Original Article

Reconstruction of meshed linea alba & paramedican continuous suturing of mesh - a new approach in incisional hernia repair

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ABSTRACT

Background: Irrespective of modern suturing technique of closure of abdominal wall, POIH(post-Op incisional hernia) is frequent complication of abdominal surgery, Repair of POIH with mesh has improved result & it has also reduced recurrence.

Aims: To observe and scrutinize the technique in the form of simplicity, post-Op complication and anatomical reconstruction.

Material &Methods: Patients having lower midline incisional hernia were operated upon by present technique of incisional hernia repair by reconstruction of meshed lineaalba were selected for the study. Patients were observed in Pre Op and Post-Op period & when they attend out-patient clinics. Data was collected in prescribed format& statistically analyzed to draw the conclusion.

Result: In our study of 20 patients, 95% of females (n= 19) outnumbered 5% males (n=1). The highest incidence was in the 5th& 6th decade of life. No patients were found having major wound infection, seroma formation, or recurrence of hernia. 20 patients (100%) attended our follow up which ranged from 3 months to 6 months. 15 patients (75%) attended the OPD personally for follow up. Remaining 5 patients (25%) were questioned over the telephone and their response recorded. The average hospital stay recorded was 5-6 days. No recurrence was encountered in the follow up group.

Conclusion: This technique of Reconstruction of meshed lineaalba was found to be technically simple, leading to least post op complications and attaining its goal of curing the lower abdominal incisional hernia.

Key words: Incisional hernia- lower midline, Onlaymeshplasty, Reconstruction of meshed linea alba,

INTRODUCTION

Incisional hernia is defined as a defect occurring through the operative scar. It is the only hernia considered to be truly iatrogenic. It occurs due to the failure of fascial tissues to heal and close following laparotomy [1, 2]. It is one of the most common conditions requiring major surgery despite advances in surgical techniques and suture material. The incidence of incisional hernia in literature is 2- 11% following all laparotomies [3] and it is a source of morbidity and requires high health care costs. As a result of high recurrence rate in the repair of incisional hernia, various types of repairs have been used both anatomical and prosthetic. But the results have been disappointing with a high incidence of recurrence of about 30-50% after anatomical repair [4] and 1.5-10% following prosthetic mesh repairs [5]. The introduction of prosthetics has revolutionized hernia surgery with the concept of tension free repair. Although a wide variety of surgical procedures have been adopted for the repair of incisional hernia, but the implantation of prosthetic mesh remains the most efficient method of dealing with incisional hernia [6]. The prosthetic mesh can be placed between the subcutaneous tissues of the abdominal wall and the anterior rectus sheath (onlay mesh repair) as well as in the preperitoneal plane created between the rectus muscle and posterior rectus sheath (underlay mesh repair). In two randomized trial of open mesh repair, recurrence rate with underlay repair were 20% and with onlay repair were 8% [7]. Intra-peritoneal mesh fixation by

laparoscopy is another way of treating the incisional hernia but it requires special type of mesh [8,9] and highest degree of instrumental availability and operative dexterity [10,11].
The current literature of fixing the mesh as an Onlay technique describes suturing of mesh with a non-absorbable suture in randomized and interrupted technique [7].

The present study was undertaken to evaluate the new approach of Onlay mesh repair with reconstruction of meshed linea alba of incisional hernias with regards to post operative complications, hospital stay and recurrences, if any.

MATERIAL AND METHODS

This study of incisional hernia repair by onlay mesh implantation with different approach was carried out on 20 cases at AMC MET Medical College, LG Hospital, Ahmedabad over a period of two years from January-2011 to January-2013. All patients were admitted through outpatient department (OPD) with the complain of lower abdominal midline incisional hernia (Fig. 1). The epidemiological data i.e. the name, age, sex, medical record number, postal address and phone number was noted at the time of admission. The clinical features and their duration, findings about time and type of previous operation and the interval between the first surgery and first appearance of incisional hernia were elicited from patients and recorded in the data. The known suspected risk factors like obesity, diabetes and history of wound infection, type of incision made were noted and recorded in the data. The follow up findings of the patients for three months post operatively were also recorded to see the complications like wound infection and recurrences if any.

