IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 4 Ver. 6 (April. 2018), PP 28-35
www.iosrjournals.org

Study of The Causes And Incidence of Incisional Hernia In Midline Abdominal Incision,Its Management In Tertiary Care Centre of Jharkhand

Dr Niranjan Mardi[1],Dr Ram Chandra Besra[2],Dr Ranjan George Baxla[3], Dr Vishnu Singh Munda[4]

Junior Residet (Academic)[1], Ex Senior Resident[2], Professor And Head[3]
Department of Surgery[1,2,3], Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, Department of Surgery[4], Sikkim Manipal Institute of Medical Sciences, Gangtok, Sikkim
Corresponding Author: Dr Ram Chandra Besra

Abstract
Background*-Incisional hernias arise through a defect in the musculofascial layers of the abdominal wall in the region of a post-operative scar.****Objectives****-1.) To evaluate the incidence and clinical presentation of incisional hernia in elective abdominal surgery and emergency abdominal surgery.2) To enumerate the different causal factors for incisional hernia in abdominal surgery in our hospital setup.3)To evaluate mode of prevention and proper management for incisional hernia.****Place and Duration****-Patients admitted in various surgical wards of Rajendra Institute of Medical Sciences, Ranchi having incisional hernia were included in our study.. The study was conducted during the period from November 2015 to November 2017.****Material and methods****- There were 62 patients fulfilling Inclusion criteria with Incisional Hernia between 8 to 70 years of age including both sexes andpatientswere excluded who were unfit for surgery, Recurrent Incisional Hernia, Pregnancy with Incisional Hernia and Strangulated and incarcerated Incisional Hernia. Data of All the patients were collected from a specially designed Performa pertaining to patient's particulars,clinical,examinations,investigations, diagnosis and surgical procedures.it is then subjected to statistical analysis .All the surgical procedures & medical management and investigations will be conducted under direct guidance and supervision of our Guide. Before start of our study, a written/informed consent will be obtained in local vernacular in each patient.****Results****-Incidence of incisional hernia were 11.6% ,highest number of cases were (30.64%) presented between 30-40 years of age for the first time, 72.58% were females.****Conclusion****-incisional hernia in midline abdominal incision which is 11.69% of all hernia in incidence is commonly seen in females and affect 30-40 years of age group of patients preferably in housewives and sedentary workers which appears usually within 2 years of inciting operation, the commonest of which being Gynaecological operations or Emergency laparotomy through subumbilical midline incision.*

Keywords: *Incisional hernia,midline abdominal incision,Gynaecological operations or Emergency laparotomy.*

Date of Submission: 29-03-2018 Date of acceptance: 14-04-2018

I. Introduction

The term" hernia" is derived from a Latin term meaning "a rupture". The earliest reports of abdominal wall hernias date back to1500 BC[1]. A hernia is a protrusion of a vicus or part of a viscus through an abnormal opening in the walls of its containing cavity. Incisional hernias arise through a defect in the musculofascial layers of the abdominal wall in the region of a post-operative scar. Thus they may appear anywhere in the abdominal surface. Incisional hernias have been reported in 10-50% of laparotomy incision and 1-5% of laparoscopic port site incisions. Factors predisposing to their development are: Patient factors-obesity, general poor healing due to malnutrition, immunosuppression or steroid therapy, chronic cough, cancer. Wound factors-poor quality tissue, wound infection. Surgical factors-inappropriate suture material, incorrect suture placement. An incisional hernia usually starts as disruption of the musculofascial layers of a wound in the early post-operative period. Often the event passes unnoticed if the overlying skin wound has healed securely. Many incisional hernias may be preventable with the use of good surgical techniques. The classic sign of wound disruption is a serosanguinous discharge. These hernias commonly appear as a localized swelling surrounding a small portion of the scar but may present as a diffuse bulging of the whole length of the incision. There may be several discrete hernias along the length of the incision and unsuspected defects are often found at operation. Incisional hernias tend to increase steadily in size with time. Strangulation is less frequent and most likely to occur when the fibrous defect is small and the sac is large. Most incisional hernias are broad necked and carry a

low risk of strangulation[2]. Separation of aponeurotic edges of 12 mm or more, 4 weeks after laparotomy predicts the development of an incisional hernia with great accuracy[3]. Suture repairs are safe for small incisional hernia for both alloplastic and autoplastic hernias yielded low recurrence rate but lead to high rate of wound infection[4]. Presence of collection in front of the mesh is a fairly common event in immediate post-operative period in patients undergoing hernia repair. In most cases it requires no treatment unless the patient feels any discomfort or the collection persists. Drainage of infected collection under ultrasound guidance can be useful in management of patient with mesh related infection. In cases of severe infection removal of mesh is inevitable[5].

