



Clinical Profile And Management of Incisional Hernia

KEYWORDS

Incisional hernia, prolene mesh repair, laparoscopic

Dr. Vinayak Kshirsagar

Assistant Professor of Surgery,, D. Y. Patil Medical college, Pimpri, Pune

Dr. Mahendra Bendre

Professor of Surgery, D. Y. Patil Medical College, Pimpri, Pune

Dr Prashant Male

Assistant Professor of Surgery,, D. Y. Patil Medical college, Pimpri, Pune

Dr Shahaji Chavan

Professor & HOD of Surgery, D. Y. Patil Medical College, Pimpri, Pune

Dr Sarang Rathod

Senior Resident, D. Y. Patil Medical College, Pimpri, Pune

ABSTRACT *Background: Incisional hernia by definition is a hernia which develops in the scar of a previous surgical incision. Incisional hernia represents a breakdown or loss of continuity of a fascial closure. With rapid increase in number of abdominal operations performed, incisional hernia has rises in frequency.*

This study was performed to review clinical profile and management of incisional hernia.

Aims & Objectives: To study the etiopathogenesis of incisional hernia with respect to patient variable factors, types of surgical intervention.

Materials & Methods: This study was conducted in patients who were admitted with diagnosis of incisional hernia & treated.

40 patients were included and followed up for factors resulting in occurrence of incisional hernia & selecting the most optimum technique of repair. The ethical committee clearance was taken. The written informed consent was taken from all patients.

Observations & Results: Incisional hernia was found to occur more in females, often in 31-40yr age group. Most commonly occurred following gynecological operations, lower abdominal incisions. Most patients noticed the incisional hernia only 1 to 5 years after the index surgery. Hernioplasty (open/laparoscopic) was the most commonly performed surgery.

Conclusion: Incisional hernia is more common in females after lower midline abdominal surgery. Mesh repair is the ideal recommended treatment except in very small incisional hernia where primary repair can be done.

INTRODUCTION

The word "Hernia" is derived from the Greek word -"Hernios"- meaning "branching" or "offshoot". Incisional hernia is a hernia which develops in the scar of a previous surgical incision. (1) Attention was specifically directed to these hernias only at the beginning of nineteenth century as abdominal operations became more common. In 1886 Maydl did successful anatomical repair of incisional hernia (1), while in 1889 Mayo described his transverse repair technique for umbilical hernias equally applicable to incisional hernias (2). Various techniques evolved over time by use of natural and synthetic tissue materials for repair of the hernias, with not so very successful results till 1958 when Usher FC (3) used polyethylene mesh in repair. In 2000, Anthony (4) showed that mesh repair is superior to suture repair in preventing recurrence. First series of laparoscopic repair of these hernias was presented by Le Blank and Booth WV in 1993. In 2005, Cobb et al reported advantages of laparoscopic repair over mesh repair in his series. (5)

Incisional hernia is a common complication of laparotomy and occurs due to breakdown or loss of continuity of a fascial closure, (6) usually as a sequel to postoperative wound infection. Its incidence after primary healing is approximately 1%, rising to 10% in infected wounds and 30% after dehiscence and reclosure (7). A number of patient re-

lated and other specific factors related to operation influence the development of these hernias. Patient presents with a bulge in abdominal wall scar and may have difficulty in bending and abdominal discomfort. Incarceration or strangulation is much more common if the neck of the hernial defect is narrow. The ideal treatment of incisional hernia is surgery – either open or laparoscopic mesh repair being most popular. After the advent of good and safe anesthesia, antibiotics, closed suction drainage, implants like prosthetic mesh in repair and proper pre and postoperative care, many of the problems in management have been solved. We hereby present our series of 40 cases of incisional hernias, which have been studied from point of view of clinical profile and appropriate surgical management.

MATERIAL AND METHODS:

This is a prospective study done at our institute between August 2014 and July 2015. A total number of 40 cases were included in the study.

