



A Prospective Followup Study of Incisional Hernia: Presentation, Patterns And Management

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ABSTRACT

Objective: The main objective of the present study was to study the patterns and factors responsible for the development of Incisional Hernia(IH) and the different types of surgery for IH. Methods: 50 cases of IH admitted in our hospital during the study period of 2012-2014 were assessed using standard form for evaluation. Scar dimensions measured using vernier calipers. Results: IH is more common in females than males with a peak in the 4th decade of life. It was most commonly seen post gynaecological operations with preponderance in supraumbilical region. Obesity, postoperative complications were associated with increased risk whereas anaemia with IH could not be associated. Most of IH recurred in 1-5 yrs of previous surgeries. Inlay mesh repair was the procedure of choice.

KEYWORDS

Incisional hernia, risk factors, mesh repair.

INTRODUCTION:

An incisional hernia (IH) also called ventral hernia, is a bulge or protrusion that occurs nearly or directly along a prior abdominal surgical incision. Incisional hernia is defined as any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging 1. IH occur primarily as a result of high tension and inadequate healing of previous incision, the latter of which is frequently related to infection at the surgical site.

The incidence depends on a number of factors such as old age, female sex, obesity, bowel surgery, and suture type, chest infections at that time, abdominal distension and wound infection. 90% of IH occur within 3 yrs of operation. Repair of large abdominal incisional hernias is a difficult surgical problem with recurrence being a common outcome.

IH can be decreased by taking appropriate measures preoperatively, intraoperatively and postoperatively. There is a need to study all the methods of repair, assess the objective and subjective relief to the patient, so as to arrive at a conclusion as to the ideal methods of IH repair.

The main objective of the present research was to study the patterns, factors responsible and different modalities of treatment of IH presenting at our hospital and to frame guidelines to prevent IH.

MATERIALS AND METHODS:

The material for the present study were 50 cases of IH admitted in the department of surgery at Srinivas Institute of Medical Sciences, Mangalore during the study period between 2012-2014 operated by any of standard procedures for IH repair. Patients with complications of hernia were excluded. A standard form was used during the initial evaluation of patient to obtain the indication for the pre hernia operations and possible predisposing factors. Patients with BMI of > 25kg/m² same or greater before the prehernia surgery were considered overweight/obese. Scar dimensions i.e length and width were measured with vernier calipers.

RESULTS:

SEX	FREQUENCY	%
MALE	15	30
FEMALE	35	70

TABLE 1: SEX INCIDENCE OF IH

Among the study group, IH more commonly presented in females' i.e 70%.

AGE GROUP IN YRS	NO. OF PATIENTS	%
20-30	3	6
30-40	12	24
40-50	14	28
50-60	19	38
60-70	2	4

TABLE 2: AGE DISTRIBUTION OF IH

IH occurred more frequently in 50-60 yrs age group(38%) followed by patients of 40-50yrs group(28%)

PREVIOUS SURGERY	NO. OF PATIENTS	%
LAPAROTOMY	17	34
HYSTERECTOMY	13	26
TUBECTOMY	7	14
LSCS	7	14
APPENDICECTOMY	4	8
SPLENECTOMY	1	2
AUGMENTATION CYSTOPLASTY	1	2

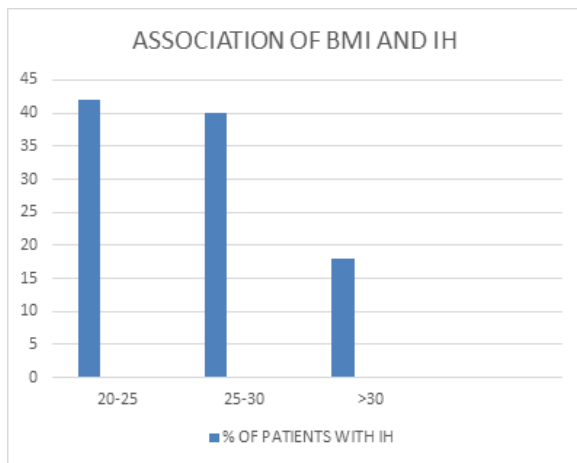
TABLE 3: TYPES OF PREVIOUS SURGERY IN PATIENTS OF IH.