Suture sinuses and wound pain were significantly lower when absorbable sutures were used, there were no differences in the incidence of wound dehiscence or wound infection with respect to suture material or method of closure. Abdominal fascial closure with a continuous non-absorbable suture had a significant lower rate of incisional hernia, ideal suture is non-absorbable and the ideal technique is continuous[6]. Open suture repair for incisional hernia carries an unacceptably high recurrence rate. The result of open mesh and laparoscopic mesh technique are encouraging. There is scope for large multi center randomized clinical trial to compare laparoscopic and open mesh repair[7]. Antibiotic chemoprophylaxis is useful in abdominal incisional herniorrhaphy surgery with implantation of prosthetic material for reducing local septic complication[8]. The golden rule is to insert a length of a suture material at least four times the length of the incision of the incision but less than five times the length of the incision. This ensures that the layers are gently opposed[9]. Mesh repair is the first choice technique for incisional hernia treatment. The results of the sublay technique are better than the onlay technique[10]. Laparoscopic incisional hernia repair leads to low recurrence rates and low rates of wound and mesh infection. Occult hernias are diagnosed and optimally treated laparoscopically. However chronic pain remain an unresolved issue[11]. Incisional hernia is a serious post operative complication of laparotomy. Incisional hernia is a diffuse extrusion of peritoneum and abdominal contents through the weak scar of an operation or accidental wound of anterior abdominal wall, occurring at the points other than inguinal, femoral or umbilical openings. By far the greater number of these arepost operative hernias.

II. Methodology

62 patients admitted in various surgical wards of Rajendra Institute of Medical Sciences, Ranchi which is a tertiary care Centre of Jharkhand having incisional hernia were included in our study. After taking ethical permission from institutional ethics committee presentprospective study was conducted during the period from November 2015 to November2017 includingall patients with Incisional Hernia between 8 to 70 years of ageincluding both sexesand excludingpatients who were unfit for surgery, recurrent incisional hernia, pregnancy with incisional hernia and strangulated and incarcerated incisional hernia. Data of All the patients were collected from a specially designedPerforma pertaining to patient's particulars, clinical examinations, investigations, diagnosis and surgical procedures.it is then subjected to statistical analysis.All the surgical procedures & medical management and investigations will be conducted under direct guidance and supervision of our Guide. Before start of our study, informed consent was obtained from each patient.

III. Results

62cases of incisional hernias,who were operated upon in the Department of General Surgery ,Rajendra Institute of Medical Science,Ranchi during the year November 2015 to November2017,were studied pre -operatively , post-operatively and followed up .

Table no. 1-Incidence of Incisional Hernia in respect to other Hernias

Name of the Hernias	No. of Cases	Percentage
Inguinal Hernia	400	75.47
Incisional Hernia	62	11.69
Epigastric Hernia	44	8.30
Paraumblical Hernia	24	4.52
Total	530	100

Second most common hernia was incisional hernia i.e 11.69% of cases (62) cases**.**

Table no. 2-Age of patients of Incisional Hernia

Age Group (Years)	No. of Cases	Percentage
< 10	0	0
10-20	0	0
20-30	15	24.19
30-40	19	30.64
40-50	18	29.03
50-60	5	8.06
60-70	5	8.06
70 & above	0	0

Highest no. of cases (30.64%) presented between 30-40 years of age for the first time followed by 29.03% presented between 40-50years of age.

