



A RETROSPECTIVE STUDY OF INCISIONAL HERNIA

Surgery

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ABSTRACT

Objectives: The aim of the study is to analyse the age/sex incidence, the duration following previous surgery and the type of incision resulting in incisional hernia. It is also done to study the predisposing factors and postoperative complications of the incisional hernia surgery.

Materials and methods: This is a retrospective study done in Department of general surgery in Government Dharmapuri Medical college and Hospital, Dharmapuri. The period of study is from July 2017 to July 2018. All patient records who underwent surgery for incisional hernia from July 2017 to July 2018 were collected from medical records department and registers maintained in General surgery department and taken for the study. Patients under exclusion criteria were not taken for the study. As a result 120 patients were selected for the study.

Results: Incisional hernia was more common in the fifth decade with 80.9% occurring in female population. Around 75% of incisional hernias occurred within five years of previous surgery with maximum number of cases occurring in the vertical incision. The incidence of incisional hernia after Obstetrics & Gynecological procedures were seen in 72% cases. Wound infection and diabetes mellitus are the dominant predisposing factors.

Conclusion: Incisional hernia occurs in up to 20% of patients after laparotomy. It is the common complication after abdominal surgery. There is increase in the incidence of the recurrence rates of incisional hernia. To reduce the recurrence, prevention of incisional hernias by using non-absorbable suture materials for closure of the abdomen, proper suture techniques(mass closure,tension free), good post operative care and avoiding the wound infection are warranted.

KEYWORDS

Incisional hernia,,age ,sex,postsurgical duration ,previous scar, predisposing factors, previous surgery, complications, prevention

INTRODUCTION

The incisional hernia is called as Iatrogenic hernia or post operative ventral abdominal hernia and is defined as the hernia that develops in the scar following a surgical incision. Laparotomy done generally heals quickly leaving behind a stable scar. In spite of the continuous movement of the abdominal wall, the increase in the intra-abdominal pressure peaks upto 180mm Hg. The healing of the sutured abdominal wall usually heals within few weeks forming a stable scar. It is as strong as the healthy abdominal wall. This is the norm. Rare occurrence (less than 1%) is the acute separation of the sutured abdominal walls during the post operative period which is called as the burst abdomen. More frequent (more than 20%) is the occurrence of wound dehiscence that is, the formation of hernia sac, months to years following surgery which is known as the incisional hernia. It is receiving more attention in the recent years, due to increase use of ultrasound as follow up after abdominal surgery and demographic developments which allows longer follow up. 2 The outcomes for incisional hernia repair in the past were unsatisfactory. Conventional surgical techniques using sutures without prosthetic implants resulted in high recurrence rate of more than fifty percent. However, in the recent years significant changes have been emerging. Newer surgical procedures, standardized treatment protocols and innovative implants permit satisfactory surgical repair of incisional hernia with good results and good quality of life. However ,the goal of bringing the recurrence rate to zero has not yet achieved.

AIM OF THE STUDY:

1. To analyse the age/sex incidence.
2. To analyse the duration of incisional hernia following previous surgery.
3. To analyse the type of incision more prone for incisional hernia
4. To analyse the type of previous surgeries leading to incisional hernia
5. To study the early post-operative complications of the incisional hernia surgery

MATERIALS AND METHODS

The study was done over a period of 12 months from July 2017 to July 2018. About 120 patients were admitted in the department of surgery at Government Dharmapuri medical college Hospital, Dharmapuri for incisional hernias. The study comprised of 120 patients operated for incisional hernias which includes all ages, both sexes and patients with more than one previous operation. All the patients were examined clinically and were enquired about their previous operations and

complications following the operations. The repair of the incisional hernias were done for all 120 patients and all underwent anatomical repair by double breasting and mass closure, mesh repair or shoelace operation. Out of 120 patients, 107 underwent mesh repair with prolene.

RESULTS AND OBSERVATIONS

Table 1 Age Incidence

AGE	NUMBER OF PATIENTS	PERCENTAGE
20-30	16	13.3%
31-40	25	23.3%
41-50	36	30 %
51-60	27	22%
>60	16	13.3%

In our study out of 120 patients 36 patients were in the 5th decade and 27 patients.