Inclusion Criteria: All patients with incisional hernias with history of previous surgery.

Exclusion Criteria: Patients with debilitating medical illness

A total number of 40 cases of incisional hernia coming to a general hospital were selected for study coming over a

period of 1 year. After being subjected to detailed history and thorough clinical examination, all investigations for preoperative check up and preanaesthetic fitness were performed.

All operations were performed on elective basis after prior admission and adequate preoperative preparation under GA.

Patients were analyzed for factors resulting in occurrence of incisional hernia & selecting the most optimum technique of repair.

Data was entered in the proforma, tabulated and analyzed for statistical significance using univariate and multivariate

Type of operation was decided on defect of hernial size, whether the margins of the defect could be approximated without tension and prior recurrence. After raising the skin flaps away for 4 cm from margins of the hernial defect. The hernial contents were reduced after lysis of adhesions. The redundant hernial sac was excised and musculoaponeurotic structures with peritoneum were repaired with monofilament prolene in the anatomical repair. In the prolene mesh repair, the mesh was placed as onlay technique. Care was taken to take sutures in healthy tissues and suction drain was kept as per need.

After adequate postoperative care, the patients were discharged on 4th postoperative day in case of laparoscopic repairs and on 10th postoperative day in cases of open repairs after removal of skin sutures. They were advised to avoid strenuous work for 6 months and were called for follow up for 1 year for review of symptoms and examination of operative site.

OBSEVATIONS AND RESULTS

The following are the analytical results of all 40 cases and the conclusions drawn from them.

1) Age and Sex:

14 patients (35%) were between 31 – 40 years, 12 patients were (30%) between 41 – 50 years, while 6 were (15%) from 51 – 60 years. Overall 32 patients (80%) were in the age group of 31 – 60 years.

2) Previous operations:

27 out of 40 patients were after gynaecological operations – 20 patients (50%) had previous LSCS while 4 patients (10%) had hysterectomy done before. 29 patients (72.5%) developed the hernia after elective surgery while 11 patients (27.5%) developed it after emergency surgery (Table 1). 31 patients (77.5%) were operated only once before, 7 patients (17.5%) were operated twice before while 2 patients (5%) had 3 or more operations before.

Table 1-

No	Procedure	No	%
1	Elective	29	72.5
2	Emergency	11	27.5
3	Total	40	100

3) Risk factors:

13 patients (32.5%) had wound infections after primary surgery, 12 patients (30%) had no clinically detectable complication during primary surgery, 5 patients (12.5%) had postoperative chest complications like cough and bronchial asthma, 5 patients (12.5%) had wound dehiscence and 4 patients (10%) had abdominal distention.(Table- 2)

Table 2-

Sr No	Complication	No
1	Post op wound infection	13(32.5%)
2	Post op Respiratory complication	05(12.5%)
3	Wound dehiscence	05(12.5%)
4	Abdominal Distention	04(10%)

4) Clinical features:

All patients presented with swelling with dull aching pain appearing on coughing or straining. None presented with obstructive symptoms.

5) Size of Defect:

28 cases (70%) presented with a defect of 4 – 10 cms while 12 patients (30%) had a defect of 1 -3 cms.(Table – 3)

Table 3-

Sr No.	Size of Defect	No.
1	1-3 cm	28 (70%)
2	4-10	12 (30%)

6) Surgical techniques:

Primary repair was done in 4 patients; prolene onlay open mesh repair was done in 24 cases while laparoscopic mesh repair was done in 12 cases. Suction drain was used in 28 cases while in 12 cases of laparoscopic repair no drain was placed.(Table - 4).

Table 4-

Sr No	Type of Repair	No
1	Anatomical	04
2	Open Mesh	24
3	Laparoscopic	12

7) Duration of surgery:

Primary repair was performed within 1 ½ hours while open mesh repair took 2 – 2 ½ hours. Laparoscopic repair were performed within 2 ½ - 3 hours.

