Original Article

Retrospective Study Of Outcomes Of Incisional Hernia Mesh Repair At Tertiary Care Centre

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Abstract

INTRODUCTION:

Incisional hernias are common surgical complications in post laparotomy patients; usually having multifactorial aetiology. Incisional hernia occurs in 5-11% of patients subjected to abdominal operations. The introduction of prosthetics(mesh) has revolutionized the hernia surgery with the concept of tension free repair. In this retrospective study we have assessed the outcomes of two types of open mesh repairs (onlay v/s retrorectus)

MATERIAL AND METHODOLOGY:

In the present study outcomes of total 64 patients operated for open (onlay-30/retrorectus-34) mesh repair for incisional hernia assessed with various parameters like intra-op time, post op pain, hospital stay, complications and recurrence within 2 year and analysed with standard statistical tests.

OBSERVATION AND RESULTS:

It has been observed that maximum cases were in middle age group of 20 to50 years with female preponderance. Average intra op time is more in retrorectus mesh placement(94min.) as compared to onlay mesh repair(78min). Surgical site infections occurred in 4 patients of onlay repair compared to 0 in retrorectus group. Out of these 4, one patient required mesh explantation. Average post op hospital stay is 4days (almost same in both groups). Recurrence rate is also higher in onlay mesh repair (4:1)

CONCLUSION:

Retrorectus mesh repair found to be better alternative as compared with onlay mesh repair for incisional hernias. Met analysis of multicentric studies with long term follow up of larger sample size recommended to draw consensus statement.

Keywords- incisional hernia, onlay mesh, retrorectus mesh repair.

Introduction

Incisional hernia is defined as any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging[1] Also, by definition, it represents a breakdown or loss of continuity of a fascial closure. Ian Aird defines incisional hernia as a diffuse extrusion of peritoneum and abdominal contents through a weak scar of an operation or accidental wound. Incisional hernias occur as a result of excessive tension and inadequate healing of a previous incision, which is often associated with surgical site infection. These hernias enlarge over time, leading to pain, bowel obstruction, incarceration, and strangulation. Obesity, advanced age, malnutrition, ascites, pregnancy, and conditions that increase intra-abdominal pressure are factors that predispose to the development of an incisional hernia[1]. Incisional hernia occurs in 5-11% of patients subjected to abdominal operations[2,3]. More than 50% of incisional hernias present within first 2 years after primary operation[4,5]. For more than hundred years attempts have been made to develop successful methods for repairing incisional hernia from anatomical repair to laparoscopic repair, but most attempts were followed by high incidence

of recurrence and complications. The risks of repairing an incisional hernia should be explained to the patient when obtaining consent include seroma formation, wound infection, injury to intra-abdominal structures and recurrence.[6] The introduction of prosthetics has revolutionized the hernia surgery with the concept of tension free repair. Mesh repair technique 6 showed reduced number of postoperative complications and recurrence compared to other techniques.[7] Mesh repair has now become the gold standard in the elective management of most incisional hernias.[8] It can be categorized according to the way in which the mesh is placed as well as its relationship to the abdominal wall fascia. Mesh can be placed as an 1. Underlay deep to the fascial defect (intra-peritoneal or pre-peritoneal) 2. Inter-lay either bridging the gap between the defect edges 3. Intraparietal within the abdominal wall musculoaponeurotic layer, 4. Onlay (superficial to the fascial defect), 5. Retro rectus mesh placement.[9] Despite advances in many fields of surgery, incisional hernias still remain a significant problem. There is a lack of general consensus among health professionals regarding optimal treatment. A surgeon's approach is often based on tradition rather than clinical evidence. An understanding of the structural and functional anatomy of the abdominal wall and an appreciation of the importance of restoring dynamic function are necessary for the successful reconstruction of the abdominal wall[10]

Methodology

In the present study we have assessed the outcomes of total 64 patients with incisional hernia who have undergone open mesh repair at tertiary care centre in different surgical units. The period of follow up was from 6months (minimum) to 24 months(maximum). The parameters studied were demographic information like age & sex distribution, presenting symptoms, past surgical intervention, comorbidities, defect size, intra op time, post op analgesia requirement, post op hospital stay and postoperative complications like surgical site infections(SSI), recurrence etc. The data collection is carried out from case sheets, operative notes, HMIS; & radiological reports available on PACS system initially. Then individual patients were approached either thro' their routine follow up visits at the surgical opds or telephonic communication & asking them to come for follow up in opd.