Figure 1

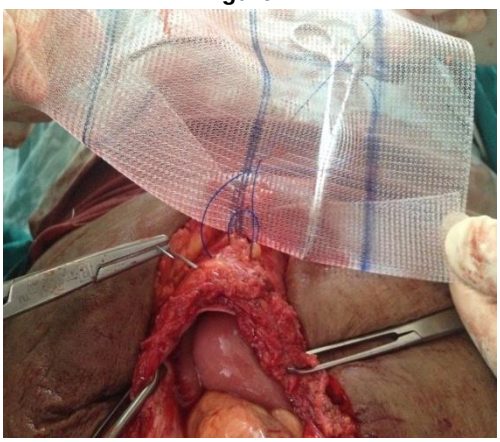
All the patients presented with Incisional hernias located in the lower midline incisions of the abdomen were included in the study. Patients were given pre operatively medical management to optimize their Hb level minimum upto 10 Gm/dl. All the patients were assessed medically for their Cardio-Respiratory system and treated medically when indicated.

All the patients were given soap water enema on the previous night of surgery. Shaving and preparations of the abdomen and back were also carried out on the previous day of the surgery. After taking patient to the OT table, all the patients were catheterized with self retaining Foley's catheter and also given the Inj. Ceftriaxone 1gm intravenous and InjAmikacin 500 mg by intravenous route.

OPERATIVE TECHNIQUE

All the patients have been operated under spinal anesthesia. The old scar is incised by elliptical incision and the soft tissue dissected down to the level of the anterior rectus sheath.

Figure 2



Here the Sac is identified and is cleared of surrounding soft tissue adhesions to allow a 10 cm rim of healthy fascia circumferentially. Irrespective of the size of the gap of the linea alba, whole linea alba from umbilicus to the pubic symphisis is included in the mesh repair. The sac is opened and adhesiolysis of bowel and omentum is achieved. A prolene mesh 6 * 6 inchesis marked with marker pen to keep the orientation centrally. The mesh, anterior rectus sheath, posterior rectus sheath along with the peritoneum is closed in the midline with 1/0 polypropylene suture in continuous manner and meshed linea alba is reconstructed (Fig. 2). The mesh is secured with continuous paramedian1/0 polypropylene sutures to the anterior rectus sheath keeping min 2 inches distance from midline (Fig. 3). Hemostasis achieved and suction drain is placed

parallelto the mesh using two flanges. The subcutaneous plane approximated with Chromic catgut 2-0 interrupted manner (Fig. 4). The skin is closed with Ethilon 2-0 vertical mattress manner.

Figure 3

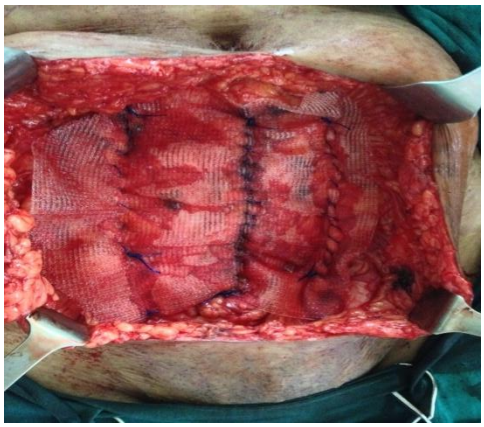


Figure 4

All the patients were given the Inj. Ceftriaxone 1gm intravenous and Inj Amikacin 500 mg by intravenous routefor 5 postoperative days twice daily. Patients were treated with IV fluids and Inj. Pantoprazole, Ondansetron, Diclofenac Sodium for next 2-3 days. Peristalsis was observed and oral intake promoted accordingly. Patient was mobilized and urinary catheter was removed after 24-48 hours. First dressing was done on 5th Post Op day and then as and when required. The drain was plan to remove on 5th Post Op day or later on when discharge becomes <20 ml/day. The hospital stay of the patients was also recorded down.

OBSERVATION

Age & Sex Wise Distribution: 20 patients underwent Onlay mesh repair with new approach of incisional hernia during two year study from January 2011 to January 2013. The youngest patient was 30 years old and the oldest was 72 years old. 95%of patients (n=19) were females which outnumbered the 5% of (n=1) male patients. It is showing that incidence of incisional hernia is higher in females. The highest incidence (55%) of incisional hernia amongst them was in the 5th and 6thdecades of life.

