

Original Paper

Impact Of stay sutures On Laparoscopic Access complications

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Abstract

Background: In laparoscopic surgery, the technique of first entry into the peritoneal cavity for creation of pneumoperitoneum is called access technique, two methods are used for laparoscopic access either by the closed or open method. Inadvertent complications might occur during port access, although these complications are uncommon, but its potentially life-threatening.

Aim: This study aims to evaluate the impact of stay sutures on the laparoscopic closed access complications.

Patients and methods: A prospective study was conducted in 238 patients underwent elective laparoscopic surgery at Misan governmental teaching hospital in the period between September 2014 and May 2017.

Results: the incidence of hernia was 0.4 % in comparison to 9.25% with the other access port insertion (P value <0.05). Major bleeding and visceral injuries were not reported and bleeding was related to trocar site in (0.4%). Other complications were simple, not life threatened and managed conservatively. **Conclusion:** transverse stay sutures to the anterior rectus sheath are simple, safe and reduce the initial port access complications.

Key word: Stay sutures, port access, initial port complications.

Introduction

Laparoscopic cholecystectomy is the gold standard procedure for the majority of patients with gall bladder pathology ^(1,2). Laparoscopic surgery has extended from cholecystectomy to virtually every procedure in the peritoneal cavity. In America and Europe approximately 98 percent of gallbladder surgery is performed by laparoscopy ⁽³⁾. In laparoscopic surgery, the technique of first entry into the peritoneal cavity for creation of pneumoperitoneum is called access technique. The umbilicus is the simplest and safest site for access where the skin, fascia and peritoneum are fused together ⁽⁴⁻⁶⁾. There are two methods used for establishing

laparoscopic access and creation of pneumoperitoneum either by closed access technique with Veress needle insertion, direct trocar insertion (DTI) and optical trocar insertion or open access technique like Hasson, s method, Scandinavian technique and Fielding access ^(3,7,8). Inadvertent complications like vascular injuries, gastrointestinal tract perforation, wound infection and port site hernia might occur during port access, although these complications are uncommon, but its potentially life-threatening ⁽⁹⁻¹³⁾. Our study aims to evaluate the impact of stay sutures on the laparoscopic closed access complications.

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Patients and methods

A prospective study was conducted in 238 patients underwent elective laparoscopic surgery at Misan governmental teaching hospital in the period between September 2014 – May 2017. After full examination of the abdomen for scar of previous operation and masses. First trocar was inserted through 1-1.5 cm incision either just below or above the umbilicus according to its position relative to costal margin and symphysis pubis. The incision is deepened to expose the linea alba and anterior rectus sheath fascia with hemostat forceps where transverse stay sutures with nylon no.1 to anterior rectus sheath 5-10 mm lateral to the midline, elevating the anterior abdominal rectus sheath up to provide safe distance with intra-abdominal viscera, Veress needle or trocar were inserted blindly between these two stay sutures for creation of pneumoperitoneum. At the end of the operation the stay sutures ligated to close the fascial defect. Patients were followed up at one week, three months, six months, one year intervals. Complications were assessed for vascular injury, gastrointestinal perforations, postoperative hematoma, seroma, infection and port access hernia. The control group (closed access methods) done by other expert surgeons in the field, we share the same co-morbid and age parameters. SPSS version 18, the

level of $P < 0.05$ was considered as statistically significant.

Results

The incidence of hernia in our study was 0.4% in comparison to 9.25% with other access methods (p value < 0.05). Major bleeding and visceral injuries were not reported. Bleeding was related to the trocar site (0.4). Other complications were simple, not life threatened and managed conservatively.

Discussion

The aim of minimal invasive surgery is to minimize patient morbidity while maintaining successful results. Approximately half of laparoscopic complications occur at the time of initial access^(8,10,14)

In our study gastrointestinal and viscus injuries were not reported in comparison to 0.4% of closed method mention ($P < 0.05$) and 0.06-0.15 % of visceral injuries revealed in gynaecologist and general surgeon literatures⁽¹⁵⁾ Brill et al⁽¹⁶⁾ reported two patients with GIT and visceral injuries with open access which carry low risk of injury as reported by Netherland retrospective study⁽¹⁵⁾ Port site infection was 5.9% in our result and this comparable to Den Hoed et al. Study, 5.3 %⁽¹⁷⁾ and Shindholimath et al. 6.3%⁽¹⁸⁾ Incidence of port site bleeding was 0.4%, which comparable to Hashizume M and Sugimachik study on 15422 patients⁽¹⁹⁾

Table I. Comparison of complications in two groups

Complications	Closed laparoscopic access (238)	Our study(238 patients)
Port site bleeding	5 2.1%	1 0.4%
G.I.T & visceral injuries	1 0.4%	0
hematoma& seroma	21 8.8%	8 3.36%
Wound infection	19 8%	14 5.9%
port access hernia	22 9.25%	1 0.4%
Total	68	24

Closure of fascial defect more than 10 mm is recommended as reported by Bhorul et al.⁽²⁰⁾ ligation of stay sutures at the end of the procedure in our study decreases the incidence of hernia from 9.25% to 0.4% (P value < 0.05) and thus comparable with Ahmed et al.⁽²¹⁾ had shown that less than 1 percent of developing an incisional hernia at initial port access.

Conclusion

Transverse stay sutures to the anterior rectus sheath are simple, safe with significant reduction in initial access port complications

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