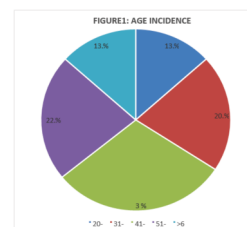


Table 2 Sex Incidence

SEX	NUMBER OF PATIENTS	PERCENTAGE
FEMALE	97	80.9%
MALE	23	19.2%

In our study incisional hernias were common among females 80.9%

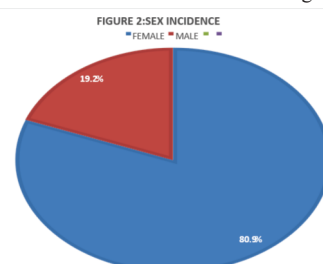


Table 3 Previous Surgery

TYPE OF SURGERY	NUMBER OF CASES
CAESARIAN SECTION	28
ABDOMINAL HYSTERECTOMY	32
PUERPERAL STERILISATION	27
APPENDICECTOMY	12
DUODENAL PERFORATION	8
TRUNCAL VAGOTOMY AND GASTROJEJUNOSTOMY	2
UMBILICAL HERNIA	11

In our study out of 120 cases 86 (71.7%) incisional hernias occur following obstetrics and gynaecological surgeries and 34 (28.3%) cases following General surgeries.

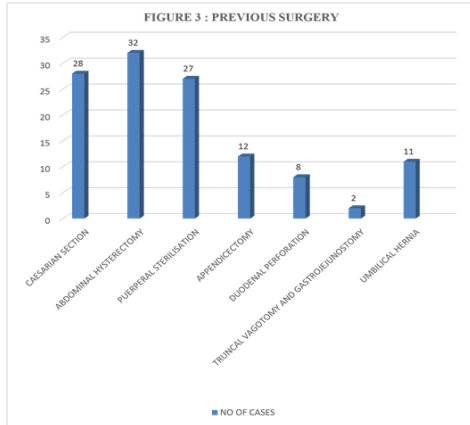


Table 4 Previous Surgical Scar

TYPE OF INCISION	NUMBER OF CASES	PERCENTAGE
MIDLINE	40	33.3%
PARAMEDIAN	32	26.7%
SUBUMBILICAL	27	22.5%
TRANSVERSE	21	17.5%
TOTAL	120	100%

In the present study out of 120 cases, incisional hernias were common in vertical incisions, 40(33.3%) cases in midline incision and 32(26.7%) cases in paramedian incision.

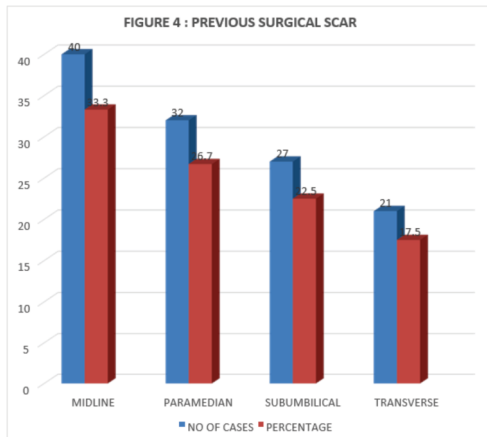


Table 5 Predisposing Factors

PREDISPOSING FACTOR	NUMBER OF CASES	PERCENTAGE
COPD	6	5%
OBESITY	6	5%
DIABETES MELLITUS	26	21.6%
HYPERTENSION	6	5%
DIABETES AND HYPERTENSION	1	0.8%
INFECTION	22	18.4%
NIL	53	44.2%
TOTAL	120	100

Out of 120 cases, 53 patients presented with no predisposing factors,

26 patients with diabetes, 22 patients with infection.

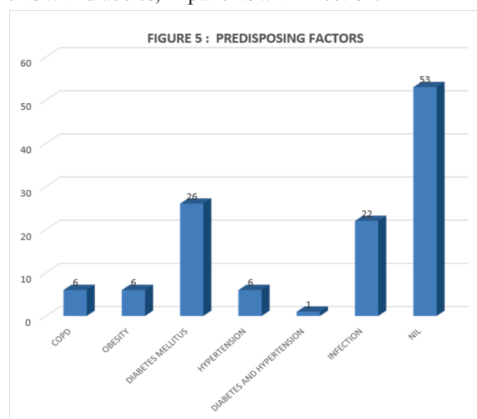


Table 6 Post Surgical Period

POST SURGICAL PERIOD	NUMBER OF PATIENTS	PERCENTAGE
0-1 YEAR	7	5.8%
1-2 YEARS	18	15%
2-3 YEARS	27	22.5%
3-4 YEARS	24	20%
4-5 YEARS	14	11.7%
>5	30	25%

In our study 75% of incisional hernias occurred within 5 years and 25% occurred after 5 years.

