ejpmr, 2020,7(9), 613-616

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

ABDOMINAL INCISIONAL HERNIA: PROSPECTIVE STUDY

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Article Received on 20/07/2020 **Article Revised on 10/08/2020** **Article Accepted on 30/08/2020**

ABSTRACT

Background: Incisional hernia is the 2nd most hernia after inguinal hernia.this is common complication after abdominal surgeries. This complication can be managed by better preoperative patients evaluation for high risk patients and by adopting a proper surgical technique. This study was undertaken to study the incidence and various risk factors leading to incisional hernia. **Method:** It is a prospective study done in Indira Gandhi Medical College, Bhopal; Department of Surgery during January 2017 to January 2018. All the cases were analyzed in various aspects like age, sex, relative incidence, clinical presentation, nature of previous operation, site of previous scar, precipitating factors like obesity, wound infection, abdominal distension. **Results:** Out of 63 pts 43 were female and 20 were male. Incidence was highest in the age group ranging from 45 to 60 years. Out of 40 females majority of them (32) were house-wives and male patients were suffering from prostatism. Incisional hernia was more common in patients with previous history of lower abdominal surgery. Most of the patients presented with incisional hernia in the infra umbilical region. **Conclusion:** Incisional hernia is a great burdon in surgical OPD and which increases the morbidity and resource uses. Incisional hernia can be preventable by adopting better surgical skill, avoiding midline incision, taking care of patients in postoperative period to prevent wound infection especially in genitourinary surgery. Proper preoperative skin preparation and antibiotic prophylaxis is helpful in preventing post operative wound sepsis. Comorbid condition should be addressed preoperatively.

KEYWORD: Incisional hernia, Incidence, Prevention, Risk factors.

INTRODUCTION

Incisional herniation remains a major problem for the general surgeon and incisional hernia is the 2nd most common hernia after inguinal hernia.[1] Incisional hernia is iatrogenic and its incidence has increased with each increment of abdominal surgical intervention. Incisional hernia is one where the peritoneal sac herniates through an acquired scar in the abdominal wall usually caused by a previous surgical operation or an accidental trauma. Contents of such hernia are usually bowel and/ or omentum. It can occur anywhere in previous surgery site most commonly occurs through the midline (upper or lower) abdominal incision where the muscular defect is wide with smooth and regular margins. Hence this hernia gets reduced spontaneously as soon as the patient lies down. Incisional hernia is unique in that it affects all surgical subspecialties where an incision is made directly into or near the abdomen. These are infrequent under the age of 40 years and their incidence increases with age. Ventral incisional hernia comes out to be a common complication of abdominal surgery, with the overall incidence ranging from 2% to 20%. It is very common in females.[2]

Incidence of incisional hernia in India is 10-20% and is subjected to the type of abdominal surgery.[3] Approximately 50% of all incisional hernias develop or present within the first 2 years following surgery, and 74% occur within 3 years.[1]

Post operative complications in abdominal surgery like wound infection, sepsis, abdominal distenstion and burst abdomen etc are the common reasons for development of incisional hernia. If these conditions left unattended may lead to the poor wound healing and development larger defects and may also leads tolife threatening complications like strangulation and necrosis of abdominal contents.

Various predisposing/risk factors for the development of incisional hernia include obesity, diabetes, emergency surgery , nutritional status of patient ,microbials in the patient's system, chronic obstructive lung disease

(COPD) , postoperative wound dehiscence, smoking and postoperative wound infection.[4,5] The old age and male gender are considered as risk factors because wound healing is delayed and collagen synthesis deceased beside the fact that the old age is the age of chronic diseases and malignancies. Obesity, expressed as body mass index (BMI) is a major risk factor of IH.

Type of incision is also very important in development in incisional hernia. Although mid line incision is opted in emergency surgery because its quick and speedy approach to abdominal cavity but it also leads to weak midline fascial closure and is risk factor for IH. wound contamination (bowel resection or secondary peritonitis), surgery for malignant tumours, stoma closure, major abdominal surgeries and operations followed by open abdomen treatment with negative pre ssure and delayed primary wound closure, are all risk factors for development of incisional hernia. It also depends upon the technique of abdominal closure and suture material. Reoperation has very high risk of development of incisional hernia. Mostly the hernia appear within 0-5 years of postoperative period. After 5 years of surgery, it is less likely.