The findings of each observed variables were documented on Microsoft excel sheet. Statistical data analysis was done using statistical software.

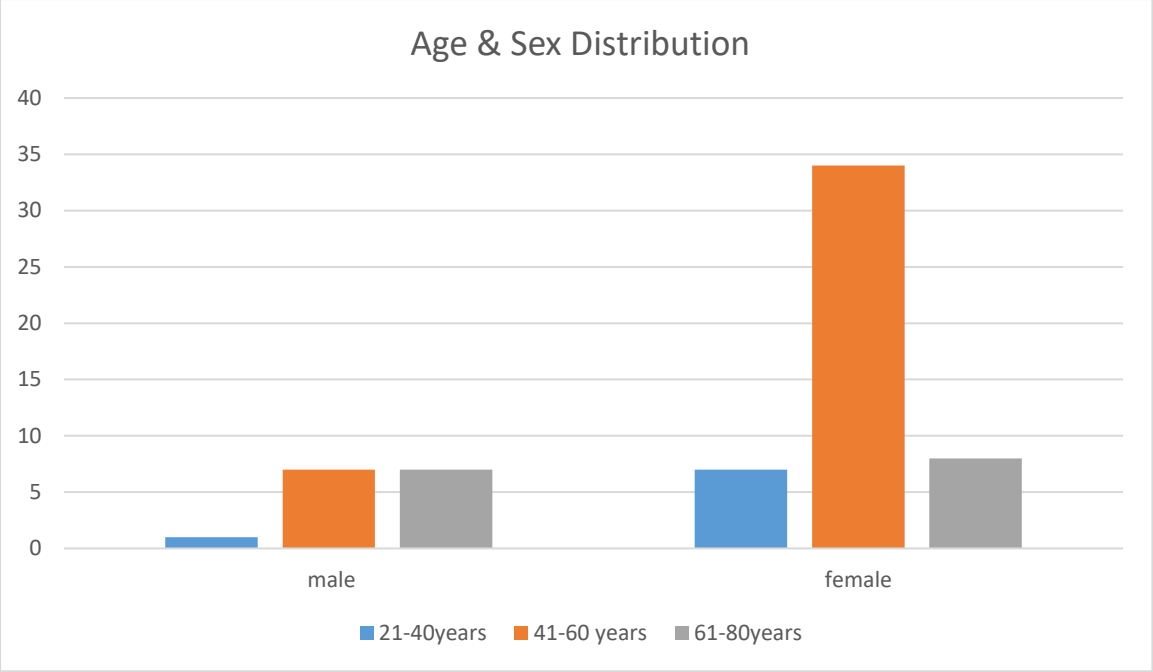
Observations & Results

Total 64 patients had undergone open mesh repair; either onlay (30patients) or retrorectus (34 patients) for incisional hernia.

Age & Sex Distribution

Out of the 64 patients, 49 were females (76.5%) and 15 were males (23.5%).

The commonest age group affected in the present study is 41-60 years. The distribution of patients is from 24years to 73 years. In the above 60 years of age group, the no. of male & female patients with incisional hernia was found to be almost similar.



The commonest symptoms were swelling (87%) and pain (37%).