Table no. 3-Interval between first appearance and reporting for treatment

Time Interval	No. of Cases	Percentage
1-3 Months	0	0
3-6 Months	10	16.12
6-12 Months	19	30.64
1-2 Years	25	40.32
2-5 Years	8	12.90

Maximum no. of cases 25(40.32%) reported between 1-2 years of appearance of incisional hernia followed by 19 cases (30.64) reporting between 6- 12 months. 2-5 years of delay in presentation were observed in 8 cases (12.90%) .

Table no. 4-Sex incidence in cases of Incisional Hernia studied

Sex	No. of Cases	Percentage	Ration M:F
Male	17	27.41	1:2.65
Female	45	72.58	

45 cases out of 62 (72.58%) were females in the study.Only 17 cases (27.41%) were male.

Table no. 5-Age and sex Incidence in cases of Incisional Hernia

Age Group (Years)	No. of Cases	Sex		Male-Female Ratio
		Male	Female	
10-20	0	0	0	0
20-30	15	6	9	1:1.5
30-40	21	4	17	1:4.25
40-50	17	2	15	1:7.5
50-60	5	2	3	1:1.5
60 & above	4	3	1	3:1

Incisional hernia in females outnumbered males in all age groups, maximum being observed between 30-40 years (27.4%) age group.

Table no. 6-Obesity & Incisional Hernia

Body	Total		Male		Female	
	No.	Perc.	No.	Perc.	No.	Perc.
Obese	35	56.45%	3	4.83	32	51.61
Normal Orthin	27	43.54%	14	22.58	13	20.96

Maximum no. of cases 35 (56.45%) were obese. Rest cases of incisional hernia were of normal built or thin .

Table no. 7-Occupation wise incidence

Occupation	Number	Percentage
Labourer	10	16.13%
Sedantary Worker	25	40.32%
House Wives	27	43.54%

Majority of the patients i.e 27 (43.54%) were housewives followed by sedentary workers i.e 25(40.32%).

Table no. 8-Showing Parity and Incisional Hernia correlation

No. of Pregnancies	No. of Cases	Percentage
1	7	11.29
2	21	33.87
3	14	22.58
4	1	1.61
5	1	1.61
6	0	0
More than 6	0	0

Maximum no. of cases 21(33.87%) of incisional hernia was observed in females having para- 2/3. In 11.29% of patients parity was 1.

Table no. 9-Type of inciting operation & sex

Inciting Operations	**Total**		**Male**		**Female**	
	No.	%	No.	%	No.	%
1. Gynaecological (C. S. HystrectomyTubectomy)	31	50	-	-	31	50
2. Laparotomy (Bowel related,Pseudocyst of pancreas,Hydatid cyst of liver,etc)	31	50	18	58.06	13	41.93

The inciting operation was mostly Gynaecological 31(50%) in females.

Table no. 10-Incidence of Incisional Hernia after different types of incision

Abdominal Incisions	**No. of Cases**	**Percentage**
Subumblical Midline	31	50
Upper midline	11	17.74
Midline Incision	20	32.25

In present study 31 cases (50%) of incisional hernia was observed in subumbilical midline incision followed by midline incision(including upper and lower midline) 20(30.25%) the least cases 11 (17.74%) were observed in upper midline incisions.

Table no. 11-Types of inciting operation

Nature of Operation		**No. of Cases**	**Percentage**
1.	Emergency Operation	19	30.64%
3.	Planned Operation	43	69.35%

43 cases (69.35%) of incisional hernia were observed in planned operation followed by 19 cases (30.64%) in emergency operation in the study.

Table no. 12-Associated factors in patients with Incisional HerniaGeneral Etiological

Etiological Factors	**No. of Cases**	**Percentage**
Chronic Constipation	28	45.16%
Chronic Cough	22	35.48%
Anemia	17	27.41%
Hypoprotenimia	5	8.06%
Chronic Asthma & Bronchitis	2	3.22
Tuberculosis	3	4.83%
Post-op infection	8	12.9%

Common etiological factors were chronic constipation (45.16%, 28 cases) and chronic cough(35.48%,22 cases) followed by anemia(27.41%,17 cases).

