



ETIOPATHOLOGICAL STUDY OF INCISIONAL HERNIA IN TERTIARY CARE HOSPITAL

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ABSTRACT Aim of our study was, to assess various etiological and precipitating factors, clinical presentation and various modalities of repair and how to prevent this complications.

Material and Method: This prospective study was conducted in Teerthanker Mahaveer Medical College And Research Center Moradabad, on 38 patients in the Department of Surgery from Dec 17, 2018 to May 19, 2019.

Observations were made with regards to age, sex, parity, Type of surgery done, place of surgery, associated risk factors, wound infection, hospital stay, and recurrence.

Results :Incidence of Incisional hernia was found to be more common in multiparous females who had single or multiple LSCS ,infected laparotomies ,common age group was in 4th decade of life .Marginal difference was noted in mesh placement technique .We did not record any recurrence in follow up period of about one and half year.

Conclusion: This unwanted complication of surgery is more common in females, particularly in multiparous and with multiple LSCS .Better preoperative preparation, aseptic technique during surgery ,choice of incision ,suture material used and damage to nerve supply ,are the factors ,if followed honestly ,the incidence of incisional hernia can be reduced .

KEYWORDS : Etiopathology, Incisional hernia, Risk factors causes, Technique of mesh placement

INTRODUCTION

Hernia word itself roots from Greek language and means an off shoot or a bulge, while in Latin it means a rupture and by definition it is the protrusion of one viscus or its part from one anatomical space to another. It can also be defined as an out pouching of parietal peritoneum into a prepared sac .Incisional hernias are one of the most common problems confronting general surgeons. Incisional Hernia may appear as just a bulge directly over the scar or in just adjacent area and may remain even unnoticed for long time as it is mostly painless and later on gradually increases in size .In modern era ,incisional hernias are very commonly encountered in day to day practice of surgeon and repair even mounts up to 5-21% of all surgical procedures .In various studies, the incidence of incisional hernia falls between 3-14%. High recurrence rates after anatomical repair and repair of fascial defects, Mesh hernioplasty has become the gold standard procedure for medium and large sized hernias .Placement of mesh started as on lay and sub lay in relation to rectus muscle, but now Laparoscopic procedure is becoming favourite where these facilities are available .Hernia is diffuse extrusion of peritoneum and abdominal organs through previous weak healed scar of any surgical intervention or trauma and is a common problem with uncommon sequel.

Because there is no prospective cohort available to determine the definite causes, natural history of incisional hernia, the general opinion becomes that this morbid condition be repaired when discovered, so there was need to study this morbid condition with respect to its presentation and best modality of treatment in our tertiary care hospital –Teerthanker Mahaveer Medical College and Research Center, Moradabad.

MATERIAL AND METHODS:

The present study is prospective and observational hospital based study conducted in TMMC&RC Moradabad in the department of surgery from Dec 17, 2018 to May 19, 2019.

We included 38 patients in our study fulfilling the inclusion and exclusion criteria, were studied in detail for age ,sex ,Body Mass Index (BMI),type of previous surgery, hospital where surgery was performed, length of hospital stay, and any complication after surgery .Preoperative clinical examination, investigations were done and patients with diabetes mellitus having high blood sugar level were controlled.

Inclusion criteria:

1. Gradually increasing swelling at the site of operation.
2. History of pain and irreducibility of hernia
3. Cosmetic purposes

Exclusion criteria:

1. Pregnancy, Malignancy ,Ascites ,Portal hypertension ,or any other metabolic disease
2. Poor general condition.
3. High BMI

We noted post-operative (repair) hospital stay, and any complication like seroma formation, pus discharge, allergic rashes and infection.

Incision was given over the swelling, fine dissection was done, sac was dissected, and separated from adherent rectus sheath, sac was opened, contents reduced, followed by peritoneal closure. A linear incision on both anterior rectus sheaths released both rectus muscles and were almost in mid line ,a new median raphe was created and strengthen in double layer before placing mesh sub rectally in sub lay ,above rectus in on lay method ,suction drain was put to minimize the post-operative collection .