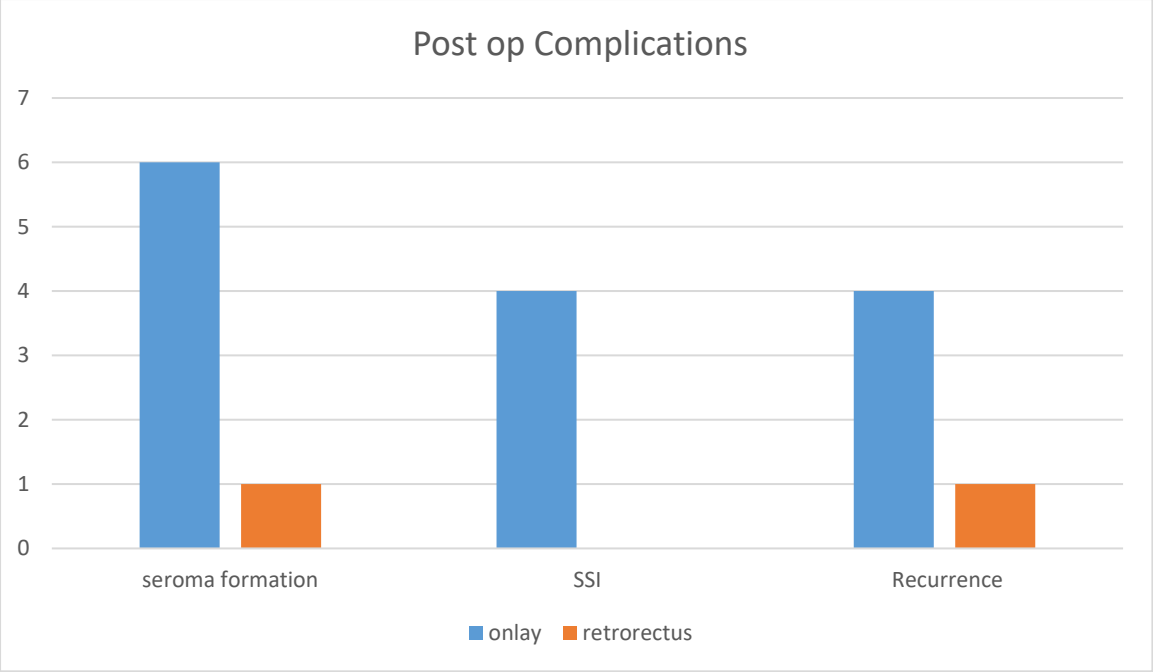
The past surgical history pertaining to incisional hernia showed almost equal distribution between emergency and elective surgeries (31 elective v/s 33 emergency).

Majority of the patients had hernia at infraumbilical midline vertical scar (EHS –M3)/M4) (45 cases-70%) of the previous surgery f/b supraumbilical midline scar (10 cases-16%) and the other incisions (9 cases-14%).

Average defect size found was 4.8 cm with range from 2cm to 8.5cm. But majority of the defects were below 6cm in size.

The average intra op surgical time was significantly higher in retrorectus mesh placement as compared to inlay mesh (94mins v/s 78 min)

Seroma formation observed in 6 patients (20%) from onlay group as compared to single case from retro rectus group (2.94%)., which is statistically significant.
Surgical site infections occurred in 4 patients of onlay repair compared to 0 in retrorectus group. Out of these 4, one patient required mesh explantation. Average post op hospital stay is 4days (almost same in both groups). Recurrence rate is also higher in onlay mesh repair [4 cases (13.33%) :1 case (2.94%)]



Discussion

Incisional hernias are one of the common post op complications observed after various types of abdominal surgeries. The incisional hernias are classified according to European Hernia Society classification in various groups. The definitive management of patients with incisional hernia is surgery. The various surgical procedures used for incisional hernia mainly depends on various factors like defect size, patients general condition & surgical expertise etc. If the hernia defect size is less than 2cm, then anatomical repair is also sufficient. If the defect size is more than 10cm, then such patients requires abdominal wall reconstruction in the form of component separation and Transversus Abdominis Release (TAR) after thorough pre-op optimization by asking the patient for weight reduction & using methods like BOTOX injections & positive pressure pneumoperitoneum etc.

