

Study of Post-Tubectomy Incisional Hernia

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ABSTRACT

Introduction: The mini laparotomy or Pomeroy technique is considered as revolutionary procedure for female sterilisation. It is also found to be suitable procedure at the primary health centre level and in mass campaigns. It was author's observation that the patients operated for the tubectomy in camps arranged by government in rural areas often presents with complaints of incisional hernia.

Aim: To analyse the causes for the incisional hernia operated by mini laparotomy technique and to study different methods of surgical treatment for the post tubectomy incisional hernia.

Materials and Methods: Patients history of previous surgery, time since previous surgery, demographic characteristics, intraoperative findings, co-morbidities, postoperative hospital stay, postoperative complications and type of repair were recorded. Primary anatomical repair was done for defects less than 4 cm with non-absorbable polypropylene suture in intermittent manner. Each suture separated by 0.6-0.7 cm. defects more than 4 cm were

repaired with meshplasty.

Results: Most of patients were between 20-30 years age. There was no evidence of any remnant of suture material in all patient who underwent surgery for incisional hernia, it was concluded that these patients underwent repair of mini laparotomy with absorbable suture material. There were no complications in 32 patients with anatomical repair, three patients had wound infection but healed completely after regular cleaning and dressing. Two patients developed seroma which was drained by removal of a suture and subsequently healed without complication. Meshplasty done for defects >4 cm. Average hospital stay for anatomical non-absorbable suture repair was 2.91 days and that for meshplasty was 5.2 days. Patients were followed up for two years and no recurrence seen.

Conclusion: Use of absorbable suture material for closure of abdomen can lead to incisional hernia even if the size of the incision is small. Primary anatomical repair with non absorbable intermittent sutures is sufficient for infra-umbilical midline incisional hernia of size less than 4 cm.

Keywords: Absorbable suture, Anatomical repair, Meshplasty

INTRODUCTION

About three fourth of the world's population lives in the developing countries. India (17.54 %), Indonesia, Bangladesh are the world's most populous countries [1]. Mini laparotomy for abdominal tubectomy is much simpler procedure requiring smaller abdominal incision of only 3.0 to 4.0 cm conducted under local anaesthesia and sedation. The mini laparotomy or Pomeroy technique is considered as revolutionary procedure for female sterilisation. It is also found to be suitable procedure at the primary health centre level and in mass campaigns. It has advantage over other methods regarding safety, efficiency and ease in dealing with complications [2]. Mini laparotomy surgeries at camps of primary health centre level were performed by trained medical officers. It is author's observation that the patients operated for the tubectomy in

camps arranged by government in rural areas often presents with complaints of incisional hernia. During the repair of the incisional hernia author noticed that there are no remnants of the sutures used during previous surgery which is usually there if suture used during previous surgery is non-absorbable. It is proven that polyglactin, polyglycolic acid and chromic catgut are absorbed completely within a span of 90-180 days. Non-absorbable sutures remain in the wound and can be found during re-surgery through the same scar [3].

MATERIALS AND METHODS

This was prospective observational study done in Shankarrao Chavan Government Medical College and Hospital, Nanded, Maharashtra, India, during January 2012-December 2013. Patients were included in the study after informed consent

from the patient. This study was approved by Institutional Ethics Committee.

Sample size: The plan was to study 60 patients but due to restraints of study only 40 patients were studied.

Inclusion criteria: All female patients with incisional hernia at previous mini laparotomy site done for tubectomy procedure.

Exclusion criteria: Patient who did not give the consent for study or surgery. Also the patients with midline incisional hernia because of other causes like laparoscopy, midline incisional hernia because of other causes of laparotomy than tubal ligation, umbilical hernia, other types of ventral hernia.

Study protocol: Patients visiting to outdoor patient division were included in the study. Patients were made fit for surgery after optimisation of the co morbidities and operated electively. Patient's history of previous surgery, time since previous surgery, demographic characteristics, intraoperative findings, co morbidities, postoperative hospital stay, postoperative complications and type of repair were recorded.

Primary anatomical repair was done for defects less than 4 cm with non-absorbable polypropylene suture in intermittent manner. Each suture separated by 0.6-0.7 cm. defects more than 4 cm were repaired with meshplasty (with polypropylene mesh). Mesh is placed over the linea alba after primary approximation of edges and precautions were taken to overlap the mesh for at least 3 cm on both sides of the midline. If there is discharge, oedema of edges, signs of inflammation, seroma then patients are kept indoor otherwise patient were discharged on second postoperative day. Patients were instructed for alternate day cleaning and dressing of the wound and follow-up visit after seven days. Patients were followed up for period of one year. Descriptive frequency calculation of data was done using SPSS software version 16.

RESULTS

There were 44 patients, of them two patients didn't give consent for surgery, two patients were absconded and not able to follow-up so excluded from the study. Finally, 40 patients were enrolled in the study.

Anaemia was present in 12 patients, four patients were obese, one patient was hypertensive, four patients were having history of chronic cough. None of the patient had history of diabetes mellitus.

