



FREQUENCY OF UMBILICUS SITE PORT HERNIA AFTER LAPAROSCOPIC PROCEDURE.

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ABSTRACT... The objective of this study is to determine the frequency of umbilicus port site hernia after laparoscopic procedure. **Study Design:** Prospective study. **Setting:** Minimal Invasive Surgical Centre and General Surgery Department LUMHS Jamshoro. **Period:** March 2015 to February 2017. **Materials and Methods:** During these two years all the patients visiting surgery department for laparoscopic Procedure. All patients regardless of age and both were undergo base line investigation and preoperative anesthetic fitness done were included. We identified 539 cases that matched our inclusion criteria. 10mm trocar was used for umbilical side and closed with J shaped vicryl #1. After surgery, these patients were followed-up for two years and assessed regularly for complications. **Results:** In our setup, laparoscopic procedures were performed in 539 patients. There were 83.48% (n=450) females and 16.51% (n=89) males who had laparoscopic procedures done. Among these, there were 442 cholecystectomies, 43 appendicectomies and 54 diagnostic laparoscopies. The highest number of patients visiting for laparoscopic cholecystectomies belong to the age range of 31-40 years. In 82% of the cases laparoscopic cholecystectomy was performed while in other cases laparoscopic appendicectomy and diagnostic laparoscopy was performed. After long term follow-up of these patients for a time period of two years, port site hernia was reported in 1.48% (n=8) patients. **Conclusion:** Port site hernia is a troublesome complication of laparoscopic procedures, although has much lesser rate than conventional procedures. Factors predisposing to development of port site hernia needs to be identified in all patients and steps should be taken to avoid complications. Large size and bladed trocars should not be used, and fascia closure is recommended at umbilical insertion site.

Key words: Cholecystectomy, Laparoscopic Surgery, Port Site Hernia, Postoperative Complications.

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INTRODUCTION

With the advancement of techniques, minimally invasive surgery has revolutionized the field of surgery. Laparoscopic surgery has been done more frequently nowadays due to its benefits and lesser complications. It is associated with few complications as compared to open surgeries. However, laparoscopic surgeries are associated with some unique complications.¹ In the initial phases of laparoscopic surgery bowel perforation or vascular injury can be fatal. Port site related complications like incisional hernia, bleeding, infection is directly proportional to the size of incision.² The overall incidence of complications in laparoscopic surgery is found to be 1.4%, depending upon the experience of the surgeon.³

Rare complications of laparoscopic surgery include pyoderma gangrenosum, metastasis from cancers, port site infections.⁴ Laparoscopic surgery is now used for gastrointestinal, genitourinary, vascular and gynaecological procedures making it one of the most favourable technique.³ There is 21% incidence of incisional hernia in laparotomies, which makes minimally invasive surgery a more acceptable method. There are a number of studies performed to identify risk of incisional hernia at trocar insertion sites.⁵ Laparoscopic surgery offers the advantage of less post-operative pain, earlier return to work, rapid return of bowel function and decreased morbidity.⁶ There are some studies stating that the risk of incisional hernias with laparoscopic and

open colectomies are equal, while other studies show clear benefit of laparoscopy.⁷ Periumbilical region has 50% risk of incisional hernia, whereas paramedian and transverse region has 19% risk and epigastric region has 6% risk of incisional hernia. The basic mechanism associated with incisional hernia is failure of fascia to heal due to wound contamination and poor blood supply. Other risk factors associated with port site hernia include male gender, older age, obesity, poor immune response and site of incision.⁸ In a meta-analysis for trocar site hernia, 22 articles were reviewed, and the rate of trocar site hernia was found to be 0.5% to 2%. There were specific case related factors like longer duration of surgery, pyramidal trocar insertion, size of trocar used and high BMI of the patient.⁹ Single incision laparoscopic surgery was first introduced in 1997 and gained popularity in 2000's. Few studies have shown that single incision laparoscopic surgery can be used safely in laparoscopic cholecystectomy. Some studies have shown that incidence of trocar associated hernia is greater in single incision laparoscopic surgery as the incision is made at periumbilical region. However more studies are needed to validate the outcomes of single incision laparoscopic surgery.¹⁰ Port site hernia is a treatable complication, it requires another surgery to close the fascial defect. But it puts the patient at more risk of iatrogenic injury and infection during surgery. Therefore, study was carried out to calculate the incidence of umbilical site port hernia after laparoscopic procedures in our setup.

