

INCISIONAL HERNIA: A Literature Review

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ABSTRACT:

Introduction: Abdominal wall hernias are most common in general surgery. Many people are affected by this problem. Some of them are symptomatic and others are asymptomatic. It may be a congenital problem or acquired. Hernia presentations are commonly inguinal, ventral and incisional hernia. Any type of surgery which involves an incision on the fascia, after which if they get healed in inadequate strength, it leads to weakness in the abdominal wall, mostly on anterior abdominal wall. This may lead to the formation of an incisional hernia if certain etiological factors are present.

Aim: To conduct A literature review on Incisional Hernia.

Materials and method: The present study was conducted from May 2021 to June 2022 at the Department of General Surgery, Santosh Medical College & Hospital Ghaziabad. It was carried out with resources from national and international journals present at central library of the university.

Result: Our study shows that Incisional Hernia is not an uncommon complication. Despite being in the best surgical hand chance of developing an incisional hernia is at least 1-2 %. In cases of wound infection, diabetic patients and patients that develop complications over the time incidence increases up to 12 %.

Conclusion: Over time many new methods of hernioplasty have developed, still incisional hernia remains challenging in this developing era.

Keywords: Incisional hernia, ventral hernia, recurrence, hernioplasty, Incidence

INTRODUCTION:

The protrusion of abdominal viscera through the site of a previous incision or severe injury to the abdominal wall is referred to as a "incisional hernia."⁽¹⁾ Post-operative incisional hernia rates have reached at least 10%. Since most incisional hernias do not even cause any symptoms, they occur more often than inguinal hernias. The three most common forms of hernias are inguinal, ventral, and incisional hernias⁽²⁾.

Abdominal incisional hernias may be repaired in a number of ways; one of the simplest is re-suturing the minor defect. Cattell's and Maingot's keel repair⁽³⁾ are popular, as are shoelace darn repairs. Fifteen per cent to twenty percent of patients who undergo these anatomical repairs will have a recurrence.

The polymer-based synthetics that have achieved major advancements in the suture business recently include nylon, polymer, polyester, polypropylene, polytetrafluoroethylene PTFE, polydactyl, and polydioxanone. In every area of surgery, prosthetic grafts have been a game-changer⁽⁴⁾. In 1958, when Usher published his findings on the effectiveness of polypropylene proline mesh for hernia repair, the current age of prosthetic hernia repair officially started. Success rates for covering large defects in incisional hernias with polypropylene mesh have been quite high ever since their introduction.

Incisional hernias are fairly uncommon, and their therapy remains a challenge, despite recent breakthroughs in surgical techniques⁽⁵⁾. Large deformities were seen in most incisional hernias because of postoperative wound infections⁽⁶⁾. In some patients, past anatomical restoration has left them with scarring and widened flaws.

MATERIALS AND METHOD:

The present study was conducted from May 2021 to June 2022 at the Department of General Surgery, Santosh Medical College & Hospital Ghaziabad. It was carried out with resources from national and international journals present at the central library of the university.

REVIEW OF LITERATURE:

An incisional hernia is more likely to occur if there are underlying systemic chronic disorders present, such as diabetes mellitus (DM), renal failure, obesity, smoking, nutritional conditions, or systemic long-term drugs, such as steroids and immunosuppressants. One frequently mentioned risk factor is morbid obesity (7,8).

Incisional hernias are frequently caused by disease-related factors, such as the location of the incision, when it was made, how urgently the treatment needed to be done, how many problems there were, and the disease itself (9). A higher frequency of incisional hernia formation is linked to emergency procedures, midline incisions, infection, and acute abdominal surgery (10).

In 2000, Chevrel and Rath put up a classification for incisional hernias. The simplicity of this classification and the ease with which it can be accomplished make it appealing. Three variables were used. First, the abdominal wall hernia's location is broken down into median (MI-M4) and lateral (LI-L4) hernias. Second, the size of the hernia: It was proposed that the most significant parameter—more significant than the hernia defect surface, the length of the hernia, or the size of the hernia sac—was the width of the hernia defect, which was classified into four groups (W1- W4). Incisional hernias and recurrences were divided into subgroups as the third parameter of this classification; the number of prior hernia repairs was recorded as (RO, R1, R2, and R3). Despite being simple to use, this classification has not been widely employed in the literature ⁽¹¹⁾.