The patient mostly presents as:

• Abdominal bulge at operative site.
• Pain at operation site.
• Abnormal distention of abdomen.
• Discomfort in abdomen.

Various surgical techniques have been applied in management of IH including anatomical repair, open mesh hernioplasty(onlay, sublay, underlay) laparoscopic ventral hernia repair and component separation etc. Anatomical repair or suture repair has shown maximum reccurance rate.

METHODOLOGY

It was a prospective study done in Indira Gandhi Medical College, Shimla; Department of Surgery during July 2016 to July 2018. Informed consent was taken from patients and patient attenders.

Inclusion criteria

The following patients were included in the study

- All the abdominal hernia at previous scar site.
- Verbal and written consent was taken from all the patients of ventral hernia and all those who agreed for procedure were included in the study.

Exclusion criteria

The following patients were excluded

- Pediatric group
- Groin hernia and lumbar hernia diagnosed patients. Patients who were reviewed on outpatient basis were excluded.

Evaluation

- Detailed history and clinical examination of patients who presented during study period & satisfied the inclusion criteria was carried out and noted as per the Performa attached.
- Previous surgery and duration recorded.
- Patients were assessed for any other co-morbid condition. Patients underwent various investigations.
- Blood investigations namely complete haemogram, renal function tests, serum electrolyte levels, blood glucose level, serum total protein and albumin levels were carried out.
- Radiological evaluation namely chest X-rays, abdominal X-rays, ultrasound abdomen and abdominal wall were carried out.
- Patients were diagnosed and treated accordingly.
- Various treatment options included anatomical repair, open mesh hernioplasty (onlay, sublay and underlay) and laparoscopic ventral hernia repair.
- Recovery was observed, and complications were noted and managed accordingly. Regular follow-up was carried out on 7th and 30th post operative day.

RESULTS

Out of 63 patients in our study, 43 patients were female and 20 were male. The age group of the patients varied from 28 to 86 years. Incidence was highest in the age group ranging from 45 to 60 years. Regarding the occupation of patients, out of 40 females majority of them (32) were house-wives and male patients were suffering from prostatism. Most of the patients (59) presented with swelling, followed by pain and swelling in about 26 of them, 3 patients presented in emergency with features of intestinal obstruction. Present study shows hernia defect less than 2 cm was in 18 patients,2-5 cm in 28 patients and >5 cm in 12 patiens. Previous history revealed that all the patients had different types of abdominal surgeries in past. Out of 63 patients, 22 patients had lower midline exploratory laparotomy, 17 patients had midline laparotomy for various reasons, 10 patients had open cholecystectomy, 8 cases with pervious history of emergency appendectomy, 4 patients had port site hernia in case of laparoscopic cholecystectomy and there are 2 patients who had flank drainage and developed incisional hernia. Various surgeries in past are depicted in detail in **table no. 2.** Incisional hernia is more common in lower midline incision followed by full midline surgery, open cholecystectomy, emergency appendectomy. Comorbidity was also present in significant no of patients. prostatism was present in 12 male patients, 8 patients were diagnosed diabetic, respiratory complications like COPD was in 9 patients and 6 patients had BMI more than 25 kg/m^{2} and and was in the category of obese patients (Table no. 3). Post operative complications were noticed in small no of patients, wound sepsis was present in only 4 patients wich was managed with antibiotics and aseptic dressing.

Table 1: **Age distribution, sex distribution, method of repair and post-operative complication in the 47 cases with incisional hernia.**

Variables		Frequency (n= 63)	Percentage
Age (in years)	15-30	02	3.17
	30-45	16	25.39
	45-60	28	45.16
	>60	17	26.98
Gender	Male	20	31.74
	Female	43	68.25
Meathod of repaire	Anatomical repair	08	12.69
	Open Mesh hernioplasty	49	77.77
	Laparatomy ventral hernia repair	06	9.5
Defect size	Less than 2cm	22	33.33
	2 to 5cm	29	46.03
	>5cm	13	20.63
Complication of Surgery	None	51	80.95
	Wound infection	04	6.35
	Hematoma	02	3.17
	Seroma	06	9.52

Table 2: Previous surgery among incisional hernia patients.