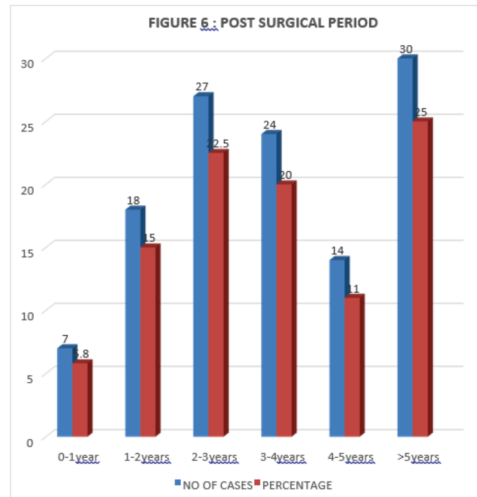


Table 7 Types Of Repair

TYPE OF REPAIR	NUMBER OF CASES	PERCENTAGE
MESH REPAIR	107	89.2%
ANATOMICAL REPAIR	10	8.3%
DOUBLE BREASTING	3	2.5%
TOTAL	120	100%

In the present study, out of 120 cases, maximum number of cases 107(89.2%) were surgically corrected with mesh repair

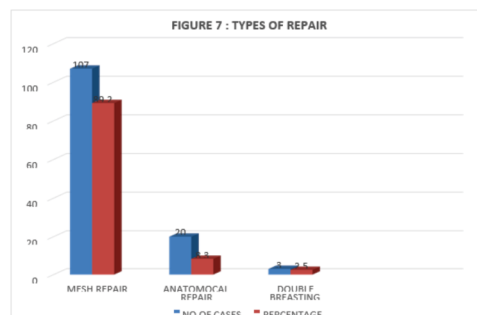


Table 8 Post Repair Complications

COMPLICATION	NUMBER	PERCENTAGE
MESH INFECTION	1	0.8%
WOUND GAPING	2	1.7%
SEROMA	21	17.5%
NIL	96	80%

After follow-up of ten days one patient presented with mesh infection, two with wound gaping and twenty one with seroma.

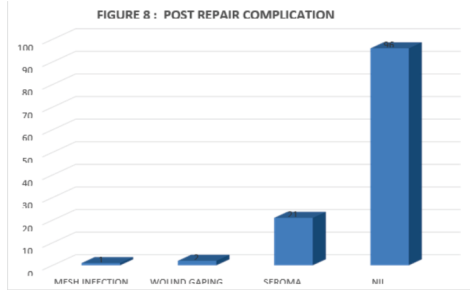


Table 9 Association Between Previous Scar And Duration Of Development Of Incisional Hernia

Scar*	Less than five years	More than five years	Total
Vertical	47	25	72
Subumbilical	23	4	27
Transverse	20	1	21
Total	90	30	120

P value done for previous scar and duration of development of incisional hernia is 0.01(<0.05 is statistically significant). Hence, maximum number of cases, 72 out of 120 developed incisional hernia following vertical incision.

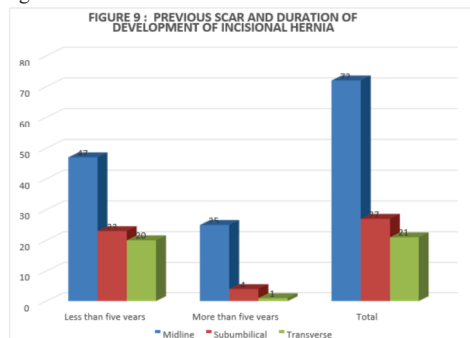
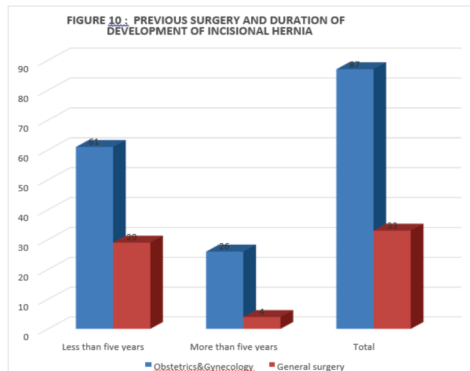


Table 10 Association Between Previous Surgery and Duration Of Development Of Incisional Hernia

Previous surgery*	Less than five years	More than five years	Total
Obstetrics&Gynecology	61	26	87
General surgery	29	4	33
Total	90	30	120

P value done between previous surgery and duration of development of incisional hernia is 0.04(<0.05 is statistically significant). Maximum number of incisional hernia, 87 out of 120 cases developed following previous Obstetrics & Gynaecological surgery.



OTHER OBSERVATIONS

Along with repair of incisional hernias other surgeries were also combined. Total Abdominal Hysterectomy with Salpingo Oophorectomy was done in one patient for fibroid uterus. Another female patient had underwent cholecystectomy for cholelithiasis. one male patient was done right eversion of sac for hydrocele.