The European Hernia Society's most recent and commonly used classification is based on two factors: the hernia's location and size (12). There are two lateral hernias (Spigelian and lumbar) and two midline (epigastric and umbilical) hernias that can be distinguished by their specific localizations (13). To describe the three size-based subgroups of small, medium, and large, cut-off values of 2 and 4 cm were used.

Since fibroblasts are the primary means by which collagen is synthesised, wound failure and loss of the normal healing process promote the emergence of abnormal fibroblasts, which in turn causes the formation of defective collagen.

Secondary alterations in tissue fibroblasts can result from coughing while straining, heavy lifting, abdominal distention, and ascites.

Delays and defects in collagen synthesis as well as an increase in the activity of the protease enzymes at the level of the wound, which leads to an increase in collagen breakdown, are the results of aberrant collagen metabolism. Type I and type III collagen levels drop as a result, as does the collagen I:III ratio ⁽¹⁴⁾.

INCISIONAL HERNIA STAGING INCISIONAL HERNIA STAGIN

STAGE I Risk: low recurrence, low SSO	<10 cm, clean
STAGE II Risk: moderate recurrence, moderate SSO	<10 cm, contaminated 10-20 cm, clean
STAGE III Risk: high recurrence, high SSO	≥10 cm, contaminated Any ≥20 cm

SSO –Surgical Site Occurrence

SURGICAL SITE OCCURRENCE AND RECURRENCE RATES

	SSO RATE	RECURRENCE RATE
STAGE I Risk: low recurrence, low SSO <10 cm, clean	7/77 (10%)	7/77 (10%)
STAGE II Risk: moderate recurrence, moderate SSO <10 cm, contaminated 10-20 cm, clean	30/151 (20%)	22/151 (15%)
STAGE III Risk: high recurrence, high SSO ≥10 cm, contaminated Any ≥20 cm	44/105 (42%)	27/105 (26%)

SSO –Surgical Site Occurrence

Open repair

Today, simple suture procedures without the use of prosthetic mesh for support, even with multilayer closure, such as in Mayo, "keel" or da Silva repairs, are not advised due to the high risk of recurrence. However, in cases of severe contamination, like peritonitis, they can be the sole choice. To identify any clinically unknown flaws, the prior incision is fully opened along its whole length. The hernial sac, its neck, and the defect's edges are all clearly visible. It is possible to safely reclose the peritoneum by opening the sac, reducing its contents, dividing any local adhesions, and excising any excess sacs. For umbilical hernia repair, mesh can be positioned in a variety of planes. The retro muscular sublay repair, which is described here, is increasingly chosen by skilled surgeons over the simplest method, an Onlay mesh.

Retro muscular sublay mesh repair

The rectus abdominus muscles' fascia is vertically cut through to allow the muscle to be lifted from the posterior rectus sheath below and detached from it. The medial edges of the

posterior rectus sheath should, if at all possible, be joined by a continuous suture. This could not be possible in very severe defects, because below the arcuate line, just the peritoneum and transversalis fascia remain of the posterior sheath. The internal oblique and transverse abdominal muscles make up the posterior layer of an incision that runs transversely and has a defect that extends lateral to the rectus sheath⁽¹⁵⁾.

RESULTS:

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The ventral incisional hernia is a frequent side effect of abdominal surgery, according to Caglià P et al(16) (2014). An rising number of older individuals are benefiting from even sophisticated surgical procedures as a result of the significant advancements in healthcare and medical technology. Analysis of the risk factors for ventral incisional hernia in older patients was the main goal of this evaluation of the literature, along with the identification of potential preventative interventions.

Sit M. et al. (17) demonstrated in 2014 that incisional hernias can develop from incisions made after prior abdominal procedures. It is a common side effect of abdominal operations. Regarding vertical midline incisions and transverse incisions, the prevalence of incisional hernias is 2.9% and 3.6%, respectively. Morbidity and manpower loss are brought on by incisional hernias. Surgery is the sole available form of therapy. In this retrospective research, they sought to compare the techniques used to treat incisional hernias and discuss the postoperative information. 54 patients with major incisional hernias treated between 2007 and 2011 had their data retrospectively examined.