Table no. 13-Local Etiological Factors

Etiological Factors	**No. of Cases**	**Percentage**
Peritoneal Contamination	15	24.19%
Wound Infection	8	12.9%
Wound Dehisence	5	8.06%
Repeated Incision	2	3.22%

Peritoneal contamination was observed in maximum no. of 15 cases (24.19%) ,followed by wound infection 8 cases (12.9%) as local etiological factors in the study .

Table no. 14-Showing common clinical features of Incisional Hernia

Clinical Features	**No. of Cases**	**Percentage**
Intermitten Swelling on straining	27	43.54
Intermitten Swelling + Pain	33	53.22
Swelling + Pain + Vomiting	12	19.35
Swelling + Pain + Vomiting + Dyspeptic Symptoms	4	6.45

Intermittent swelling and pain 33 cases (53.22%) was found to be the common presentation . Intermittent swelling on straining was observed in 27 cases (43.54%) .

Table no. 15-Size of Hernial Sac/Defect

Size of the Ring	**No. of Cases**	**Percentage**
Small [< 5cm]	17	27.42%
Medium [upto 10 cm.]	31	50%
Large [> 10 cm]	14	22.58%

31 cases (50%) were observed to have medium size gap (upto 10 cm) .17 of them had defect of less than 5 cm in size and the rest 14 cases had the gap of 10 cm or more.

Table no. 16- Showing contents of the Sac

Contents of the Sac		No. of Cases	Percentage
1.	Adhered Omentum	15	24.19
2.	Omentum + Small Gut	44	70.96
3.	Omentum + Small Gut + Large Gut	3	4.83
4.	Omentum + Large Gut	0	0

In 44 cases i.e 70.96 % content of sacwere omentum and small gut. Adhered omentum was present in 15 cases(24.19%) .Omentum,small gut and large gut was observed on content of sac in 3 cases only .

Table no. 17-Types of Repair done in Present series

Types of Repair	No. of Cases	Percentage
Polypropylene mesh	45	72.58%
Double Breasting	14	22.58%
Anatomical Repair	3	4.83%

In 45 cases (72.58%) extraperitoneal propylene mesh applied followed by double breasting which was done in 14 cases (22.58%).Anatomical repair was done in 3 cases only.

Table no. 18-Types of suturing material & mesh used in the repair

Suturing material & mesh	No. of Cases	Percentage
Prolene No. 1/0 + Prolene mesh	45	72.58%
Prolene No. 1/0 only	14	22.58%
Vicryl No. 1+ Prolene No. 1/0	3	4.83

The suture material used in 45 cases(72.58%) was prolene no.1-0 and prolene mesh followed by 14 cases (22.58%) prolene no.-1-0 only was used . Vicryl no. 1 and prolene no.1-0 was used in 3 cases only.

Table no. 19-Incidence of post-operative complication

Post-Operative Complications		No. of Cases	Percentage
1.	Seroma	15	24.19
2.	Superficial Wound Infection	6	9.67
3.	Post operative persistent pain	5	8.06
4.	Wound haemotoma	6	9.67

Seroma formation was observed in 15 cases (24.19%),followed by superficial wound infection 6 cases (9.67%) and wound haematoma 6 cases (9.67%) and post operative persistent pain 5 cases (8.06%).

IV. Discussion

The incidence of incisional hernia in relation to other types of hernias, in the present series is 62 out of 530 i.e. 11.6 percent, during the year 2015-2017. Khaira (2001)[12] reported that incidence of incisional hernia was 3.8 to 11.5%. Highest number of cases (30.64%) presented between 30-40 years of age for the first time. 29.03% of cases have developed hernia in 40-50 years of age. ShaikhNA et al[13] observed maximum incidence of incisional hernia is directly associated with abdominal operation which is frequently done in middle age group therefore maximum number of patients develop it in the middle age group.

40.32% of cases (25) reported between 1 to 2 years of appearance of incisional hernia followed by 19 cases (i.e. 30.64%) reporting between 6 to 12 months. 2-5 years of delay in presentation were observed in 8 cases (12.90%). Khairaet al[12] also observed that maximum patients 90% reported for treatment within 3 years. Observation thus made is consistent with finding of Khaira et al.