POST REPAIR COMPLICATIONS

Out of 120 cases 24 cases presented with post repair complications. One case had mesh removal due to infection of the mesh. Two cases presented with wound gaping for which secondary suturing was done. Twenty one cases presented with seroma which were treated conservatively. Followed up for 10 days.

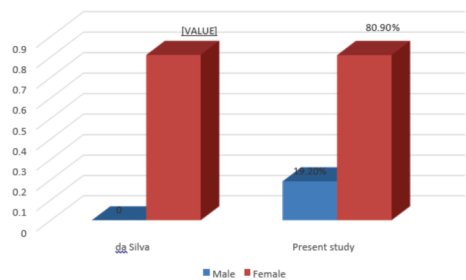
DISCUSSION

In the present study, out of 120 cases of incisional hernia, there is female preponderance with 97(80.9%) cases occurring in women. This study is comparable to the study done by da Silva's in the year 1991 where out of 125 incisional hernias 81% were found in women.

Table 11 Comparison Of Sex Incidence With Other Study

Sex	da Silva	Present study
Male	NM	19.2%
Female	81%	80.9%

FIGURE 11: COMPARISON OF SEX INCIDENCE WITH OTHER STUDY

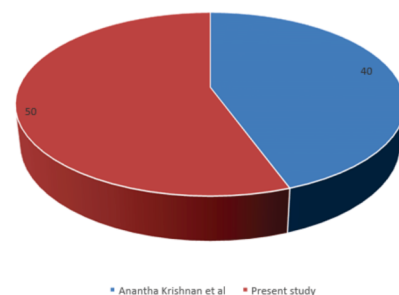


The most common age groups where the majority of incisional hernias occurred were in the 5th decade. According to the study done by Anantha Krishnan et al. in the year 1993, incisional hernias were common in the age group of 31-40 years.

Table 12 Comparison Of Age Incidence With Other Study

Studies	Age
Anantha Krishnan et al	31-40 years
Present study	41-50 years

FIGURE 12: COMPARISON OF AGE INCIDENCE WITH OTHER STUDY

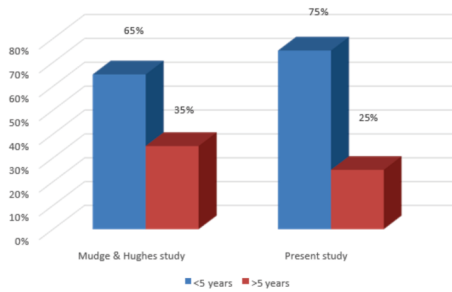


In our study, the occurrence of incisional hernia was common within three years(22.5%) after surgery. In the 10 years prospective study done by Mudge M and Hughes LE 65% of incisional hernias occurred within 5 years and around 35% after 5 years. This study is comparable to our study where 90 cases(75%) occurred within 5 years and 30 cases (25%) occurred after 5 years.

Table 13 Comparison Of Duration Of Occurrence Of Incisional Hernia Following Previous Surgery With Other Study

Duration	Mudge & Hughes study	Present study
<5 years	65%	75%
>5 years	35%	25%

FIGURE 13:COMPARION OF DURATION WITH OTHER STUDY

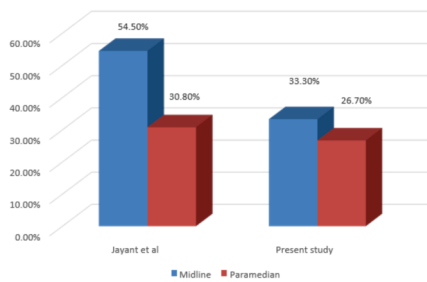


The maximum number of incisional hernias developed following vertical incisions with 40 (33.3%) cases from midline incisions followed by 32 (26.7%) cases from paramedian incision. In the study by Jayant Sharma et al in the year 1995, 54.54% of incisional hernias developed in midline incisions and from paramedian incision were 30.8%.