According to the above table, IH more commonly occurred in patients with gynaecological surgeries(54%)

INCISION	NO. OF PATIENTS	%
PFANNENSTEIL	18	36
INFRAUMBILICAL LOWER MIDLINE	6	12
UPPER SUPRAMIDLINE	22	44
GRIDIRON	2	4
LEFT THORACOABDOMINAL	1	2
RIGHT PARAMEDIAN	1	2

TABLE 4: TYPES OF INCISION

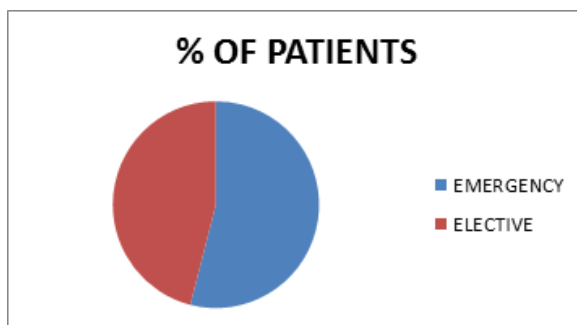
According to our study, upper supramidline(44%) and pfannansteil incisions(36%) was associated with increased incidence of IH.



GRAPH 1: ASSOCIATION OF BMI AND IH
The incidence of IH increases with higher BMI

HAEMOGLOBIN LEVEL	NO. OF PATIENTS	%
<10	5	10
10-11	12	24
11-12	11	22
12-13	8	16
13-14	10	20
>14	4	8

TABLE 5: CORRELATION BETWEEN ANAEMIA AND IH
IH was seen in all the groups irrespective of the haemoglobin level.



GRAPH 2: CORRELATIONS BETWEEN TYPE OF SURGERY AND DEVELOPMENT OF IH
IH was more frequent in patients of emergency procedures.

POSTOPERATIVE COMPLICATIONS	NO. OF PATIENTS	%
WOUND INFECTION	5	10
RTI	9	18
SEROMA	8	16
WOUND DEHISCENCE	1	2

TABLE 6: ASSOCIATION BETWEEN POSTOPERATIVE COMPLICATIONS AND INCIDENCE OF IH
Respiratory tract infection (RTI) was most commonly associated with incidence of IH (18%) followed by seroma(16%)

No. OF YEARS FOLLOWING SURGERY	NO OF PATIENTS	%
<1	9	18
1-5	21	42
5-10	16	32
>10	4	8

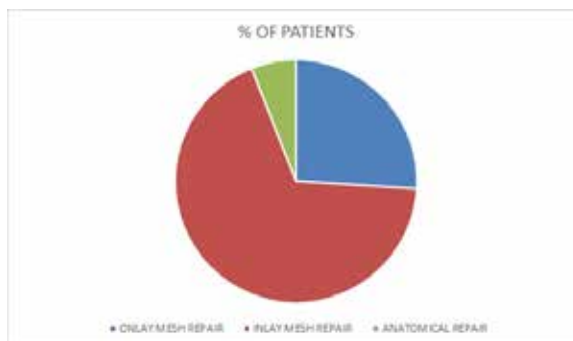
TABLE 7: ASSOCIATION BETWEEN THE DEVELOPMENT OF IH AND TIME LAPSE AFTER SURGERY
Most of the patients developed IH in 1-5 yrs following surgeries.

PRESENTING SYMPTOMS	NO OF PATIENTS	%
ONLY PAIN	1	2
ONLY SWELLING	17	34
PAIN AND SWELLING	32	64

TABLE 8: PRESENTING SYMPTOMS IN PATIENTS OF IH
64% of IH patients complained both pain and swelling at the site.

SIZE OF HERNIA(CMS)	NO. OF PATIENTS	%
< 5	11	22
5-10	20	40
10-15	4	8
>20	1	2

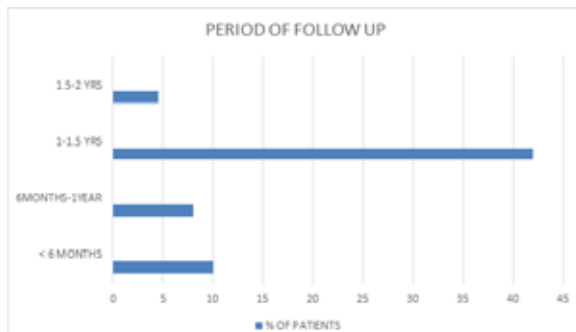
TABLE 9: SIZE OF IH
Most of the IH had a dimension of 5-10 cms (40%)



GRAPH 3: TYPES OF REPAIR DONE IN IH
According to our observation 68% of patients underwent inlay mesh repair for IH.