METHOD

To evaluate the incidence of port site hernia after laparoscopic procedures, we performed a prospective study conducted in Minimal Invasive Surgical Centre LUMHS and general surgery department Jamshoro, during the time period of March 2015 to February 2017 were studied. Patients with BMI greater than 29 and immunocompromised patients were excluded from the study. All patients regardless of age and both were undergo base line investigation and preoperative anesthetics fitness done were included. We identified 539 cases that matched our inclusion criteria. 10mm trocar was used for

umbilical side and closed with J shaped vicryl #1. After surgery, these patients were followed-up for two years and assessed regularly for complications. Early post-operative complications like bleeding, wound infection was treated. For statistical analysis SPSS version 20 was used.

RESULTS

In our setup, laparoscopic procedures were performed in 539 patients. There were 83.48% (n=450) females and 16.51% (n=89) males who had laparoscopic procedures done. Among these, there were 442 cholecystectomies, 43 appendicectomies and 54 diagnostic laparoscopies. Table-I shows the ages of patients. The highest number of patients visiting for laparoscopic cholecystectomies belong to the age range of 31-40 years. Table-II shows what procedures were performed, 82% of the patients reported with gall stone pathology and laparoscopic cholecystectomy was performed. In other cases, diagnostic laparoscopy performed due to trauma or intestinal pathology. Laparoscopic appendectomy was the least performed laparoscopic procedure in 54 patients. After long term follow-up of these patients for a time period of two years, port site hernia was reported in 1.48% (n=8) patients.

Age Range	Frequency	Percentage (%)
20-30years	103	19.10%
31-40years	216	40.07%
41-50years	111	20.59%
51-60years	88	16.32%
61-70years	21	3.89%

Table-I. Ages of patients

Procedure Performed	Frequency (n)	Percentage (%)
Laparoscopic Cholecystectomy	442	82%
Laparoscopic Appendectomy	43	7.97%
Diagnostic Laparoscopy	54	10.01%

Table-II. Procedure performed

DISCUSSION

With the use of trocar size <12mm and radially dilating trocars the chances of developing incisional hernia is rare. Some studies recommend

doing fascial closure if trocars >12mm are being used in the surgery and fascia should be used along with suture to reduce risk of incisional hernia. Port site hernia should be repaired at its earliest to prevent intestinal complications like strangulation and perforation.⁹ A retrospective study performed on complications of laparoscopic procedure of 570 patients showed that 3% of patients had port site complications. Patients in the age of 20-40 years have more complications than any other age group. Among all the laparoscopic procedures, laparoscopic cholecystectomy has 52.9% chance of port site complications. Chances of port site complications increase with increase in number of ports and no association of technique of closure with port site complications.¹¹ The development of port site hernia with or without fascia closure was studied and results from both groups were compared. There was no significant difference in the presence of complications in the two groups.¹² As more surgical expertise is needed with single incision laparoscopic procedures, port site complications and wound complication risk cannot be studied properly. The risk of complications decreases as the experience of the surgeon increases.¹³ In our study was observed port site hernia in 1.48% cases. However in the study of Erdas E reported 4.1% patients developed umbilical hernia on follow-up period. The insertion of large trocars for extraction at the umbilical site was found to be major factors for hernia. Other variables like age, gender, pre-existing fascial defects, obesity and duration of surgery also affected the outcome.¹⁴⁻¹⁷ Although port site hernia is not a common complication of laparoscopic surgery, it is necessary to decrease its chances. Treatment of port site hernia constitutes another surgery, keeping the patient at risk of complications of surgery. Obstruction or strangulation of hernia is another fatal complication of hernia, carrying significant risk of mortality.¹⁸ Laparoscopic sleeve gastrectomy carries 1.6% risk of port site hernia as enlargement of incision to remove contents increases the chances of hernia. With the use of trocars of >15mm the risk increases more.¹⁹ The incision in laparoscopic sleeve gastrectomy was enlarged to size of around two finger tips to extract the contents of stomach. There was found

to be higher risk of port site infection at the site of stomach extraction. Port site infection has also found to increase the risk of port site hernia. A study was conducted to analyse pre-operative and peri-operative factors related to development of port site hernia from 1999 to 2004. Effect of gender, BMI, duration of surgery and type of cholecystitis was studied by univariate and multivariate analysis. After univariate analysis older age and female gender was found to be associated with greater risk of port site hernia.²⁰ A cohort study published in 2015 showed that the incidence of port site hernia in single incision laparoscopic cholecystectomy and conventional laparoscopy was same in 552 patients.²¹

CONCLUSION

Port site hernia is a troublesome complication of laparoscopic procedures, although has much lesser rate than conventional procedures. Factors predisposing to development of port site hernia needs to be identified in all patients and steps should be taken to avoid complications. Large size and bladed trocars should not be used, and fascia closure is recommended at umbilical insertion site.





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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	M. Qasim Mallah	Data collection Critical revision of the article for important intellectual content.	
3	M. Rafique Pathan	Drafting of the article.	
4	Sadaf Iqbal	Data collection.	
5	Ubedullah Shaikh	Drafting of the article.	