

Original Article

ROLE OF PROPER FASCIAL CLOSURE IN REDUCING PORT SITE HERNIA AFTER LAPAROSCOPIC SURGERY

Usman Ali Rahman, Usman Ismat Butt, Sami Ullah Bhatti1, Adil Ifthikar, Maliha Adil1 and Muhammad Umar

Objective: To determine the frequency of port site hernia in patients undergoing laparoscopic surgery in our setup.

Methods: It was a descriptive Case series carried out at Department of surgery, Services Hospital Lahore from August 2012 to May 2013. 100 patients fulfilling the inclusion criteria recruited through outdoor patient department were evaluated by history and thorough clinical examination. All cases included in the study underwent laparoscopic surgery under general anesthesia. Proper fascial closure was done at the end of each case. Post operatively patients were evaluated for port site hernia for 6 months.

Results: The mean age of patients was 42.13 + 9.24. Out of 100 patients 13 were male while 87 were female. Postoperative follow up for port site hernia was done for 6 months where no port site hernia was diagnosed. The frequency of port site hernia is 0% in this study.

Conclusions: Proper fascial closure of the port site helps to minimize post operative port site hernia.

Keywords: port site hernia, laparoscopic surgery, complications.

Introduction

Dry eye is a major tear deficiency disorder that aff Laparoscopic surgery is a modern surgical technique which has become a gold standard in cases like cholecystectomy¹, splenectomy² and hernia repair.³ The benefits of laparoscopic surgery include small incisions, less pain and early recovery.⁴ Along with these benefits laparoscope can be used as a diagnostic tool.⁵ There are a few complications of laparoscopic surgery which include venous gas embolism⁶ and port site hernias which can present with entrapment of appendix⁷ or strangulation of small bowel. Other complications from surgeons point of view are decreased range of movement, lack of tactile stimulation, poor depth perception and increased learning curve.⁸ Port site hernia is a complication of laparoscopic surgery which usually presents within 6 months of surgery.⁹ As the amount of laparoscopic procedures are increasing and size of trocar is also increasing the incidence and risk of port site hernia is also increasing.¹⁰ The reported incidence of port site hernia is 1% to 22%.¹¹⁻¹⁴

Maio and Ruchman reported first obstructed small bowel port site hernia after laparoscopic cholecystectomy. But since then many reports have been published.¹⁵ If there is a clinical suspicion of port site hernia ultrasound abdomen, contrast study of bowel and even CT scan abdomen can be used for confirmation.¹⁶ Tonouchi et al classified

port site hernia into early, late and special types.¹⁷ In early type port site hernia develops immediately within two weeks of operation. It occurs due to dehiscence of the anterior fascial plane, posterior fascial plane, and peritoneum. Late type develops several months after the procedure is performed. It occurs due to dehiscence of the anterior fascial plane and posterior fascial plane. Special type presents any time as a result of dehiscence of whole abdominal wall.

There are various factors which determine the development of port site hernia which includes large trocar size, location of trocar, wound infections, wound extension, stretching of wound for organ retrieval, pre-existing umbilical defects, obesity, pre-existing diseases like diabetes mellitus, improper or no fascial closure and open laparoscopy.

The purpose of this study is to determine the frequency of port site hernia in patients undergoing laparoscopic surgery in our setup.

Methods

It was an observational study carried out at Department of Surgery, Services Hospital, Lahore over a six month period from August 2012 to May 2013. 100 cases undergoing laparoscopic surgery were selected using Non probability purposive sampling technique. All types of laparoscopic surgeries were included in the study. An approval was taken for study from the ethical committee of the hospital. 100

outpatient department. All cases in the study were operated under general anesthesia by consultants and complete follow up was done for 6 months. All port site wounds of 10mm and above were closed with poly-glycine. A figure of 8 suture was used to close all port site wounds of 10mm and above. This was also done in case where wound had to be extended in case of difficulty with extraction. Demographic information of patients (name, age, sex) was obtained. The data was entered into SPSS version 10 and analyzed through its statistical program. Frequency and percentage of port site hernia was calculated for qualitative data and mean + S.D was calculated for quantitative data like age. Data was stratified for age, gender and diabetes mellitus to address the effect of modifiers. Port site incisional hernia was assessed by clinical examination and ultrasound abdomen which were performed by consultant surgeon and radiologist respectively. Hernia has been defined as “bulging of the part of the contents of abdominal cavity through a weakness in the abdominal wall”¹⁸. Hernia was consider present with positive cough impulse and by ultrasound abdomen in which defect in anterior abdominal wall is found at 6 months follow up.