Out of 62 cases of present study 45 (i.e. 72.58%) are females & only 17 cases (i.e.27.41%) are male. The male female ratio being 1:2.65.S. Prakash[14] (1987) having observed 51 case found the ratio of male to female as 1:9. Observation of present study with higher incidence in females is similar & the ratio of male : female being 1:9. Comparitively a higher incidence in females can be explained by a greater no. of infraumbilical incision in females for gynaecological operation.

Incisional hernia in females outnumbered males in all age groups, maximum being observed between 30-40 years (27.4%) age group.56.45 percent patients are obese in present study. Remaining 43.55% of cases are normal built or thin. Sugerman HJ et al[15] found 62% cases were obese. They bear greater risk for incisional hernia.Mingoliet al[16] reported that obesity (P<.008) was important risk factor for the development of incisional hernia. Obesity is defined as a body mass index (the weight in Kilograms divided by the square of the height in

meters) when it is at least 30. All workers and the present observation have stated that obesity is attended with increased occurrence of incisional hernia.

Majority of patients 27 cases (i.e. 43.54%) were housewives followed by sedentary workers 25 cases (40.32%) and the rest 10 were labourers in the present study. Manual workers are usually of average built & possess strong abdominal muscles.Maximum no. of cases 21 (33.87%) of incisional hernia was observed in females having para- 2/3. In 11.29% of patients parity was 1."Watson" 1924 – stated that the distension of abdomen during pregnancy weakens the ant. Abdominal muscles, thus causing flaccidity with the tendency to obesity which follows repeated pregnancies. "Balilly" (1962) stated that repeated pregnancies favour incisional hernia. Pregnancy act in two ways in predisposing to such hernia. It increases obesity & decreases the tone of abdominal muscles.The inciting operation was mostly Gynaecological 31(50%) in females .H.S. Khaira et al[12] observed 35 cases of incisional hernia. The original operation was bowel related in 19, gynaecological in 8, hepatopancreaticobiliary in 3 patients, aortic aneurysm repair in 2 &thoracolaparotomy in 3.One important group of operation predisposing to hernia were gynaecological operation through subumbilical midline incision including caesarean section, hysterectomy, tubectomy. 2nd important group of operation prone to develop incisional hernia were that of emergency laparotomies. 3rdgroup include cholecystectomy, appendicectomy, multiple abdominal operations, prostatectomy, pelvic procedures & accidental wounds.

In present study 31 cases (50%) of incisional hernia was observed in subumbilical midline incision followed by midline incision(including upper and lower midline) 20(30.25%) the least cases 11 (17.74%) were observed in upper midline incisions. Shaikh NA et al[13] reported 70.9% incisional hernia through lower midline incision. Khaira HS[12] operated 35 patients of incisional hernia of which 26 were following Midline incision, 6 following transverse and 2 following paramedian incisions. The observation of 50% is similar to 70.9% reported by Shaikh et al. following subumbilical midline incision, Branch & Abel although lower but maximum no. of incisional hernia following same incision.

43 cases (69.35%) of incisional hernia were observed in planned operation followed by 19 cases (30.64%) in emergency operation in the study.Shaikh NA et al[13] concluded in their study 88% patients who developed incisional hernia were operated in emergency by trainee surgeons. Mingoli A[16] et al concluded that incidence of incisional hernia after emergency laparotomy is higher than after elective procedure. Birolinicet al[17] stated that wound infection & sepsis leading to incisional hernia development are common after emergency colonic operation. Incisional hernia develop more frequently after emergency operation due to lack of pre operative management, patients lowered resistance due to toxic condition, anaemia& hypoproteinemia & proneness to infection. The hurried & relatively less competent surgeons available to the patients at the emergency period consider the operation as life saving procedure & care little for further herniation.

Common etiological factors were chronic constipation (45.16%, 28 cases) and chronic cough(35.48%,22 cases) followed by anemia(27.41%,17 cases). Luijendijk RWet al[18] stated that chronic cough, constipation, prostatism, diabetes mellitus were the risk factors for the development of incisional hernia. Chronic cough & constipation produces undue tension on scar. Diabetes mellitus lowers tissue resistance & interferes with healing.