NO OF DAYS OF HOSPITAL STAY FOLLOWING OPERATIONS	NO. OF PATIENTS	%
< 3	3	6
3-5	8	16
5-8	28	56
>8	11	22

TABLE 10: NO OF DAYS OF HOSPITAL STAY FOLLOWING OPERATIONS
78% of patients were discharged within 8 days of surgery



GRAPH 4: PERIOD OF FOLLOW UP IN PATIENTS OF IH
82% of patients were followed up for more than a year in our study

DISCUSSION AND CONCLUSION

50 cases of IH were studied from September 2012-Sept 2014. The incidence of IH was more in female (70%) than in male which is attributed to the laxity of abdominal muscles due to multiple pregnancies. In males the incidence of IH is relatively rare as most of the operations are above the umbilicus with good integrity of the abdominal wall and well developed muscles and fascia. This is also observed by Nikhil N et al (2013)¹ in their study on 30 patients as well as by SK Gharai et al(2015)² in a group of 50 patients. The maximum incidence of IH is in the age group of 40-60 years (66%). Goel and Dubey³(1991), Harikrisnan (2004)⁴and Bhutia et al(1993)⁵ also found more incidence in 3rd, 4th and 5th decades. In our study gynaecological operations accounted for 54% of IH cases which may be due to differences in the intraperitoneal pressure in the upper abdominal (8cms of water) and lower abdominal region(20 cms of water) and with change in posture. The posterior wall of rectus sheath is also deficient in this region.

Laxmana S et al(2015)⁶, SK Gharai et al(2015)², Rajalingam et al(2015)⁷ found similar incidences of IH in female patients following gynaecological surgeries. Upper supramidline(44%) and pfannasteil incisions(36%) was associated with increased incidence of IH in the present study which is contradictory to the studies done by Goel & Dubey(1991)³, Manohar et al(2011)⁸ and Laxmana S et al(2015)⁶ who found increased incidences of IH in lower midline incisions. 58% of patients who developed IH had a BMI> 25, which may be due to the fact that cutting through large masses of fat and increased retraction needed may raise the infection rate. Tissues infiltrated with fat may not be able to hold sutures, further they tend to develop postoperative complications like paralytic ileus, pneumonia and DVT, increasing the risk of developing IH. L A Israelsson et al(1997)⁹ and A Pans et al(1998)¹⁰ found that Morbid obesity, defined as a body mass index (BMI) exceeding 40, is a major risk factor in the development of incisional hernia, with 20% to 28% of obese patients who undergo abdominal surgery developing an incisional hernia within 12 to 28 months of the initial Procedure. Similar observation was made by K Rajalingam et al⁷, Schumpelick V et al(2006)¹¹ in their review of IH state that anaemia is a major risk factor for development of IH. Although No association between anaemia and IH was established in our study. 54% of pts of our study had undergone emergency procedures which may be due to the fact that most of them are laparotomies for peritonitis and poor abdominal closures as also observed by SK Gharai et al(2015)² Nikhil N et al(2013)¹. Post op complications like Respiratory tract infections (18%) and seroma(16%) are commonly associated with the development of IH as observed in our study is also supported by SK Gharai et al(2015)². 42% of patients developed IH within 1-5 yrs of previous surgeries as observed by us also supported by other studies. 64% of patients had presenting complaints of both pain and swelling as also observed by N Bhat et al(2009)¹². 68% of patients of our study have undergone inlay mesh repair which is more physiological. The recurrence rate after open suture repair may be as high as 24-54% (Luijendijk et al., 2000)¹³, and for

open mesh repair, up to 34% (Paul et al., 1998¹⁴; Burger et al 2005¹⁵). Inlay mesh repair (68%) was the procedure of choice in our study. 3 yrs follow up of patients is atleast required in IH which has been one of the major drawbacks in our study where we could follow up 82% patients only upto 2 yrs.

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