In other types of hernia like subcostal, appendicular, lumbar, almost same procedure was adopted. 21 only and 17 sub-lay procedures were done in our study.

Observations:

Table No 1: Male Female ratio

S.No	Sex	Number
1	Females	25
2	Males	13

Table No 2 Age Distribution

S.No	Age in years	Number
1	10—25	3
2	26—40	9
3	41—50	16
4	51—60	8
5	61and above	4

Table No 3 Mode of presentation

S No	Mode of presentation(hernia site)	Number
1	Rt upper abdomen	3
2	Rt sub costal	2
3	Lt subcostal	1
4	Rt lower Para median	10
5	Lt lower Para median	8
6	Pfannasteil's incision	3

7	Mid line incision	8
8	Appendicular incision	2
9	Lumber	1

Table No 4

S No	Previous Surgery	Number
1	Hysterectomy	7
2	L.S.C.S.	17
3	Laparotomy	1
4	Appendectomy	2
5	D.U. Perforation	8
6	Cholecystectomy	2
7	Nephrectomy	1

Table No 5

S.No	Risk Factors	%
1	Diabetes	68%
2	Multiparity	46%
3	Wound Infection	72%
4	Emergency surgery	76%
5	B.M.I Low High	20% 80%

Table No 6

S No	Size of Gap	Number
1	2—5Cm	8
2	6—10Cm	11
3	11—15Cm	16
4	>15Cm	3

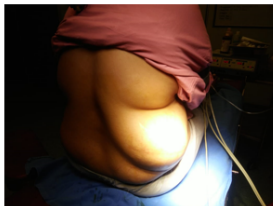
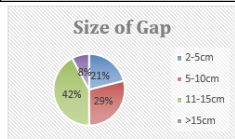
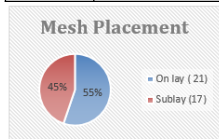


Figure 1 Preop view



Figure 2 Preop view



Figure 3 preop view 3

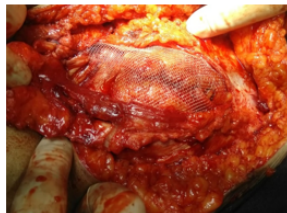


Figure 4 Inerop Mesh placement view 1



Figure 5 Inerop Mesh placement view 2

RESULTS:

In Our study on 38 patients, operated for hernia repair, 65.7% were females, and 34.3% were males. Main cause in females were LSCS while in males it was previous laparotomy particularly in infected patients. Incisional hernia was found to be more in age group 41 to 50 years, followed by 26 to 40 years. Gap size also varied in different

patients and was directly related with symptoms. Suction tube was removed between 4th to 5th day, mean hospital stay was 8 days ,and patients were asked to report every week for one month ,then once in fortnight, later once a month for six months. Very long follow up could not be done in many cases in the hope that they would have been symptom free.

One patient after 15 days had mild infection in one stich, treated with antibiotics, another patient after three months developed sinus which was excised and eventually responded well to treatment.

DISCUSSION:

Hernia by no means is new to medical world except its treatment which is changing with time and surgeon, irrespective of type of hernia. Historically in oldest literature of ancient Egypt Inguinal hernia was first mentioned in human history by an Egyptian Medical Papyrus known as Ebers Papyrus(circa 1555.CB)and the great ancient physician Hippocrates of Kos (460—375BC.E) mentioned about hernia in his literature .

Surgical repair of incisional hernia has evolved over a period of time with different techniques like anatomical repair, repair of fascial defects, tension free mesh hernioplasty but more recently laparoscopic mesh repair is being practiced all over where its facility is available .

Many etiological factors are associated with incisional hernia like –age, sex, BMI, post –operative wound infection, chest infection, general immune system of body, type of sutures used and the most important being the skill and experience of surgeon, although even in expert's hands incisional hernia is reported.