Peritoneal contamination was observed in maximum no. of 15 cases (24.19%) ,followed by wound infection 8 cases (12.9%) as local etiological factors in the study .Wound infection leads to premature dissolution of suture material predispose to the development of weak post operative scar & subsequent herniation. Shaikh NA[13] reported 45.5% of cases had history of wound infection in previous surgery. Klinge O[19] concluded that peritoneal contamination & wound infection causes impaired collagen synthesis post operatively. Incisional hernia developed due to decrease in ratio of collagen I/III due to concomitant increase in collagen III. Mingoli[16] reported that post operative wound infection, peritonitis & intestinal occlusion play a significant role in the development of incisional hernia. Birolini Cet al[20] stated that wound infection & sepsis predisposes to incisional hernia development.

Intermittent swelling and pain 33 cases (53.22%) was found to be the common presentation . Intermittent swelling on straining was observed in 27 cases (43.54%)."Zimmerman" stated that many patients with large incisional hernias are not at all inconvenienced by the hernia and many are unware of their existence. This is particularly true in the diffuse bulging of the entire scar. Other patients with relatively small hernia complain seriously of pain, discomfort, digestive disturbances etc. Apart from above features obstructive features, with the characteristic phenomenon of cramp like pain, nausea & vomiting & constipation may be produced by the compression, angulation or torsion of intestinal loops in the hernial sac. 31 cases (50%) were observed to have medium size gap (upto 10 cm) . 17 of them had defect of less than 5 cm in size and the rest 14 cases had the gap of 10 cm or more. Khaira HS et al[12] observed 35 case of incisional hernia. Out of which 15 cases of hernia were subjectively large. 19 cases were medium and 6 cases were small in size. The common presentation of incisional hernia as reported by Khairaet al[12] and also observed in this study has been medium size hernia gap.

In 44 cases i.e 70.96 % content of sac were omentum and small gut . Adhered omentum was present in 15 cases(24.19%) .Omentum,small gut and large gut was observed on content of sac in 3 cases only.Maingotet al[16] (1963) stated that the sac is frequently mulitlocular& hernia aperture may consist of multiple defects separated by firm fibrous septa. Adhesion between sac & contents are very common. Contents usually encountered are omentum& small gut. Colon may also occupy the sac. The omentum is first to come in the sac. Moreover it starts the process of hernia formation. When the sac & ring becomes big, other contents start entering the sac.

In 45 cases (72.58%) extraperitoneal propylene mesh applied followed by double breasting which was done in 14 cases (22.58%) . Anatomical repair was done in 3 cases only.Rodney Maingot[21]advocated his "Keel operation" for incisional hernias with large gap.Cattel[22] (1942) utilized redundant peritoneum to reform linear alba in the midline. The repair was done in five layers. Hunter[23] (1971) described anatomical repair of midline incisional hernia. Nwagman&Gleenet al[24] (1985) described a method for extrafascial placement of polypropylene (marlex) mesh for patient with large, recurrent, ventral hernias of the abdominal wall. S. Prakashet al[14] (1987) used "Keel repair" supplemented by dermal graft. Matapurkar BC[25] (1991) used marlex mesh is sandwiched between 2 layers of peritoneum of the overstretched hernia sac. Chareton B[26] (1994) repair large incisional hernias using skin lacing technique. Sugerman HJ[15] (1996) advocated prefascial polypropylene mesh repair of incisional hernia. Mesh is implanted behind ant rectus sheath. For the 98 patients who underwent prefascialprolene mesh repair mean follow up was 20+2 month's & complication occurred in 35% of patients, recurrent hernia in 4%.

Trupkaet al[27] (1998) used underlay technique in 33 incisional hernia repair with prolene mesh. The prolenemesh positioned on posterior rectus sheath & extend far beyond the border of myoaponeurotic defect. The anterior rectus sheath closed with continuous suture. Local complication occurred in 12%. The average follow up time for this group was 9 months. To date no recurrence have been observed. There were only minor complaints like : feeling tension in the abdominal wall (n-9), slight pain under physical stress. Khaira HS[12] (2001) used combined fascial & prosthetic prolene mesh repair for incisional hernia in 35 patients with good results only 2 of these (6%) patients reported a persistent lump & one (3%) reported persistent pain but none of the remaining 33 have recurrence. Most of the cases repaired by prolene mesh implanted extraperitoneally& there is no recurrence as also observed by Trupka et al. &Khaira et al.