For the management of defect size between 2-10cm different types of open (e.g. onlay, retrorectus) and minimally invasive (e.g. IPOM, TARM, ETEP etc.) procedures are available. Out of these various surgical procedures, there is no consensus on the use of single technique. All these procedures have their own pros.& cons.

In the present study, we have tried to assess the outcome of two varieties of open mesh repairs (onlay v/s retrorectus) which is the commonest surgical procedure utilized for incisional hernia repairs.

As far as the demographic characteristics are considered, the findings like female preponderance and commonest age group of presentation are almost similar to the majority of studies like Kharde et al[11].

Average defect size was found to be 4.8cm which was also comparable with most of the studies.

The average intra op time is higher in retrorectus mesh placement group as compared to onlay mesh placement. Hamed et al[12] also shown the similar results in their study. The main reason behind this is the different plane of dissection in both the group as the subcutaneous plane is almost avascular and the retrorectus plane has good vascularity and we have to preserve that neurovascular bundles to avoid the atrophy of recti in future.

As far as the postoperative complications like seroma formation and surgical site infections are considered, both were common in patients with onlay mesh repair. Out of the 4 SSI patients from the onlay group, one patient required mesh explantation. These are mainly because of the relative avascular nature of the subcutaneous plane and need of large size skin flap mobilization. These findings are similar with studies of Hamed et al[12], DK Sharma et al[13] & Kumar et al[14].

Average post op hospital stay is almost similar in both the groups.

Recurrence rate in the overall follow up was found in 5 cases (4 out of them were from onlay group & 1 from retro rectus group). These findings are comparable with studies like DK Sharma et al[13] & Kumar et al[14]

Majority of the studies available for comparison were prospective studies and ours is the retrospective study. The second limitation for the present study is that most of patients with significant comorbidities like diabetes and obesity, were undergone retrorectus repairs. That may affect the outcomes as far as post op complications are considered because of the selection bias. But the findings were in favour of retrorectus repair for those characteristics (seroma & SSI) also.

Conclusion

Retrorectus mesh repair found to be better alternative as compared with onlay mesh repair for incisional hernias. Met analysis of multicentric studies with long term follow up of larger sample size recommended to draw consensus statement.