Symptomatology: The main presenting complaint in all the twenty patients (100%) was swelling of abdomen in the vicinity of the previous operative lower midline scar. This was followed by dragging pain at the site of hernia in four patients (20%) and irreducibility in zero patient (0%).

Table 1: Clinical Presentation of Patients with Incisional Hernia

Sr.No.	Clinical features	No. of Patients (n=20)	Percentage (%)
1	Swelling of abdomen	20	100
2	Dragging pain	4	20
3	Irreducibility	0	0

Type and Duration from Previous Surgery: Among all the 20 patients, 8 patients (40%) were operated previously for Abdominal hysterectomy, 6 patients (30%) were operated for caesarial section, 3 patients (15%) were operated for excision of ovarian mass,2 patients (10%) were operated for Abdo TL and1 male patient (5%) was operated for Supra Pubic Cystolithotomy. 12 patients (60%) were presented within 5 years from previous surgery, while 6 patients (30%) within 10 years and rest 2 patients (10%) were presented after 10 years from previous surgery.

Table 2: Types of Previous Surgery causing Incisional Hernia

Sr No.	Type of Surgery	No. of Patients (n=20)	Percentage (%)
1	Caesarian Section	6	30
2	Abdo. Hysterectomy	8	40
3	Abdo. TL	2	10
4	Excision of Ovarian mass	3	15
5	SPCL	1	5

Postoperative complications:
After Onlay meshplasty with reconstruction of meshed linea alba, no patients were found having major wound infection, seroma formation, or recurrence of hernia. However 1 patient had developed supra umbilical hernia within 6 months of repair.
Drains: Drains were used in all the patients. The period of drainage ranged from 3-8 days with the average period being 4- 6 days.

Follow up:20 patients (100%) attended our follow up which ranged from 3 months to 6 months. 15 patients (75%) attended the OPD personally for follow up. Remaining 5 patients (25%) were questioned over the telephone and their response recorded. The average hospital stay recorded was 5-6 days. No recurrence was encountered in the follow up group.

DISCUSSION

Incisional hernia is produced by deficient wound healing from the very beginning or by gradual yielding of an apparently soundly healed wound[12]. It is estimated that 2- 11% of all abdominal operations result in an incisional hernia [3]. Small hernias less than 4cm in diameter are often closed with primary tissue repairs. However larger ones have a recurrence rate upto 30-40% when tissue repair alone is performed alone [13,14,15,16].

Hernia recurrence is distressing to the patient and embarrassing to surgeon. Nowadays tension free repair using prosthetic mesh has decreased the recurrence to negligible. Despite excellent results, increased risk of infection with implantation of a foreign body and cost factor still exist.

However primary tissue repair is associated high unacceptable recurrence rate but nowadays tension free mesh repair is considered ideal hernia repair technique [17, 18].

According to literature, incisional hernia occurred more frequently in5th and 6th decades of life and females have higher frequency than males.[19]. In our study, the majority of patients (55%) were in 41- 60 years age group with female have higher frequency than male (19:1). The difference in age group and higher female preponderance is most probably due to higher number of lower midline incisions used in females for obstetric and gynaecological operations resulting in incisional hernia. The Onlay is the ideal logical plane for the placement of prosthetic mesh because easy access and difficulty of dissection of peritoneum without tearing it to create the underlay plane [7]. Diabetes [19], postoperative wound infection [20], obesity [21] are the important risk factors for the development of incisional hernia in international literature. In our study, postoperative wound infection after the initial surgery has the highest incidence (20%) followed by obesity (10%) and diabetes (5%).

Majority of incisional hernias (80%) developed in the first two yearsas per international studies [22]. Our study indicated that 50% of incisional hernias developed within first year of initial operation. The incidence of major wound infection in this study is 0% which is far better than international studies [23].The recurrence rate of Onlay mesh repair mentioned in different series varies from 8% to 10% [7]. Our study indicated 0% recurrence with even better results.

CONCLUSION

Lower midline hernia is the commonest incisional hernia. Surgery by Onlaymeshplasty with reconstruction of Meshed lineaalba has proved to be effective and technically easy,achieving higher level of anatomic harmony, least post op complications and least recurrence.

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