In our prospective and observational study on 38 patients we aimed to study the possible risk factors, mode of presentation, etiopathogenesis, and different modes of repair (mesh repair in present scenario)

The most common age group involved was 4th decade of life and male: female ratio were 34.3:65.7. Purushottam et al, Ellis, Gajrajand George et al⁷, reporting almost same data, but Naved et al had different observations of 66% in 3rddecade and Male: Female ratio being 1:9.

Millibourn et al²⁰ reported incidence 64.6% in females in his study on 384 patients .Braden Devlin¹⁴ states that the reported incidence in same region or just parallel of previous scar will often lead to development of incisional hernia .More than one previous operation is also a risk factor for development of incisional hernia²⁰. In our study about 50% of hernia were infraumbilical ,LSCS was the commonest cause in females but previous laparotomies particularly of infective pathology was the reason in male patients. Higher incidence of infra umbilical hernia may be because:

- (a) Intra-abdominal pressure is higher in lower abdomen (20 CC of water) as compared to upper abdomen in erect position (80CC of water).
- (b) Absence of posterior rectus sheath in lower 3rd part of abdomen.
- (c) Poor musculature particularly in multiparous females, weak scar after laparotomies with infective pathology.
- (d) General poor body resistance and wound dehiscence in malnourished patients.

Data of our study are in line with Goel et al⁸ .65% of incisional hernia were following LSCS and Hysterectomy. Infection in post-operative period seems to be the commonest predisposing factor for weakening of scar^{1,2,3,4}.

During clinical examination the size of defect was also noted, as it becomes an important factor to determine the type of hernioplasty to be done. In majority of patients the defect was between 11 to 15cm and in three patients it was more than 15 cm. Small defects underwent anatomical repair .Thomas A Santorabelie²³ves ,that the size of fascial defect and appearance of fascia should dictate the selection of most appropriate method of hernia repair. Jack Abrahamson²⁹ stated that mesh repair is excellent method for very large ventral hernia repair but has not specified the size of defect.

A systemic review found that hernia repair without prosthetic mesh, is associated with unsatisfactory recurrence rate of about 15 –54% whereas repair with mesh, the recurrence rate being 2—36%. It is now an accepted fact that defects less than 3 cm should be repaired with anatomical approximation with sutures and it is why a population based study on 10882 patients in US ,found an increase in frequency

of synthetic mesh use from 35% in 1987 to 65% in 1999^{10,11}.

In our study, maximum number of patients 13(34.2%) developed incisional hernia in first six month after surgery and 23(60.5%) after two years, while Naved et al reports about 40% developed with this period.

Recent trend is to use prosthetic mesh judiciously. Mesh repair was found to significantly better for large and multiple defects^{5,6,13}.

There was no mortality and recurrence in our study, however period of follow up was variable and short to make correct assessment of recurrences, because in short follow up, it is not possible to be very sure for it. Usher¹⁷ reported 0% recurrence in 48 patients with mesh repair while W.A. et al¹⁸ reported 63% recurrence rate in 10 years. In follow up about 32% of mesh repairs, the recurrence rates occurred and it varies in different studies, but all studies do suggest mesh repairs.

Although many etiological factors can result in incisional hernia formation post-operatively but if following precautions are kept in mind then it is possible to prevent it:

- (a) Minimum incision to target organ.
- (b) Splitting of muscles in direction of fibers rather than cutting.
- (c) Drainage tube should always be put in infected cases as increase in intra-abdominal pressure may seriously prejudice the strength of ultimate scar Purshottama²⁷
- (d) Incision must not damage the nerve supply of muscles.

CONCLUSION:

Incisional hernia is more common in females particularly in multiparous with repeated LSCS. Previous surgeries elective or emergency in infraumbilical area have higher percentage of these types of hernia. Post-operative wound infections, seroma, anemia, respiratory tract infection are the common risk factors. Proper preoperative preparation, aseptic technique, careful closure of abdominal wall, suture material used, may decrease the incidence.

We included 38 patients in our study and concluded that minimum incision approach to target organs, splitting of muscle fibers direction rather than cutting, to put drainage tube and to take care of nerve supply are the factors, which help in reduction of incidence of incisional hernia.

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