Previous surgery	Case	Percentage
Laparoscopic cholecystectomy	4	6.35
Total abdominal hysterectomy with bilateral salpingo –oophorectomy	21	33.33
Tubectomy for family planning	12	19.05
Emergency appendicectomy	8	12.69
Open cholecystectomy	10	15.87
Exploratory laparotomy with excision of superior mesentric artery aneurysm	`1	1.59
Exploratory Laparotomy for Ileal perforation	2	3.17
Exploratory Laparotomy for Duodenal ulcer perforation	10	15.87
Exploratory Laparotomy with Roux-en-y hepaticojejunostomy	2	3.17
Flank drainage for hollow viscous perforation	2	3.17
Freyer,sprostectomy	1	1.59
Exploratory laparotomy with transgastriccystogastrostomy	1	1.59
Onlay mesh hernioplasty	1	1.59
Exploratory Laparotomy with release of inflammatory band with adhesiolysis	1	1.59
Exploratory laparotomy with pyloroplasty	2	3.17
Lower section Caesarean sections	7	11.11
Exploratory Laparotomy for ectopic pregnancy's	1	1.59
Exploratory Laparotomy with aortofemoral bypass grafting	1	1.59
Total	63	100

Table No 3. Associated Risk factor.

Associated risk factor	Case	Percentage
Prostatism	12	19.05
Diabetes	8	12.69
COPD	9	14.29
Obesity	6	9.52

DISSCUSION

In our study, female predominates to male in occurrence of incisional hernia with ratio female:male is 2:1. Similar female predominace was seen in the study of shukla et al.[1] However in contrast to our results Shah JB studies and Goel and Dubey series have male to female ratio 1:1.17 and 1:1.25 (M: F) ratios respectively.[6,7] Present study shows maximum incidence if incisional hernia in the age group of 45-60 (45.6%) with mean age of 51.26 yrs. The youngest patient in my study was 28 years old and oldest was 80 years old. Ellis, Gajraj and George, in their study noticed a mean age of 49.4 years.[5] Most of the patients (59) presented with swelling, followed by pain and swelling in about 26 of them, 3 patients presented in emergency with features of intestinal obstruction. Similar to this study conducted by shukla et al, they also found the same percentage of symptomlogy.[1]

In present study, prostattism was main reason for incisional hernia development in male patients, respiratory complications like COPD also a major factor. Over all, patients who were suffer from post operative wound sepsis in pervious surgery time have the major

factor for incisional hernia development. This is comparable with that of Bose et al, studies in which wound infection (59 out of 110 patients=53.63%), obesity (33/110 =30%), COPD (23/110 = 20.90%) and stricture urethra (10/110 = 9.09%).[8] During the clinical examination in our study 22 patients were found to have hernial defect of up to 2 cms and 13 patients had defects more than 5cms. Santora TA et al, believes that the size of the fascial defect and the appearance of the fascia should dictate the selection of the most appropriate method of hernia repair. Abrahamson J, believes that mesh repair is excellent method of repair for large ventral abdominal hernias but has not specified the size of the defect.[9]

Various surgical techniques are adopted for hernia repair like anatomical repair, open mesh hernioplasty and laparoscopic ventral hernia repair. Only 4 patients had postoperative wound infection which was managed with antibiotics and daily dressing. Haematoma was noticed in 2 patients and 6 patients had seroma formation in post operative period. Khaira HS et al, reported seroma formation in 6 out of 35 patients and wound infection in 1 out of 35 patients.[10]

CONCLUSION

Incisional hernia is a great burdon in surgical OPD and which increases the morbidity and resource uses. Incisional hernia can be preventable by adopting better surgical skill, avoiding midline incision, taking care of patients in postoperative period to prevent wound infection especially in genitourinary surgery. Proper preoperative skin preparation and antibiotic prophylaxis is helpful in preventing post operative wound sepsis. Comorbid condition should be addressed preoperatively.

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