8) Postoperative stay:

Postoperative chest physiotherapy was given to all cases and the hospital stay ranged from 4 – 10 days, the average stay being 7 days.

9) Local Complications:

Seroma was common complication, occurring in 3 cases (7.5%), while wound infection occurred in 2 patients (5%) one of which required secondary suturing.

10) Follow up:

Patients were followed every month for 1 year and no recurrences were noted in any of the patients during this period.

DISCUSSION

The incidence of incisional hernia ranges from 2 – 11% [6, 8, 9]. Mudge and Huges showed that [10] 56% of patients developed the hernia after the 1ST postoperative year and 35% developed it after 5 years. The maximum incidence of incisional hernia occurred between 31 – 40 years in our study and 80 % cases occurred between 31 – 60 years of age. Ponka et al [11] has noted the peak incidence in 40 – 70 years of age. Incisional hernia has been found to be common in females, in 82.5% of our cases and the male: female ratio is 1:1.4. 71% cases were female in the series of Kozol [12] with male: female ratio being 1:4. The increased number of cases in females may be due to multiple pregnancies causing abdominal muscles and fascial layers weakness, association with obesity and hurried clo-

sure after LSCS operation. Hernia occurred through lower midline incisions in 70% of our cases, which is comparable with the study of Parekh et al [13], Milbourn [14], Carlsen [15].

Hernias occurred through upper midline incisions in 6% of both of these series. Although no incision is immune to the development of incisional hernia, it is commonest after lower midline incisions as the linea alba is thinner below umbilicus and less protected due to absence of posterior rectus sheath. Also, the transverse fibres in linea alba are more likely to get cut through vertical incisions. 72.5% of the incisional hernias have occurred after elective surgeries while 27.5% followed emergency operations in our study (Table-1). This is comparable to the study of Parekh et al [13], where the corresponding figures are 55% and 21% respectively. In our series, 62.5% of the incisional hernias occurred within a year of primary surgery, 77.5% within 3 years and 87.5% within 5 years. Similar results were obtained by Read and Yorder [16], where 56.1% were present at the end of 1 year, 79.5% at the 3 years and 86% at 5 years.

Various risk factors exist for development of incisional hernia. They can be –

(1) Poor surgical technique: Nonanatomic incisions, faulty suturing techniques and inappropriate suture materials and closing wounds with tension are all responsible for development of the incisional hernias. The incidence is lower in midline closures with continuous suturing techniques (Israelsson and Johnson) [17].

(2) Patient related factors : Obesity, poor general condition, operations performed for inflammatory abdominal pathologies, postoperative complications like wound sepsis and wound dehiscence and presence of drain, all being contributory factors. Wound infection occurred after primary surgery in 32.5% of our cases. The rate of wound infection has been found to be 35.85% in the study of Larson et al [18], 46.05% in the study done by Parekh et al [13] and 88% in the study of Fisher et al [19]. This illustrates that wound infection is a major predisposing factor in the development of incisional hernia, as the scar that forms after healing will not be sound enough to withstand the stress and strain of day to day life. Wound gaping and chest complications were associated with the development of the hernia in 10% and 5% cases respectively in our study and similar incidence has been noted by Parekh et al [13] in their study (Table- 2). Ponka [11] has pointed out that drainage tubes brought out through operative wound sites are potent cause of postoperative hernias.

(3) Other causes: Aging causes defective collagen formation in the scar tissue along with weakness as shown by Rodrigues [20], thus contributing to development of hernia.

