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Research Article

A clinical study of incisional hernia and management

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ABSTRACT

Background: Incisional hernia is a common surgical condition with a reported incidence of 5-11% of patients subjected to abdominal operations. This study has been under taken to assess the magnitude of this condition and different modalities in surgical repair by mesh in our setup.
Methods: This is a prospective study of 30 cases of incisional hernia who attended to out-patient department (OPD) and emergency department of R.L.Jalappa Hospital and Research Centre, Kolar, India from May 2010 to May 2012. Data were collected from the patients. Documentations of patients which includes, identification , history, clinical finding, investigative tests, operation findings, operative procedures and complications during the stay in hospital and during subsequent follow up period, were all recorded in a proforma specially prepared. All patients underwent routine blood and radiology investigations to obtain fitness for surgery. All patients underwent mesh repair based on the size of defect. Patients were followed up for immediate post-operative complications.
Results: Most of the patients presented with incisional hernia in the infra umbilical region. There was recurrence of incisional hernia in two patients who had undergone inlay mesh repair and no recurrence in overlay mesh repair group. Comparatively within 3-12 months follow up, overlay mesh repair appears to be certainly superior to inlay repair considering the absence of recurrence.
Conclusions: The study concluded that overlay mesh repair is superior to inlay mesh repair for incisional hernia repair.

Keywords: Incisional hernia, Over lay mesh repair, Complications, Kolar

INTRODUCTION

Incisional hernia is defined as any abdominal wall gap with or without bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging.[1] Mankind is posed with the problem of hernia ever since its evolution.[2] The problem of incisional hernia appeared with the development of abdominal surgery; Harold Ellis' defines incisional hernia as the one that develops in the scar of surgical incision.[3] It may be a small, even insignificant bulge, through the wound; it may be a large, unsightly and uncomfortable affair too.

Incisional hernia occurs in approximately 5-11% of patient's subjects to abdominal operations.[4] All these present a challenging problem to the surgeon. Recent studies have shown that about 2/3'd appear within the first five years and that at least another third appears 5-10

year after operation.[5] If left unattended they tend to attain large size and cause discomfort to the patient or may lead to strangulation of abdominal contents.[6] Bowel may more often incarcerate in small hernias, whereas bowel obstruction due to adhesions in the hernial sac or the hernial orifice is more often encountered in large hernias.[7]

The repair of ventral incisional hernia is a significant operation not to be taken lightly. Careful preoperative planning combined with meticulous surgical technique and experienced judgment is important in order to minimize the risk of complication and hernia recurrence.[8] Almost every surgeon has got own techniques and may modify it to the situation.[9] This study has been undertaken to assess the magnitude of various factors leading to development of this condition and the different modalities of treatment practiced in our setup.

METHODS

This prospective study was conducted in department of surgery, Sri Devaraj URS Medical College, Kolar, India from May 2010 to May 2012. Institutional ethical committee permitted for study. Informed consent was taken from patients and patient attenders. A prospective study of 30 cases of incisional hernias treated in R.L.Jalappa Hospital, Kolar, India are collected consequently during the period of May 2010 to May 2012 with the help of available data. No particular criteria were adopted during selecting the patients for the study and cases were studied as per the proforma attached. Detailed history of the illness was taken as this is very important for the type and cause of hernia. A detailed general and local examination was made. All the cases were analyzed in various aspects like age, sex, parity, relative incidence, clinical presentation, nature of previous operation, site of previous scar, precipitating factors like obesity, wound infection, abdominal distension. The contributory factors like chronic bronchitis, chronic constipation and enlarged prostate were particularly lock for. While presenting the cases, only relevant and positive findings were recorded in the proforma case sheet enclosed and a master chart dealing with all the aspects has been designed and presented. The diagnosis was made clinically in all the cases without difficulty. Routine investigations were done to obtain fitness for surgery. Ultrasound abdomen was done for all patients to determine the size of the hernia defect. All patients underwent either anatomical repair alone or mesh repair based on the size of defect. Patients who underwent mesh repair had a suction drain left in situ. Patients were followed up for immediate post-operative complications. Collected data was tabulated and statistically analyzed by using SPSS software.

RESULTS

Patients in the age group of 30-60 years found to have highest incidence of incisional hernia. Females outnumbered the males with the ratio of 4:1. Incisional hernia was more common in patients with previous history of gynecological operation. Most of the patients presented with incisional hernia in the infra umbilical region. 10 patients were operated with general anaesthesia and 20 patients with spinal anaesthesia. Out of 30 patients with incisional hernia, 18 were treated by overlay mesh repair and 12 by inlay repair. Patients were selected random irrespective of size of hernial defect and obesity. Majority of the patients redivac drain was used and in all the cases drain was brought out through separate incision. Wound infection remains the most popular risk factor associated with wound failure. There was recurrence of incisional hernia in two patients who had undergone inlay mesh repair and no recurrence in overlay mesh repair group. Comparatively within 3-12 months follow up, overlay mesh repair appears to be certainly superior to inlay repair considering the absence of recurrence.

