ORIGINAL ARTICLE

PORT SITE HERNIA: A COMPLICATION OF MINIMAL ACCESS SURGERY

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ABSTRACT

Background: Port site hernia is a rare but potentially serious complication of laparoscopic surgeries. This study aimed to determine the frequency of port site hernias in patients undergoing laparoscopic surgery at our set up.

Material & Methods: This is a prospective descriptive study conducted at Jamil laparoscopic clinic, Dera Ismail Khan, from January 1, 2011 to December 31, 2015. This study included 450 patients undergoing laparoscopic surgery. The fascial defect as well as the peritoneum was closed routinely at the umbilical port site with vicryl '0' on 'J' shaped needle. Patients were examined for any port site hernia during their follow up visits. The frequency of port site hernia was calculated.

Results: During the study period, 450 patients underwent laparoscopic procedures and out of these, 5 patients (1.1%) developed port site hernia during a follow up period of two years.

Conclusion: Laparoscopic procedures are associated with an acceptably low frequency of port site hernia, provided that proper selection of patients is done and utmost care is taken to avoid the risk factors involved in the development of port site hernia.

KEY WORDS: Hernia; Laparoscopy; Umbilicus.

This article may be cited as: Jamil M, Falah SQ, Marwat AA, Soomro MI. Port site hernia: a complication of minimal access surgery. Gomal J Med Sci 2016; 14: 92-4.

INTRODUCTION

The port site hernia is a type of incisional hernia that occurs at port or trocar site after laparoscopic surgery[1,2]. It is a rare but potentially dangerous complication after laparoscopy. It usually occurs at the site of ports that are of 10 mm size or larger, particularly at the umbilicus[2,3]. Studies show that the incidence of port site hernia ranges from 0.14% to 6%[2,3,4,5,6]. In addition to pain, port site hernia can lead severe complications including bowel obstruction, strangulation and perforation[7].

Various factors have been implicated in the development of port site hernia that can be divided into patient factors and operative factors[7]. The patient factors include the presence of pre-existing umbilical / paraumbilical hernia, obesity, wound infection, large diameter gall stones and a variety of medical co-morbidities such as diabetes mellitus, chronic obstructive pulmonary disease, renal failure and connective tissue disorders[2,7]. The operative factors include large trocar size, improper closure of fascial defect at the port site, midline ports, cutting trocars, prolonged manipulation and re-insertion of ports, wound extension or stretching for organ retrieval and increased duration of surgery[2,7]. There are very few studies on port site hernia in Pakistan, while this study is the first of its kind in our locality.

This study aimed to determine the frequency of port site hernias in patients undergoing latarostopic surgery at our set up.

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Date Submitted: 22-7-2015
Date Revised: 23-6-2016
Date Accepted: 23-6-2016

MATERIAL AND METHODS

This is a prospective study of 450 patients who underwent laparoscopic procedures during a period of five years from January 1, 2011 to December 31, 2015 at Jamil Laparoscopic clinic, Dera Ismail Khan. Patients of age 16 to 60 were included in the study. Patients with compromised cardiovascular and respiratory status were excluded from the study. Standard Hassan technique was used for introduction of 10 mm umbilical port and CO2 insufflation. The fascial defect as well as the peritoneum was closed routinely at the umbilical port site with vicryl '0' on 'J' shaped needle. Three stitches were applied after defining the

edges properly. The skin at all port sites was closed by vicryl rapid 3/0. Patients were followed up at one week, one month, 6 months and then on yearly basis after surgery for 2 years. Patients were told that if they have any problem besides this time frame, they may come to surgical OPD for consultation. Patients were particularly examined for any port site hernia.

RESULTS

A total of 450 patients having mean age of 44 years (range 16 to 60 years) were included in the study. Out of these, 360 patients (80%) were female and 90 (20%) were male. Most of the patients i.e 360 patients (80%) underwent laparoscopic cholecystectomy while 90 patients (20%) had laparoscopic appendicectomy.

Out of 450 patients, only 5 patients (1.1%) developed port site hernia and all of them were at the umbilical site. Four (90%) of these hernias developed after laparoscopic cholecystectomy and one following laparoscopic appendicectomy.

Port site hernia was associated with wound infection in 03 patients (60%). Out of these three patients, one was known diabetic. Total number of patients getting wound infection at the site of umbilical port were 20 (4.4%).

There were 8 patients (out of 450) with pre-existing umbilical hernia and all were closed with non-absorbable suture (polypropylene) at the end of laparoscopic procedure. However, one patient (12.5%) from this group who underwent laparoscopic cholecystectomy, developed recurrence.

DISCUSSION

Port site hernia often develops late after surgery and therefore prolonged follow up is required to identify the cases. In the laparoscopic literature, port-site incisional hernias typically occur as a late rather than an early postoperative complication, with a mean time to diagnosis of 9.2 months[8,9]. We followed up our patients for time period of 2 years and identified 1.1% incidence of port site hernia, which is low rate as compared to several other studies[2,4-6]. The follow up period in study by Memon et al (a Pakistan based study) was also of duration of 2 years and that showed port site hernia incidence of 2.14%[2].

Table 1: Gender distribution of patients.

Procedure undertaken	Male	Female	Total
Laparoscopic cholecystectomy	36	324	360
Laparoscopic appendicectomy	54	36	90

Table 2: Port site hernia patients.

Procedure undertaken	Male	Female	Total
Laparoscopic cholecystectomy	1	3	4 (90%)
Laparoscopic appendicectomy	0	1	1 (10%)

Tonouchi et al reviewed 63 studies of trocar site hernias and concluded that a fascial defect more than 10 mm size should be closed including the peritoneum[1]. We routinely closed 10 mm umbilical port at fascial level as well as the peritoneum, while Memon et al practiced closure of aponeurotic fascia only, in their patients[2].

Some reports have implicated wound infection in the pathogenesis of umbilical port site hernia[1,10-13]. Wound infection was associated with 60 % of our port site hernia patients that is comparable with 65.6% and 31.25% shown by Memon et al[2] and Nassar et al[11] respectively.

The pre-existing umbilical/ paraumbilical hernia has been identified in several reports as a risk factor for port site hernia. Azurin et al in their study on 1300 patients found that port site hernia developed in 10 patients and that 9 of these occurred in patients who were found at operation to have umbilical hernias[3]. Nasser et al found that 12% of patients undergoing laparoscopic cholecystectomy had pre-existing umbilical or paraumbilical defects, of which 83.7% were asymptomatic. The defects were closed at the end of operation. Incisional port site hernia developed in 1.8% of patients, 25% of whom had a pre-existing hernia with fascial closure at the time of surgery[11]. In our study, one out of 8 patients of umbilical hernia undergoing repair at the end of laparoscopy, reported with recurrence postoperatively (12.5%).

CONCLUSION

The frequency of port site hernias following laparoscopic procedures is low. However, since port-site hernia can be troublesome for the patients, every effort should be made to avoid it. This is possible through proper selection of patients and use of meticulous technique at surgery that include care at asepsis and closure of umbilical port site at fascial level as well as the peritoneum.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.

AUTHORS' CONTRIBUTION

Conception and Design:	MJ, SQF
Data collection, analysis & interpretation:	MJ, SQF, AAM, MIS
Manuscript writing:	MJ, SQF, AAM, MIS