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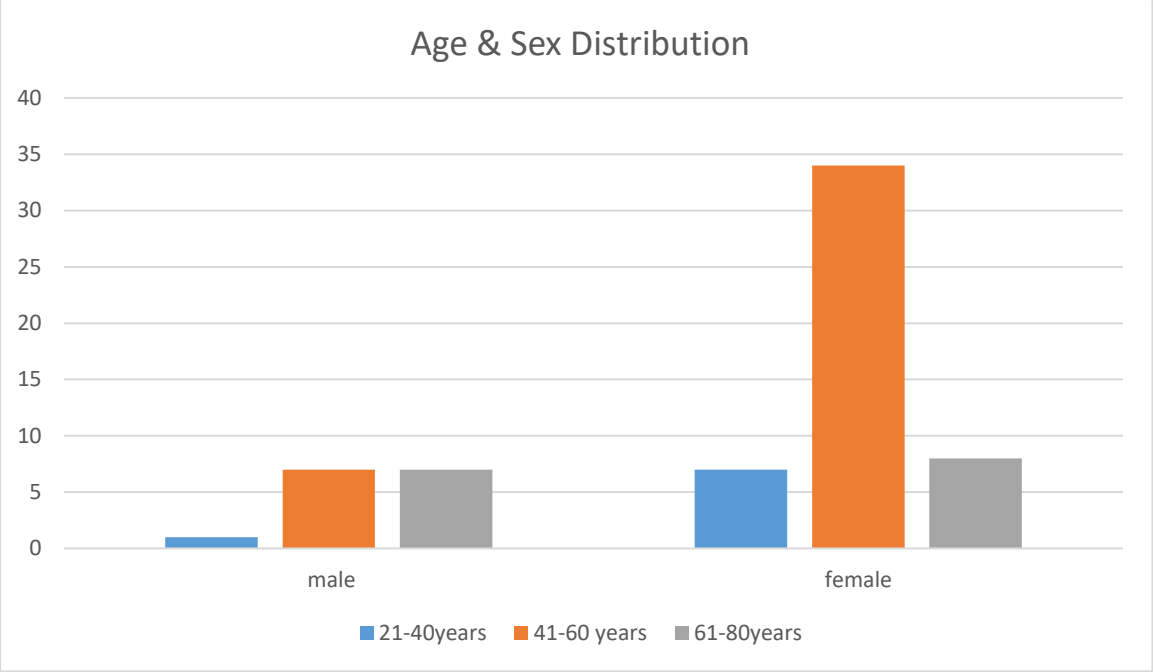
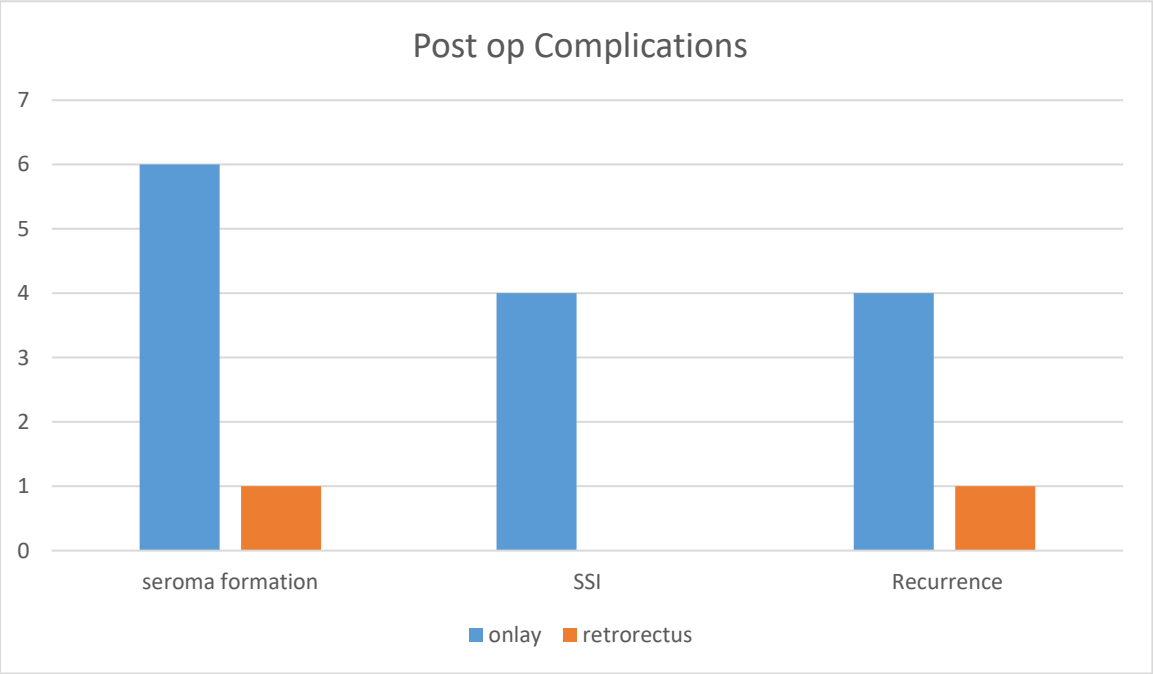

Age & Sex Distribution
40
35
30
25
20
15
10
5
0
male
female
21-40years
41-60 years
61-80years


Post op Complications
7
6
5
4
3
2
1
0
seroma formation
SSI
Recurrence
onlay
retrorectus