Intraoperatively there was no evidence of any remnant of suture material in all patients, it was concluded that these patients underwent repair of mini laparotomy with absorbable suture material. All defects were midline infra-umbilical vertical around 3-4 cm in size (except three patients where defect was >4cm). Thirty six patients were operated in primary health centres and rural health centre. Remaining patients were operated elsewhere. Average duration for appearance

incisional hernia was 10 months from date of previous surgery. Patients were followed up for two years and had no recurrence or other complications.

Most common age group presented was between 20 and 30 years [Table/Fig-1]. Anatomical repair was done for 37 patients [Table/Fig-2].

Age	No. of Cases
<20	7
20-30	29
30-40	4
>40	0

[Table/Fig-1]: Age distribution.

Type of Repair	No. of Patients
Anatomical Repair	37
Meshplasty	3

[Table/Fig-2]: Type of repair.

Average postoperative hospital stay for patients with anatomical repair was approximately three days [Table/Fig-3].

There were no complications in 32 patients with anatomical repair, three patients had wound infection but healed completely after regular cleaning and dressing. Two patients developed seroma which was drained by removal of a suture and subsequently healed without complication [Table/Fig-4].

One patient with meshplasty had seroma formation which was aspirated with syringe needle. Average hospital stay for patients with meshplasty was 5.2 days.

Type of Repair	Days	No. of Patients
Anatomical Repair	2	21
	3	7
	4	4
	5	3
	>5	2
	Average	2.918
Meshplasty	3	1
	4	1
	9	1
	Average	5.2

[Table/Fig-3]: Postoperative hospital stay duration.

Type	No. of Patients
No Complications	32
Seroma Formation	2
Wound Site Infection	3
Recurrence after two years	0
Hematoma, Bleeding, Wound dehiscence	0

[Table/Fig-4]: Complications with anatomical repair.

DISCUSSION

India and other developing countries have high fertility rate as compared to the developed world. Government is promoting the free family planning services for control of problem of population explosion. The condition is worse in rural areas compared to the urban area [2].

Absorption of suture materials like polyglactin, polyglyconate and chromic catgut is completed in 90 -180 days [3]. When the midline wound is closed with absorbable suture, these sutures get absorbed before the healing process is completed leading to incisional hernia. Many studies proved the occurrence of incisional hernia after closure of the abdominal wound with absorbable suture materials and the incidence was quite high ranging between 0-25 % within a year [4,5].

In this study, incidence of incisional hernia was not clear because number of patients who underwent tubectomy was not known. This type of study considering only post-tubectomy is not done previously.

There are no studies in literature describing incisional hernias related to the tubectomy surgery. Cameron AE et al., compared closure of the midline abdomen with absorbable and non-absorbable suture with multiple variables related to the surgery ranging from sex, closing surgeon, type of incision, associated patient co morbidities, and surgical techniques [6]. In each category he found that the incidence of incisional hernia is less with the non-absorbable suture material than absorbable suture material. In this study we followed patients for the period of one year and found nil recurrence. We need to follow patients for longer duration, but for the period of one year our results also show that non absorbable suture material was better for closure. Similar results are seen in other studies [7-9].

Hesselink VJ et al., demonstrated that the chances of incisional hernia are significantly less if the size of the incision is less than 4 cm [10]. He assumed that the reason for the less recurrence might be the less tension over the suture line due to small size of the incision. Another study done by Lujendijk RW et al., also clearly states that if the techniques of surgery are inappropriate then the incidence of incisional hernia with the defect size of 1-3 cm, 3.1-6 cm is 31 % and 44% respectively [11]. In the present study, 36 patients had size less than 4 cm still they developed incisional hernia. Considering above studies, it is authors opinion that if the surgical techniques or the suture material used for the surgery is inappropriate, it can lead to incisional hernia even if the size of the incision is small.

In our series, reason for the nil recurrence after primary anatomical repair over the period of one year is because there is no apparent tissue loss and edges of linea alba were incised or sharply cut (during previous surgery) without any component

of crush or avulsion. Intraoperatively, after reduction of the hernia contents, edges of linea were easily approximating because small area of the incision or wound used for previous surgery (3-4 cm). This small area of the wound restricts the edges going too far from each other which usually happen in case of large incisional hernia where in addition to large wound size there is significant element of stretch from the contracting abdominal wall muscles. This way there was no apparent tension on the anatomical repair. After repair linea was held in approximated position for long period with non-absorbable suture till complete healing and fibrosis this way reducing chances of hernia.

We think that in this study unavailability of the non-absorbable suture material for closure is the cause of incisional hernia. Using appropriate surgical techniques and appropriate non-absorbable suture material is going to reduce this surgical complication.

It is author's observation that the sterilisation procedures in rural area are usually done in camps arranged by government. As these camps are arranged once or twice a year, due to poor economic status of the patients, the number of patients are more than that can be handled by trained persons. This inappropriate doctor patient ratio, unavailability of appropriate resources like suture materials and infrastructure, patient's poor economic status can be other contributory factors for these surgical complications.

LIMITATION

Incidence rate was not calculated due to unavailability of data regarding number of patients who underwent tubectomy (by mini laparotomy).

CONCLUSION

Use of absorbable suture material for closure of abdomen can lead to incisional hernia even if the size of the incision is small. Primary anatomical repair with non absorbable intermittent sutures is sufficient for Infra-umbilical midline incisional hernia of size less than 4 cm.

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