Almost all patients presented with swelling at the operated site although only 18% had dragging pain at the site. After confirmation of diagnosis after appropriate investigations and adequate preoperative preparation, the patients were subjected to operative treatment. Type of repair was decided by size of the defect, whether it can be approximated without tension and also the age and general condition of the patient. Operative treatment of incisional hernia consists of repair by either open or laparoscopic techniques, and each can be done by primary closure or prolene mesh repair. Defects < 3cms with strong fascial

edge can be treated with primary (anatomical) closure. (Fig. 1)

Most of the small incisional hernias can be repaired by using patient's own tissues as suggested by Molloy et al [21]. Mesh repair is indicated in hernias with defects > 3cms, hernias with multiple defects and recurrent hernias. (Fig. 2) Polypropylene mesh meets the requirement of ideal prosthesis and is most popular in all types of hernias, as it stimulates strong fibroblastic response and has marked resistance to infection, as reported by Liechtenstein in 1991 [22]. The mesh can be sutured to the inner surface of abdominal wall deep to peritoneum as inlay graft or to the outer surface of the musculoaponeurotic abdominal wall as an onlay graft between abdominal wall and subcutaneous fat.

The mesh repair is a simple and effective operation for incisional hernia. Ronald et al., in their study in 154 patients established the superiority of mesh repair over suture repair with regard to the recurrence of hernia [23]

In the present study, anatomical repair has been done in 4 patients, open mesh repair (onlay technique) has been performed in 24 patients and laparoscopic mesh repair has been done in 12 patients. (Table-4). Leber et al [24] has found that the technique of mesh placement had no influence on outcome, although Hesselink et al [25] claims less incidence of recurrence after inlay mesh technique in large hernias. The common postoperative complications are seroma occurring in 5% cases, wound infection, wound hematoma and induration of wound. Sharp dissection, avoidance of excessive dissection of flaps, use of suction drain and pressure dressing decrease the incidence of these complications [26]

Laparoscopic mesh repair is done by placements of appropriate ports after creation of pneumoperitoneum and adhesiolysis, proper definition of the hernia defect margins, placement of dual mesh covering well beyond the defect from inside of peritoneal cavity, and fixation is done from inside as well as from outside by corner sutures. Adhesions can be viewed from a distance by the placements of ports decreasing the chance of injury to the viscera which may be adherent to the incision. The actual defect can be manipulated from a distance, thus minimizing the involvement of the potentially contaminated wound site and requirement of drain. Laparoscopic mesh repair is the best alternative in hernias with multiple small defects and recurrent hernias, as it allows the surgeon to clearly define the margins of hernial defects, especially in defects which were clinically less apparent preoperatively as advocated by Park et al [27]. Also, laparoscopic mesh repair has the advantage of fewer perioperative complications, reduced hospital stay and less chances of recurrence as is shown by Javid et al [9, 28]. The postoperative pain is much less due to smaller incisions, shortened healing time, decreased chance of infection and more rapid return to work. In all cases of open repairs, a suction drain was used, while in laparoscopic repair there is no need of postoperative drainage.

Primary repair took 1 hour on an average, which is comparable to Hesselink et al [25]. Operative time was longer, 2 - 2 ½ hours in prosthetic mesh repair due to wide dissection limits and the need for adhesiolysis and proper fixation of the mesh as is also evident in the study done by White et al [29]. Laparoscopic repair took a little bit longer time, 2 ½ - 3 hours because of the time required to

take down the adhesions in and around the hernia defect which is more tedious process as is done by laparoscopic instruments. [28,30] After an adequate postoperative care, the patients were discharged and were advised to use abdominal binder and to avoid strenuous work for 6 months. There was no recurrence noted for a follow up done every month for 1 year.

CONCLUSION

We have presented a study of 40 cases of incisional hernias, considering the prevalence, etiological factors, clinical presentations and operative treatment given for the same. Incisional hernia is common following operations on female pelvic organs done through lower midline incisions. Wound infections, truncal obesity and lack of exercise are the major predisposing factors. Mesh repair is advocated in hernias with wide defects, inability to approximate the tissues and recurrent hernias. Duration of surgery was longer in open and laparoscopic mesh repairs as compared with primary repair which was done in cases with smaller defects. Laparoscopic mesh repair is a good alternative in experienced hands as it has advantage of faster recovery and less chances of recurrence. Seroma was the commonest local complication. There was no recurrence noted in the follow up done in all cases for one year.

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