Table 14 Comparison Of Occurrence Of Incisional Hernia Following Previous Scar With Other Study

Vertical incisions	Jayant et al	Present study
Midline	54.5%	33.3%
Paramedian	30.8%	26.7%

FIGURE 14: COMPARISON OF ININCISIONAL HERNIA FOLLOWING PREVIOUS SCAR WITH OTHER STUDY

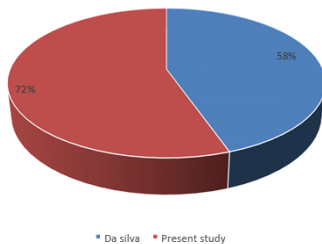


Da silva et al in the year 1991 in their study reported that incisional hernias occurred more commonly after Obstetrics & Gynecological procedures as 58%. In the present study the incidence of incisional hernia after Obstetrics & Gynecological procedures were seen in 87 (72%) cases. Abdominal hysterectomy was the commonest primary procedure done.(32 cases)

Table15 Comparison Of Incisional Hernia Following Previous Surgery With Other Study

Studies	Obstetrics & Gynecological procedures
Da silva	58%
Present study	72%

FIGURE 15:OBSTETRICS & GYNECOLOGICAL PROCEDURES

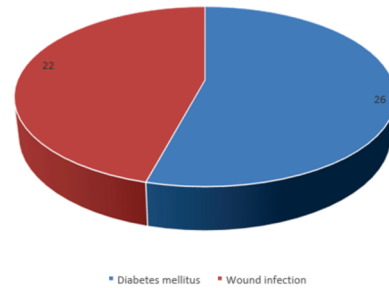


Diabetes mellitus and wound infection were the dominant predisposing factors. In the present study 26 out of 200 patients presented with diabetes and 22 out of 200 patients presented with wound infection.

Table 16 Comparison Of Predisposing Factors

Predisposing factors	Number of cases
Diabetes mellitus	26
Wound infection	22

FIGURE 16: COMPARISON OF PREDISPOSING FACTORS

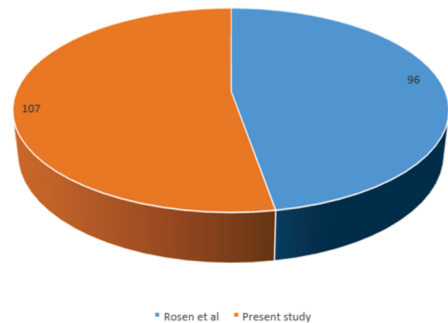


In the present study treatment by mesh repair was done for 107 patients. In a study done by Rosen et al in the year 2003, mesh repair was done for 96 patients.

Table 17 Comparison Of Mesh Repair With Other Study

Study	Number of cases
Rosen et al	96
Present study	107

FIGURE 17:COMPARISON OF MESH REPAIR WITH OTHER STUDY

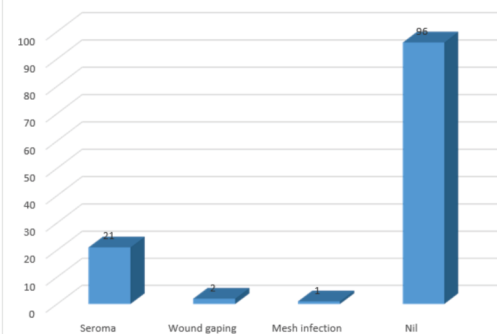


In the present study, 24 patients presented with post repair complications of which 21 were seroma, 2 wound gaping and 1 mesh infection.

Table 18 Post Repair Complications

Complications	Number of cases
Seroma	21
Wound gaping	2
Mesh infection	1
Nil	96

FIGURE 18:POST REPAIR COMPLICATIONS



SUMMARY

- The present study is a retrospective study where the length of interval between surgery and the development of incisional hernia was determined.
- As the strength of the wound on the abdominal wall depends on the sutures after surgery, it is suggested that early development of incisional hernia is mainly caused by factors such as infection of the wound and surgical technique.
- The choice of incision may have its influence on post-operative

complications. Vertical incisions such as midline incision have increased incidence of occurrence of incisional hernia.

- Transverse incisions cause less incidence of incisional hernia than midline incision.
- Incisional hernia can be avoided by following certain prevention strategies.
- Risk factors which result in the development of incisional hernia include suture material, suture technique, suture length and hernia repair technique.
- Suture material either non- absorbable material such as nylon, polypropylene or slowly absorbable suture material should be used.
- Mass closure is better than closing of the abdominal wall layers separately.
- With regard to suture length, the suture should be at-least four times as length as the wound.
- Finally, in incisional hernia repair, prosthetic mesh should be used to prevent incisional hernia recurrence.

CONCLUSION

In the present study, reports of 120 cases of incisional hernia operated between July 2017 to July 2018 were collected at Government Dharmapuri Medical College and Hospital, Dharmapuri.

Incisional hernias were common in women and in the fifth and sixth decades of life.

It is most commonly seen after obstetrics & gynaecological surgeries mainly abdominal hysterectomies.

The occurrence of incisional hernias were most common in the vertical incisions including midline and paramedian incisions. It occurs commonly within five years of previous surgeries .

The commonest predisposing factor was wound infection and diabetes mellitus.

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