

Original Research Article

Comparative study between conventional port closure technique and 5 mm trocar technique in laparoscopic surgeries

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Abstract

The objective of this study was to evaluate the clinicopathological characteristics in ileal perforations because of confusion and controversy over the diagnosis and optimal surgical treatment of terminal ileal perforation - a cause of obscure peritonitis. Perforation of terminal ileum is a cause for obscure peritonitis with severe toxic state, there may be obscured clinical features with resultant delays in diagnosis and adequate surgical intervention. Hollow viscus perforation leading to peritonitis is one of the commonest emergency surgeries conducted in a surgical practice for a case of acute abdomen. It is the second most common cause for acute abdomen following appendicitis. Perforation as a cause of acute abdomen accounts for 30-40% of the total cases of acute abdomen presenting to a surgical emergency. Among the cases of hollow viscus perforation duodenal and gastric perforations are the commonest accounting to almost 60-80% in some series, followed by ileal, appendicular and large bowel.

Key words

Laparoscopic surgery, Conventional port closure technique, 5 mm trocar technique, Comparison.

Introduction

Laparoscopic and robotic surgery is widely practiced in modern medicine. The operative procedure is not complete until the port sites are

closed with a fascial suture. We report a simple new technique that is easy, cost-effective, and quick to apply using conventional technique and with help of 5mm camera, suture placement

under direct visualization to secure the abdominal wall fascia and peritoneum

Aim

- To study between conventional port closure technique and 5 mm trocar technique in laparoscopic surgeries.

Materials and methods

Place of study

Department of General Surgery, Govt. Stanley Medical College and Hospital

Duration

6 months

Study design

Observational study

Patient selection

Patient who undergo laparoscopic surgeries

Exclusion criteria

- Contaminated and dirty surgeries
- Immunocompromised individuals
- Age <12 years
- pregnancy
- Patients who had history of trauma.

Sample size: 60

Methodology

- Written informed consent was obtained from all subjects before enrolment in the study.
- All patients who underwent laparoscopic surgeries were divided into two groups.
- One group underwent closure of ports with conventional trocar closure method.
- Other group underwent closure via 5 mm trocar technique
- All patients were monitored in the post-operative period for complications.
- All patients were followed up for a period of six months.
- All details regarding the study was recorded according to the pre designed proforma mentioned below.

Results

In our study, most common age group was 21-30 years, which was 23.3% of our population. Least common age group was above 60 which was 8.3% of our population (**Table – 1**). In our study, the most common sex affected was female (57%) as per **Table - 2**. In our study, population the most common comorbidity was diabetes (6.7%) as per **Table – 3**. In our study, population the most were without comorbidities (76.7%) as per **Table – 3**.

The most common laparoscopic procedure done in our study population was laparoscopic cholecystectomy (66%) as per **Table – 4**. The least common laparoscopic procedure done in our study population was diagnostic laparoscopy (1.7%) as per **Table – 4**. Complications were as per **Table – 5**.

Table – 1: Age.

Age	Frequency	Percent
Up to 20 yrs	10	16.7
21 - 30 yrs	14	23.3
31 - 40 yrs	11	18.3
41 - 50 yrs	12	20.0
51 - 60 yrs	8	13.3
Above 60 yrs	5	8.3
Total	60	100.0

Table – 2: Sex.

Sex	Frequency	Percent
Female	34	56.7
Male	26	43.3
Total	60	100.0

Table – 3: Comorbidities.

Comorbidities	Frequency	Percent
Bronchial asthma	2	3.3
COPD	1	1.7
Diabetes	4	6.7
Diabetic & Hypertensive	3	5.0
Hypertensive	3	5.0
TB	1	1.7
Nil	46	76.7
Total	60	100.0

Table – 4: Procedure.

Procedure	Frequency	Percent
D. lap and biopsy	1	1.7
Lap appendectomy	17	28.3
Lap cholecystectomy	40	66.7
Lap hernioplasty	2	3.3
Total	60	100.0

Discussion

There are many techniques for the closure of trocar sites [4-6]. What distinguishes the present technique from the others is that it allows the closure of the trocar site just by using the tools available in the surgery room, and without using special tools. There are also no additional learning curves associated with the technique,

and the technique can be applied by any surgeon performing standard laparoscopic surgeries.

It is well known that hernias found on trocar sites are subclinical, so it is strongly possible that their prevalence is higher than the rates reported in the literature. The incidence of TSIH has been reported to be higher when the trocar site is not sutured [3]. There is no data available concerning how the present method will affect the incidence of TSIH as this study lacks long-term follow-up. However, the incidence of TSIH will actually decrease after suturing and closure of the incision site. Comparative studies are required to evaluate its impact on incidence.

Table – 5: Complications.

	Conventional closure technique	Conventional closure technique	5 mm port technique	5 mm port technique
	Port site infection	Port site hernia	Port site infection	Port site hernia
Follow up 1	0	0	0	0
Follow up 2	0	0	0	0
Follow up 3	0	0	0	0

Some clinicians have reported that closure of trocar site does not prevent TSIH, and that TSIH does not depend on trocar defect width [7]. Some authors claim that, when nonbladed laparoscopic trocars are used, that there is no of fascia closure [8]. Nevertheless, the present authors believe that the defect width at the trocar site is important; a great majority of TSIHs occurs with ten-mm trocars. Thus, the authors suggest that all ten-mm trocar sites should first be sutured. If five-mm trocars are inserted several times, the resulting weak tissues should also be sutured. This technique was applied only on ten-mm trocar sites, but there are no limitations concerning its use on five-mm trocar sites.

subcutaneous tissues. Moreover, dimple formation (dimpling) on abdominal skin is prevented by suturing only the peritoneum and the fascia. This provides a cosmetic advantage.

Conclusion

The authors concluded that this new method is simple, safe, and cost-effective because it is performed under direct visualization and it requires no additional instruments.

References

1. Swank H.A., Mulder I.M., la Chapelle C.F., Reitsma J.B., Lange J.F., Bemelman W.A. Systematic review of trocar-site hernia. *Br. J. Surg.*, 2012; 99: 315.
2. Holzinger F., Klaiber C. Trocar site hernias. A rare but potentially dangerous complication of laparoscopic surgery. *Chirurg.*, 2002; 73: 899.

Some clinicians report of a possible increase in the infection rates of wound sites after suturing trocar sites [7]. This study found no infections on wound sites, which can be attributed to the suturing of only peritoneal and fascial structures without traumatizing the muscular and

3. Helgstrand F., Rosenberg J., Bisgaard T. Trocar site hernia after laparoscopic surgery: a qualitative systematic review. *Hernia*, 2011; 15: 113.
4. Sahin M., Eryilmaz R., Okan I. Closure of fascial defect at trocar sites after laparoscopic surgery. *Minim. Invasive Ther. Allied Technol.*, 2006; 15: 317.
5. Critchlow J.T. Trocar site closure: a Simple, inexpensive technique. *JSLS*, 1997; 1: 273.
6. Carter J.E. A new technique of fascial closure for laparoscopic incisions. *J. Laparoendosc. Surg.*, 1994; 4: 143.
7. Lago J., Serralta D., García A., Martín J., Sanz M., Pérez M.D., Turégano F. Randomized prospective trial on the occurrence of laparoscopic trocar site hernias. *J. Laparoendosc. Adv. Surg. Tech. A.*, 2011; 21: 775.
8. Liu C.D., McFadden D.W. Laparoscopic port sites do not require fascial closure when nonbladed trocars are used. *Am. Surg.*, 2000; 66: 853.