Results

Total of 100 patients were studied for the development of port site hernia in patients undergoing laparoscopic surgery. Mean age of patient was 42.13+ 9.247 (S.D) with maximum age of 65yrs and minimum age of 30 yrs. Out of 100 patients 13 were male while 87 were female. Out of 100 patients 54 were diabetic while 46 were non diabetic. Frequency of port site hernia in these patients was 0%. There was no difference in hernia formation when gender or co-morbidity was considered. Results are summarized in **Table-1 & Fig-1**.

PSH = Port site hernia
 NPSH = No port site hernia

Table-1: Relation of gender and diabetes with incisional hernia formation.

Factor	Total	Incisional Hernia Present	Absent
Male	13	0	13
Female	87	0	87
Diabetic	54	0	54
Non-Diabetic	46	0	46

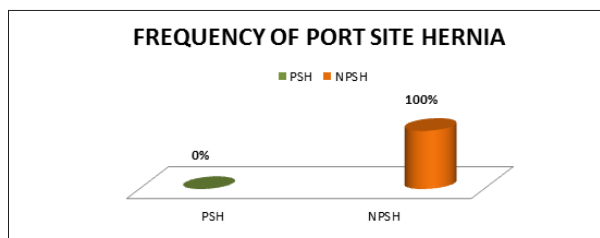


Fig-1: Frequency of Port Site Hernia.

Discussion

Incisional hernia is one of the major complications of laparotomy. The incidence of Incisional hernia after laparotomy is 10%-20%.^{19,22} Laparoscopic surgery has significant growth since its introduction and is rapidly becoming the gold standard for many procedures. The incidence of incisional hernia is low in laparoscopic surgery (port site hernia) as to open procedures.²³ The incidence of port site hernia in literature is 0.5%- 22%.^{14,24-26} In our study the incidence of port site hernia is 0% which is less as compared both national and international literature. The incidence of port site hernia is more common in 10mm and larger ports²⁷⁻³⁰ however, there are reported cases of port site hernia through 5mm port site wound.^{31,32} In our study ports from 5mm to 12mm size were used in laparoscopic procedures but no port site hernia developed. Port site hernia is more common in midline ports as compared to lateral ports.^{27-30,33} Para umbilical region is the weakest part of the abdomen and most frequent site of port site hernia. But still there are reported cases of port site hernia through lateral port site defect.³⁰⁻³² It has been stated that fascial closure of port site wound decreases the incidence of port site hernia but there are reported cases of port site hernia even after fascial closure of port site wound.³³ In this study port site wounds of 10mm and above were closed with polyglycine. Fascial closure was performed only in paraumbilical port site wounds. Presence of co morbidities like diabetes mellitus increases the risk of development of port site hernia.³⁴ In this study diabetic patients are also included but no port site hernia is reported in diabetic patients. Mayol et al³⁵ stated that incidence of port site hernia in closed laparoscopy is higher than in open laparoscopy but there is study which has shown no significant difference between incidence of port site hernia in both conditions.³³ In this study both open and closed laparoscopy were performed but no port site hernia developed. Port site hernia can be prevented by proper fascial closure of port site wound. Facial closure of wound can be done with the help of facial

carrier,³⁷ a 2-mm trocar,³⁸ or a Deschamps needle.³⁹ These devices are mainly used to close small defect which are otherwise difficult to close or require wound extension for closure. The other method in preventing port site hernia is careful with drawl of laparoscopic instruments and gas release. A partial vacuum is created when the port is withdrawn, thus, drawing omentum and intestines into the fascial defect.⁴⁰ All instruments should be removed carefully under vision. Accessory ports are also removed and the gas is removed by releasing the valve of 10 mm cannulas. The primary port is taken out at last, with telescope introduced. The cannula

is pulled over telescope to prevent suction of omentum or bowel.

Conclusion

Frequency of port site hernia is far less in our setup as compared to national and international literature. Proper fascial closure of port site hernia wound can help to decrease the frequency of port site hernia.

*Department of General Surgery
Gulab Devi Hospital, Lahore
www.esculapio.pk*

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