The suture material used in 45 cases(72.58%) was prolene no.1-0 and prolene mesh followed by 14 cases (22.58%) prolene no.-1-0 only was used . Vicryl no. 1 and prolene no.1-0 was used in 3 cases only .Galliset al[28] (1923) used living sutures made of the narrow strip of fascia lata. A Rubio et al[29] (1986) usedmarlex mesh in 11 pateints 4 got very good results. Sugerman[15] (1996) used polypropylene mesh &prolene for hernia repair in 98 patients & observed recurrent hernia in 4%. Trupkaet al[27] (1998) used polypropylene mesh &vicryl (Polyglactin) in 33 patients & there was no recurrence. Khaira HS[12] (2001) used prolene mesh vicryl&prolene in 35 patients. The average follow-up time as 20.3 months, during that period no recurrence was observed. Apart from prolenemesh – suture materials are vicryl&prolene in present study. The same suture materials i.e. polytropylene mesh, vicryl&prolene are used by H.J Sugerman et al., Trupka et al. &Khaira HS.

Seroma formation was observed in 15 cases (24.19%),followed by superficial wound infection 6 cases (9.67%) and wound haematoma 6 cases (9.67%) and post operativepersistant pain 5 cases (8.06%).

Trupka et al[27].(1998) used prolene mesh for repair of incisional hernia in 33 cases between 1996-97. Local complication occurred in 12%. Superficial wound infection (n=2), post-operative bleeding (n=1),Haematoma (n=1), Seroma (n=2).HS Khaira[12] (2001) complication rate seroma formation 6 (17%) wound haematoma 1 (3%), superficial wound infction 1 (3%) urinary retention 1 (3%). Non fatal pulmonary embolus 1 (3%).Matapurkaret al[25](1991) reported no seroma formation because their mesh was incorporated into peritoneal sandwich. Formation of seroma was reported to be 4% by Molloy et al[30]. (1991), 6% by Lewis[31] (1984). Jacobs et al[32].(1965) reported a 45% seroma rate whether suction drain used or not. They noted that accumulation of seroma occurred 3-17 days after operation & this was easily managed by multiple aspiration& usually subsided within one week. Seroma formation is most common post operative complication of present study as also reported by Jacobs et al. &Khaira et al.All the above mentioned complications make the scar weak. They must be avoided at all cost.

V. Conclusion

It has been observed that incisional hernia in midline abdominal incision which is 11.69% of all hernia in incidence is commonly seen in females and affect 30-40 years of age group of patients preferably in housewives and sedentary workers which appears usually within 2 years of inciting operation, the commonest of which being Gynaecological operations or Emergency laps through subumbilical mid line incision. Common accompaniments being obesity, multiparity, chronic cough & constipation, the patients seek help commonly for intermittent swelling & pain at incisional line & sac commonly contains adherent omentum& small coils of

intestine.Polypropylene mesh repair has been found to give best result with nil recurrence however post operative complication like seroma, wound infection & chronic abdominal pain are found in good no. of cases.

Acknowledgement

We want to thank patients for their co-operation.

