

Original Article

Morphological Features and Recurrence of Incisional Hernia

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ABSTRACT

Objective: To emphasize the importance of the size, shape and multiplicity of incisional hernia defect and its recurrence after repair.

Methods: From June 1990 to August 1993, fifty-two patients presented to Queen Alia Military Hospital (QAMH), with incisional hernias and were included in this study.

Results: Mean age was 52.35 years. Fourteen (26.9 %) were males and 38 (73.1%) were females. Thirty-five (92.2%) were multiparous and 3 (7.8%) were nuliparous. Cholecystectomy was the commonest primary surgery with 11 patients (21.1%), followed by Caesarian Section in 10 patients (19.2%). All the smaller sized (less than 1 cm diameter) and middle sized (1-5 cm diameter) defects were circular in shape whereas the large sized (more than 5 cm) were ovoid. In 20 patients (38.4%) there was one defect only and in 32 patients (61.6%) there were more than one defect. We used mesh graft (prolene mesh) or classical repair using non-absorbable suture material. All patients were followed up for 84 months and one recurrence (1.92%) was noted.

Conclusion: Cholecystectomy was the commonest cause of incisional hernia and multiple defects were found in many cases. With our approach in repairing incisional hernia, recurrence rate was low. (Rawal Med J 2007;32:190-192).

Key Words: Incisional hernia, peritoneum, mesh graft.

INTRODUCTION

Incisional hernia repair failure, which is about 10% from first repair and about 46% for subsequent repairs, reflects the poor transfer of continuously improving scientific knowledge of this type of hernia's pathophysiology into theater. The importance of abdominal muscles with their tonic contractions and their fixation with in the midline at the linea alba has been well emphasized.¹ Incisional hernia complicates 5-11% of abdominal wound closure with a recurrent rate of 46%.² Numerous techniques for repair have been described. These include suture technique in several planes (Quenv, 1896) or in one plane (Judd, 1912),³ technique of rectus abdominis sheath dissection reinforced hernia repair by prolonging the anterior leaflet of the rectus sheath (Welit-Fude 1941) or the posterior leaflet of the sheath (Gibson 1920) which are known as Fascioplasty.⁴ Autologous tissue such as fascial grafts (MacArthar 1901) or skin (Gossec 1949) were also described.⁵ Flaps, especially tensor fascia lata⁶ and Mesh sheaths of metal or synthetic materials are among the latest methods. All techniques are used to bridge or obliterate the hernia gap. As in any medical or surgical illness, the knowledge of the pathophysiology of that illness, is the key to its treatment and cure if feasible. This study was designed to focus on the defects, their multiplicity, size, shape and contents and their bearing on recurrence of hernia.

PATIENTS AND METHODS

Between June 1990 and August 1993, fifty-two patients underwent repair of ventral incisional hernia in Queen Alia Military Hospital. Personal data, primary surgery, hernia details and the repair were recorded. The Peroperative details included contents, shape (oval or circular), size and multiplicity of defects. All patients were operated upon under general anesthesia. The whole previous scar was included in elliptical incision, taking part of the surrounding healthy skin to prevent overlapping flaps after repairing the hernia. The sac/s were dissected, cleared from the surrounding fat, opened, and the contents were reduced. After opening the sac and identification of the defect, its shape and size were noted and classified to small (<1 cm), medium of (1-5 cm), and large of (>5 cm). After the abdominal wall was examined from inside the peritoneal cavity to search for other defects, and through this maneuver we were able to detect other defects that could not be seen or felt externally, pre or intra operatively.

After identification of all the defects, the bridges between them were divided to get a single defect, then repair was done, either using non-absorbable suture material or by using prolene mesh grafting (onlay method). Patient's factors, operative findings and number of recurrences influenced the choice between these approaches. All patients were followed in the outpatient clinic with recurrence in one patient (1.92%).

RESULTS

The age ranged between 31-75 years, (mean 52). The female to male ratio was 2.7:1. Eighteen patients (34.65%) had an associated medical illness, mainly hypertension (table 1).

Table 1. Associated medical illnesses.

<i>DISEASE</i>	<i>NO. Of patients</i>	<i>%</i>
Bronchial asthma.	2	03.85
Hypertension.	6	11.45
Diabetes mellitus.	3	05.77
Malignancy.	2	03.84
Chronic constipation.	0	00.00
Other.	5	09.62
None.	34	65.35
Total	52	100

Cholecystectomy was the commonest primary surgery leading to development of hernia followed by cesarean section (table 2).

Table 2. Primary surgical procedures leading to incisional hernia.

<i>SURGERY</i>	<i>NO. Of patients</i>	<i>%</i>
Cholecystectomy.	11	21.15
Caesarian section.	10	19.23
Paraumbilical hernia.	8	15.38
Duodenal ulcer.	5	09.61
Epigastric hernia.	5	09.61
Tumors.	4	07.69
Inguinal hernia.	3	05.77
Urolithetomy.	2	03.85
Others.	4	07.69
Total.	52	100

Sixty-five percent patients had first repair surgery (table 3). Omentum was commonest hernia sac content (table 4). Multiple defects were found in large number of patients (table 5).

Table 3. Frequency of hernia repair in study population.

<i>Frequency of Repair</i>	<i>No. Of patients</i>	<i>%</i>
1st time.	34	65.38
2nd time.	15	28.85
3rd time.	2	3.85
4th time.	1	1.92

DISCUSSION

Large defects and the visceral protrusion are responsible for a decrease in intraabdominal pressure, provoking respiratory and regional disorder, which are likely to influence the general status of the patient⁷. We accomplished superior repair by careful analysis of the patient condition, thorough and meticulous dissection and proper identification of defects.

Table 4. Contents of hernial sac.

<i>Contents</i>	<i>No. Of patients</i>	<i>%</i>
Omentum.	32	61.54
Bowel.	2	3.85
Omentum & Bowel.	17	32.69
Liver.	1	1.92

The midline incisions in general were the most common to have recurrence after primary repair. It also has the highest rate of multiplicity of defects and that explains the increasing number of defects directly with the increasing frequency of repair. In a study of re-opened abdominal incision “ the incidence of incisional hernia was 6%

after freshly made incisions and this increased after both re-incision (12%) and incisional hernia repair (44%).⁸

Table 5. Number of defects according to site of incision.

Site of incision	Upper longitudinal		Upper Transverse		Lower Longitudinal		Lower Transverse	
No. of cases	13		21		12		6	
No of defects	One	More	One	More	One	More	One	More
	5	8	7	14	3	9	5	1

We found that all small and medium sized defects were circular, whereas the large ones were oval shaped. Through intraperitoneal inspection we were able to pick up many defects that if were left without repair, they will be the cause of future recurrence. Nonabsorbable suture material of previous surgery was found in 48 cases (92.3%), and no suture material was found in the rest.

In comparing our result to the literature, which had high figures of recurrence rate reaching 40%, our long-term follow up of 84 months was ideal to evaluate our results. Evaluation of risk factors for incisional hernia recurrence, with a mean follow up period of 34.9 months, a recurrent rate of 36% was reported.⁹ Forty-five percent had recurrence in the first year, 64% in the second year and 78% of all recurrences occur within three years, thus, a follow up period of at least three years was recommended.⁹ Recurrent rates of 16% in 77 month follow up,¹⁰ 7.3%¹¹ and 0% in follow up of 52 months¹² have been recorded. We found that understanding the pathophysiology of the defects of incisional hernias is the key for doing a near perfect repair with a significant low recurrence rate.

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