Our study showed that, Incisional Hernia is equally affecting all class of people but commoner in poor with a history of infection. Smoking is a biggest factor causing incisional Hernia. Most of the patients had diabetes mellitus type 2 + which was significant. Less number of patients had COPD but it was statistically significant. People with Obstructive uropathy or BPH are more prone to have incisional hernia. People with H/O wound infection are more prone to have incisional hernia. People with chronic cough or copd are more prone to have incisional hernia.

An aberrant protrusion of the viscus through a normal or abnormal weakness in the wall of its enclosing cavity is what is meant by a hernia, according to research by Garg N et al (18) (2017). Incisional hernias occur 12% of the time. After exploratory laparotomy and LSCS, it is the most frequent complication. A proforma that includes a thorough history, clinical examination, and investigation was used to collect data for 30 patients of incisional hernia. Data was tabulated, examined, and the findings were evaluated. With a ratio of 1.5:1,

incisional hernias were more prevalent in women. The age group from 30 to 50 years old had the highest rate of incisional hernias.

Recurrence depends on multiple factors like age, habits/addiction, diabetes, obesity, size of hernia, the strength of muscles/sheath, serum albumin levels, retro rectus application of mesh is better but recurrence may occur if lifestyle is not modified and factors causing hernia is not optimised.

In the department of surgery at the provincial hospital of Tenkodogo, in Burkina Faso, Ouedraogo S et al. (19) (2017) looked at how this study was intended to characterise the etiologic variables and therapeutic modalities of incisional hernias. A cross-sectional study encompassing the years 2010 to 2012 was conducted. The sampling was thorough and included all of the patients who underwent incisional hernia surgery during this time. The total number of patients was 54. It was 22.3 years on average. There were 19 (35.2%) female patients and 35 (64.8%) male patients. 28 incisional hernias of great size, 14 incisional hernias of medium size, and 12 incisional hernias of small size were all counted. An incisional hernia diagnosis often took 8 months after the initial operation.

The purpose of this study, as demonstrated by Lindmark M et al (20) (2018), was to identify risk variables for an unfavourable occurrence, such as an early surgical complication, the requirement for ICU care, and readmission after ventral hernia repair. They postulated that there is a correlation between a higher complication rate after ventral hernia repair and a number of parameters, including the size of the hernia, a BMI greater than 35, concurrent bowel operations, an ASA class, age, gender, and the kind of hernia repair. Data from a ventral hernia database containing prospectively submitted information on 408 patients who underwent surgery at two university hospitals in Sweden between 2007 and 2014 were analysed.

According to Pereira JA et al. (21) (2018), registries are effective tools for locating characteristics that foretell negative outcomes. Their goal was to identify scenarios where problems and recurrences were likely to occur by analysing data from the Spanish Registry of Incisional Hernias (EVEREG). They examined data from the cohort of hernias reported between July 2012 and June 2014. In the short- and long-term follow-up, they compared the data between complicated and non-complicated patients. The following pieces of information were compared: patient demographics, comorbid condition, hernia defect features, and surgical method to see which of them would be indicators of unfavourable results. During the period of study, they collected data from “1336 hernias (43.7% males; 56.3% females) with a mean age of 63.6 years (SD 12.4) and BMI of 30.4 (SD 5.4)”.

Despite of newer advancements open hernioplasty is more commonly preferred for larger hernia, Complication can occur with any type of hernioplasty.

Incisional hernia is a significant postoperative consequence of surgical intervention, as demonstrated by research by Thorat VM et al (22) in 2019. Diffuse abdominal protrusion of the peritoneum and contents through a frail abdominal wall surgical scar is known as an incisional hernia. Incisional hernias were the focus of the current investigation, which sought to assess their prevalence, clinical manifestation, underlying causes, manner of prevention, and appropriate management. From January 2015 to June 2016, 60 patients at Ranchi, Jharkhand's Rajendra Institute of Medical Sciences participated in this prospective and observational study. When women undergo OBG/GYNEC procedures, incisional hernia is more prevalent.

CONCLUSION:

Smokers have more tendency for incisional hernia. Women are more commonly affected. Most of the patients with diabetes mellitus type 2, have more chance to develop incisional hernia. People with a history of wound infection are more prone to have an incisional hernia. Over the time many new methods of hernioplasty have developed still, incisional hernia remains a challenging in this developing era.

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