References

[1]. Maingot's Abdominal Surgery -12th Edition,p-123.
[2]. Baily and Love Short Practice of Surgery-25th Edition, p-968.26th edition,p-964.
[3]. Pollock AV. Evans M. Early prediction of late incisional hernias. BR J Surg. 1989: 76:953-954.
[4]. Korenkov M., Sauerland S., Amor M. et al., 2002, "Randomised clinical trial of suture repair, polypropylene mesh or auto dermal hernioplasty or incisional hernia", British Journal of Surgery. 89(1):50.
[5]. Parra J.A., Revuelta S., Gallego T. et al., 2004, "Prosthetic mesh used for inguinal ventral hernia normal appearance and complications in USG and CT", British Journal of Radiology, 77:261-265. Hodgson F.C. Nicole et al., Richard A. et al., 1999, "The search for an ideal method of abdominal fascial closure", Annals of Surg., 231(3):436-442.
[6]. Cassav K. et al., 2002, "Surgical treatment of incisional hernia", British Journal of Surgery, 89:534-545.
[7]. Rios A. et al., Antibiotic prophylaxis in incisional hernia repair using a prosthesis.
[8]. Russell R.C.G., "Hernia, umbilical hernia and abdominal wall", Chapter 73, In: Bailey and Love's Short Practice of Surgery, David H. Bennett and Andrew N. King Snorth. 24th edition, Arnold Students Edition, 2004; 1272-1293.
[9]. .L. Venclauskas, A Male L Kas, M Kiudells. Department of surgery.Kaunas University of Medicine.Eiveniv .Str 2. 50009. Kavnas, Lithuanis. Published online on 22/06/2010.
[10]. A. Sharma, M. Mehrotra, R. Khullar V. Soni, M Baijal and P K Chowbey. Laproscopic ventral incisional hernia repair (LVIHR). Max institute of Minimal Access. Metabolic and Hodgson F.C. Nicole et al., Richard A. et al., 1999, "The search for an ideal method of abdominal fascial closure", Annals of Surg., 231(3):436-442.
[11]. KhairaH.S,Lall P.- J.R Coll. Surg.Edinb. Feb 2001, 39-43.
[12]. Shaikh .N.A ,Shaik.N.M –J. Pak. Med .Assoc 1994 Feb 44(2):38-9).
[13]. Prakash.S&Devnod T. – Indian J. Surg .August .317 (1987).
[14]. SurgermanH.J Kellum J.M Jr - American J. Surg 171(11)80-19, (1996) Jan.
[15]. Mingoli A et al – Italian Journal of gastroenterology 1999.
[16]. Birolinic,Rodriques AJ Jr –Journal of American College of Surgeons (1914).
[17]. Luijendijk, RW et al. (August 2000, 10) N Engl J Med. 2000 Aug 10;343(6):392-8. A comparison of suture repair with mesh repair for incisional hernia.
[18]. Klinge U. – European Surgical research 2000.
[19]. Birolinic,Rodriques AJ Jr –Journal of American College of Surgeons (1914).
[20]. Maingot R. (41) - Quoted by Mitchell HeggsF.Br.J. Surg. 50:907 (1963).
[21]. Cattell –quoted by Abel A.L and Clain A. British J.Surgery 48:42 (1960).
[22]. Hunter R.R - Anatomical repair of Midline incisional Hernia British J. Surg (1971).
[23]. Wagman et al. 1984 Proline mesh for recurrent IH a month‑4 years.
[24]. Matapurkar B.G – World J. Surg (1991).
[25]. Chareton B, Landen S, Bardaxoglou E et al. Lacing Technique using dermal autografts for the management of large incisional hernia.ActaChirBelg 1994;94:291-294.
[26]. TrupkaA.W ,Hallfeld .K.K – Chirurg 1998 Jul (7) :766:72.
[27]. Gallie, WE.,LeMesurier, A.B.: Living sutures in the treatment of hernia. Can Med Assoc J, 1923, 13:469–80 10.
[28]. Rubio, P.A., Del Castillo, H., Alvarez, B.A. Ventral hernia in a massively obese patient: diagnosis by computerized tomography.
[29]. R. G. Molloy K. T. Moran R. P. Waldron M. P. Brady Professor W. O. Kirwan. Massive incisional hernia: Abdominal wall replacement with Marlex mesh. Volume78, Issue2,February 1991,Pages 242-244.
[30]. Lewis RT .Knitted polypropylene (Marlex) mesh in the repair of incisional hernias.Canadian Journal of Surgery. Journal Canadien de Chirurgie [01 Mar 1984, 27(2):155-157].
[31]. Jacobs E, Blaisdell FW, Hall AD. Use of knitted Marlex Mesh in the Repair of ventral hernias. Am J Surg. 1965;110:897-902.

Dr Niranjan Mardi "Study Of The Causes And Incidence Of Incisional Hernia In Midline Abdominal Incision,Its Management In Tertiary Care Centre Of Jharkhand."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 4, 2018, pp 28-35.