Table 1: Surgical technique used for treatment of incisional hernia.

Type of repair	Kings North AN et al		Present study	
	No. of cases	%	No. of cases	%
Sublay	33	63.4	0	0
Overlay	16	30.7	18	60
Inlay	1	1.92	12	40
Ramirez abdomino plasty	2	3.84	0	0

Table 2: Post-operative complications of incisional hernia repair.

Complication	Inlay repair (N = 12)	Overlay repair (N=18)	IL vs. OL P-Value*
Seroma	3(25%)	2(11.1%)	0.364, NS
Wound dehiscence	1 (8.3%)	-	0.400, NS
Recurrence	2 (16.6%)	-	0.152, NS
Total	4 (33.3%)	2 (11.1%)	0.184.NS

Table 3: Recurrence rate of incisional hernia.

Series	Total cases	Recurrence No.	Recurrence %
Fenn (1968)	73	5	7
Maingot(1969)	103	7	7
J.B. Shah (1977)	50	3	6
Kingsnorth AN (2004)	52	3	5.7
Present study (2005-2007)	30	2	6.66

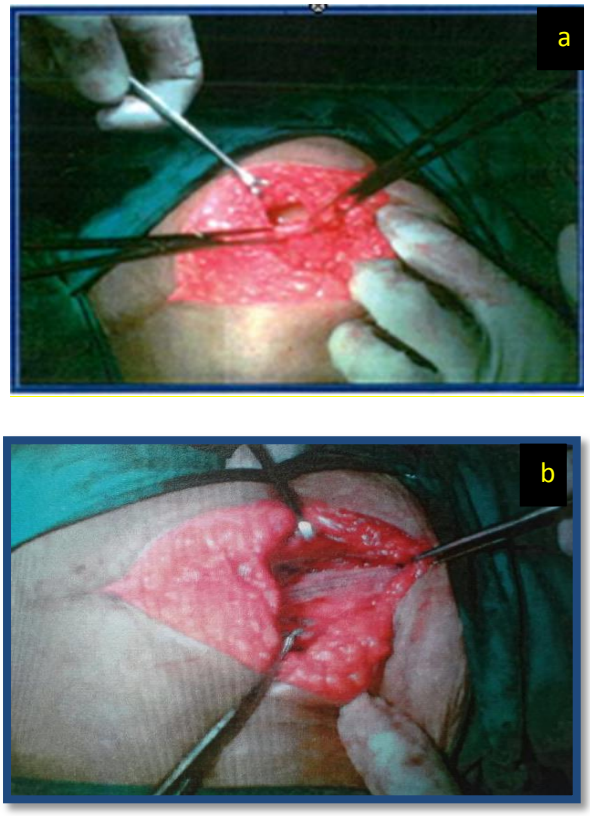

Figure 1: Incisional hernia through tubectomy scar. a) Infraumbilical midline defect; b) Inlay mesh repair.

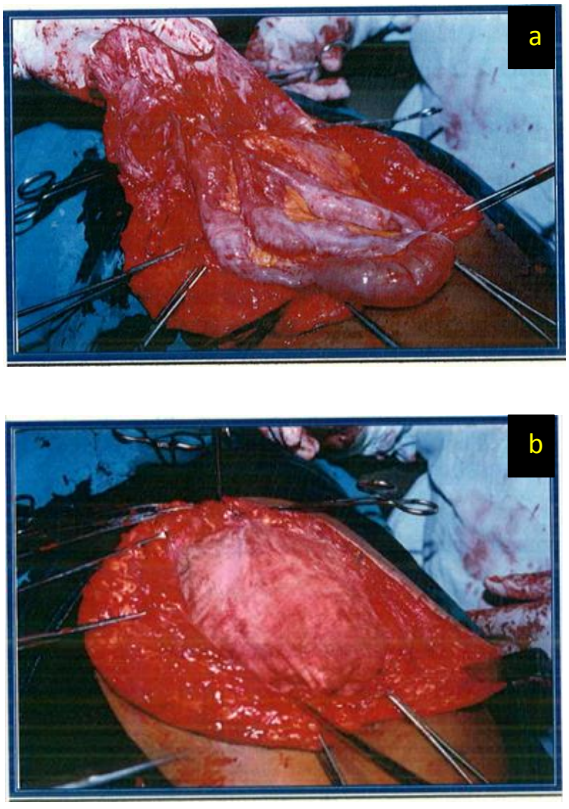

Figure 2: a) Opened sac with bowel as content; b) Overlay mesh repair.

