when present it can be associated with incarceration or strangulation.4,5,7

There are different types of repair or procedures; primary anatomical repair, Mayo’s repair, Cattle’s repair, primary with relaxing incisions (Keel’s procedure), primary with onlay mesh reinforcement, onlay mesh only, inlay mesh placement, retrorectus mesh placement (Rives-Stoppa Procedure),7 and intraperitoneal mesh placement are described by various authors. But some sort of mesh repair (onlay or inlay) is the gold

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standard for incisional hernia.\textsuperscript{7,8} Recurrence is more common in larger incisional hernias after repair. Absorbable (Vicryl, Dexon) mesh products are only used in cases where mesh infection is a significant risk and cannot perform primary closure. Polyester mesh is associated with higher rates of enterocutaneous fistula formation and mesh infection. Polypropylene (Prolene) has greatest tissue ingrowth of all meshes available. PTFE (Polytetrafluoroethylene) has fewest bowel complications due to its nonadhesiveness to bowel.\textsuperscript{9,10}

\textbf{METHODE}

A total of 121 patients were included in this study who underwent mesh repair for incisional hernias in general (both male & female) surgical wards of Bir Hospital, Kathmandu from January 2006 to December 2009. This study was a Retrospective study with the following inclusion and exclusion criteria.

\textit{Inclusion criteria:} All patients who were previously operated for one or other reason and developed incisional hernia were included in this study.

\textit{Exclusion criteria:} Patients of incisional hernia with co-morbid diseases like cirrhosis, intra-abdominal malignancy or chronic obstructive pulmonary disease (COPD) were excluded from this study (ASA III).

All patients were admitted from surgical outdoor patient department as elective cases, were thoroughly investigated and looked for any contraindication of surgical intervention. Pre-operative assessment of the size of abdominal wall defect was done and hernial size was measured in at least two dimensions. Patients were operated and mesh repair was done irrespective of the size and site of incisional hernia. In all cases fascial closure was done first and then an onlay mesh repair was done using prolene mesh (size 30x30cm or 15x15cm) depending upon the size of the fascial defect. Vacuum drains were put in the wound through a separate stab, far from the suture lines and patients were shifted to ward. Early mobilization was encouraged in all cases. Drains were removed after they remained dry for more than 24 hours. Patients were discharged and asked to visit the outpatient department after a week or two, they were looked for any evidence of complications like seroma, stitch sinus formation, mesh sepsis, intestinal obstruction and recurrence. Findings were recorded on a proforma and at the end of the study, the results were compiled and different variables were noted and data analysis was done.

\textbf{RESULTS}

One hundred twenty one (73 female and 48 Male) patients were included in this study. In majority of the patients, there were previous history of laparotomy through midline incision for emergency condition, like peritonitis, intestinal obstruction, gunshot injury, intra abdominal abscess etc. while in 26 cases, the hernia occurred in midline incision made for Caesserian section. (Table-I). Females (60%) at 90% confidence level, were more seen to be affected by incisional hernia (p=0.04), may be due to weak abdominal fascia and musculature and multiple pregnancies.\textsuperscript{5}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Previous operation} & \textbf{No. of Patients} & \textbf{\%} \\
\hline
Elective Laparotomy & 20 & 16.5 \\
Emergency Laparotomy & 30 & 24.7 \\
Caesserian Section & 26 & 21.4 \\
Other gynaecological operations & 17 & 14.2 \\
R. Hemicolecotomy & 7 & 5.8 \\
Bladder & Prostate surgery & 21 & 17.4 \\
\hline
\end{tabular}
\caption{Previous operations leading to incisional hernia (n=121)}
\end{table}

The most common post operative complication was seroma formation and majority of these patients were treated by single or repeated aspirations (Table-II). This complication was followed by wound infection ranging from superficial wound infection to frank mesh sepsis. Most of such patients were treated by conservative measures like repeated dressings and debridement and antibiotics. Only one patient needed removal of mesh as she developed enterocutaneous fistula. The recurrence rate was 6.6% and five of these patients were lost to follow up. In one patient an unidentified bleeder led to subcutaneous heamatoma formation which was evacuated. Twelve (9.9%) patients developed different degrees of skin margin necrosis. Majority of these patients did well by simple debridement while few patients needed resuturing. Wound dehiscence was also noted in four patients due to infection.
**Table 2. Postoperative complications (n=77)**

<table>
<thead>
<tr>
<th>Complications</th>
<th>No. of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematoma</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Seroma</td>
<td>35</td>
<td>28.9</td>
</tr>
<tr>
<td>Skin necrosis</td>
<td>12</td>
<td>9.9</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>Wound infection</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Recurrence</td>
<td>8</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Incisional hernia starts as asymptomatic partial disruption of the deeper layers of abdominal wound during the immediate or early post operative period. Sepsis is the main culprit for causation of incisional hernia. In our series midline incisions were more commonly involved and similar findings are also noted by other researchers. Several procedures with simple repair and mesh repair have been proposed, but controversy still exists in literature about the effectiveness of mesh repair versus simple anatomical closure. Some authors argue that results of mesh repair are superior to simple repair at it has less recurrence rate. While some authors have reported favorable results with mesh repair, they include combination of mesh and fascia, sandwich of mesh and rectus sheath and a complex mesh peritoneal sandwich, but the overlapping technique using combined fascia and mesh produce better results. Seroma formation was the most common complication followed by wound infection in our study and these results are comparable to some studies but our values are bit higher as compared to other studies.

Onlay mesh repair technique was used in all of our patients. In our study, various degree of wound infection ranging from superficial infection, mesh sepsis and abscess formation was noted in 17 (14%) patients and majority of these patients were treated by conservative measure. Only one patient was treated by removal of the mesh for enterocutaneous fistula. We noticed a recurrence of incisional hernia in 8 (6.6%) patients in our series which is comparatively low for we could not do follow up after 9 months. Similar results have been shown in other national and international studies.

We would like to recommend for future researchers to follow up for at least for 3 years (33% recurs within 3 years).

**CONCLUSIONS**

Incisional hernia is seen more in female patients and also common in midline laparotomy wounds specially performed for emergency conditions. Wound infection is seen frequently the important predisposing factor during laparotomies. And repair with onlay mesh procedure has high acceptable outcomes.

**REFERENCES**