DISCUSSION

A study of 30 cases of incisional hernia admitted to R.E. Jalappa Hospital, Kolar, India during the year of May 2010 to May 2012 was made. Wound infection and wound gaping constituted 30%. Obesity constitutes 20%, diabetes mellitus constitute 16.6% and postoperative respiratory complication accounted for 16.6%. In 16.6% of patients, no complications were found. In the evaluation of history it revealed that 13% of patients presented with incisional hernia within 6 months of the previous surgery. 23% of patients noticed swelling at the operated site within a year of surgery and 30% within 3 years after the operation i.e. nearly 53.3% of them had developed incisional hernia within 3 years of the operation. 10 patients were operated with general anaesthesia and 20 patients with spinal anaesthesia.

Out of 30 patients with incisional hernia, 18 were treated by overlay mesh repair and 12 by inlay repair. Patients were selected random irrespective of size of hernial defect and obesity. Majority of the patients redivac drain was used and in all the cases drain was brought out through separate incision. Five patients had post-operative cough, which was treated by benzyl inhalation, chest physiotherapy and cough syrup. One patient had retention of urine and was treated by Foley's catheterization. Three patients who underwent inlay mesh repair and two patients treated with overlay mesh repair had seroma collection (P=0.364, NS) in suture line which was treated by drainage and dressing. One patient in of inlay repair had wound dehiscence (F=0.400, NS), which was treated by secondary suturing. There was no case of major wound infection. There was no surgery related mortality in this study.

Two patients treated with inlay mesh repair presented with recurrent incisional hernia (p=0.152, NS). No patients treated with overlay mesh repair showed recurrence. The recurrence rate in my study was 6.66% which was comparable with that of JB Shah series.[10] Both recurrences occurred within a year of the operation. The follow up period was very short to comment up on real recurrence rate.

In my study, polypropylene mesh and the suture material of same type was used to repair incisional hernias, as it meets the requirements of ideal prosthesis and it is today's the most commonly used material for repair of all types of hernia. Eighteen out of thirty cases were treated with overlay mesh repair and twelve with inlay repair. Two patients developed post-operative wound seroma collection in suture line in both groups, which were treated with proper drainage and dressing. One patient developed wound dehiscence, which was treated by secondary suturing.

This study showed recurrence of incisional hernia in 2 patients of inlay mesh repaired group. No patients in overlay mesh repair group noticed recurrence. Roland et

al, reported a recurrence of 24% among patients who underwent mesh repair. The recurrence rate was significant in Roland et al study (p-value, 0.02). In my study the result was not significant (P-value 0.152). However, the follow up period was variable and short to comment upon the real recurrence rate.

In techniques for repair of incisional hernia, in which inlay mesh repair was used, there was greater contact between prosthesis and viscera with consequent wound infection and subsequent wound dehiscence and recurrence. With overlay repair, there was no recurrence as it is a tension free closure and infections are easier to treat. Thus my study establishes the superiority of overlay mesh repair over inlay repair with regards to recurrence of incisional hernia.

CONCLUSION

Incisional hernias are iatrogenic and preventable by, avoidance of midline incisions, especially in the infra umbilical region. Meticulous aseptic technique and careful closure of the abdominal wound is as important as dexterous surgery. Proper preoperative preparation of the patients with high risk is as important in preventing recurrence. In patients with incisional hernias, overlay mesh repair is superior to inlay mesh repair with regard to recurrence of hernia.

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REFERENCES

1. Ellis H. Incisions, closure and management of the wound. Maingot's abdominal operations, 10th edition. New York, NY: McGraw-Hill;1997:395-426.
2. Casser K, Munro A. Surgical treatment of incisional hernia. Br J Surg. 2002;89:534-45.
3. Abrahamson J. Hernias. In Maingot's abdominal operations, 1st edition. New York, McGraw-Hill;1997:479-573.
4. Abel AL, Clam A. The surgical treatment of large Incisional hernia using stainless steel wire. Br J Surg. 1960;18:42-9.
5. Hunter RR. Anatomical repair of midline incisional hernia. Br J Surg.1971;58(12):888-921.
6. Throck MTD. Repair of hernia with a tantalum gauze implant. Surgery. 1950;27(6):888-92.
7. Usher FC, Ochsner J. Futile LL. Use of marlex mess in the repair of Incisional hernia. Am Surg. 1958;24(12):969-74.
8. Bord JR, Bendavid R, Abrahamson J, Phillip EH. Prosthesis in hernia surgery. In abdominal wall hernias. Principles and management. 1st edition. New York, Springer-Verlag;2001:16-30.
9. Jenkins TP. Incisional hernia repairs a mechanical approach. Br J Surg. 1980;67(5):335-6.
10. Shah JB. Incisional hernias: a study of 50 cases. Ind J Surg. 1977;39:353-6.

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