

INCIDENCE OF 10MM UMBILICAL TROCAR SITE HERNIA FOLLOWING LAPAROSCOPIC SURGERIES

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INTRODUCTION

Trocar site hernia (TSH) is a recognized but relatively rare complication following laparoscopic surgeries. It refers to the protrusion of intra-abdominal contents through a fascial defect at the site of trocar insertion. The incidence of this complication varies based on several factors, including the size of the trocar, the surgical technique employed, and the patient’s individual risk factors. Among trocar sizes, the 10-mm umbilical trocar site is particularly noteworthy due to its higher predisposition to hernia formation compared to smaller trocar sites. The umbilical site is frequently utilized in laparoscopic procedures due to its central location, ease of access, and reduced cosmetic impact. However, the inherent anatomical weakness of the umbilical region, coupled with the larger fascial defect created by 10-mm trocars, may increase the risk of postoperative herniation. This issue is clinically significant as it can lead to complications such as bowel incarceration, obstruction, or strangulation, which necessitate prompt surgical intervention.

AIM OF THE WORK

The aim of this study was to compare fascia closure versus No fascia closure of the umbilical port in laparoscopic surgeries to assess the incidence of trocar site hernias (TSH).

PATIENTS AND METHODS

This prospective randomized study included 80 patients undergoing laparoscopic surgeries at the GIT and Liver Surgery Unit, Alexandria Main University Hospital, from August 2023 to February 2024. Patients were divided into two groups: Group I (40 patients with fascial closure of the umbilical trocar site using 0 polyglactin suture and a fascia closure needle) and Group II (40 patients without fascial closure). Inclusion criteria encompassed all patients undergoing laparoscopic surgeries, while exclusion criteria ruled out those with conditions such as previous paraumbilical hernioplasty, ventral hernias, portal hypertension with as cites, conversions to open surgery, pregnancy, single-port laparoscopic surgeries, or diagnostic laparoscopy for advanced malignancy. Preoperative workup included history-taking, clinical examination, laboratory investigations, and informed consent.

Postoperative follow-up was conducted during hospital stay, at one month, and six months post-surgery. Data were analyzed using IBM SPSS version 22.0, with results evaluated at a 5% significance level.

RESULTS

Postoperative assessments included clinical evaluations, laboratory tests, and Visual Analog Scale (VAS) pain scores at various intervals. Laboratory parameters, including hemoglobin, WBC count, platelet count, urea, creatinine, ALT, AST, prothrombin time, INR, and prothrombin activity, showed no significant differences between groups, indicating comparable baseline health metrics. Pain scores revealed a trend toward lower levels in Group I compared to Group II immediately and up to 24 hours postoperatively, though these differences were not statistically significant. Both groups demonstrated stable vital signs and normal health assessments throughout the follow-up. Wound abnormalities at the fourth postoperative week were significantly fewer in Group I (2.5%) than in Group II (7.5%; p < 0.001), and by the sixth month, wound status was normal in both groups (Table 1). Fascial closure with 0 polyglactin sutures and a fascia closure needle was effective in reducing TSH incidence without increasing operative time or complication rates (Figure 1).

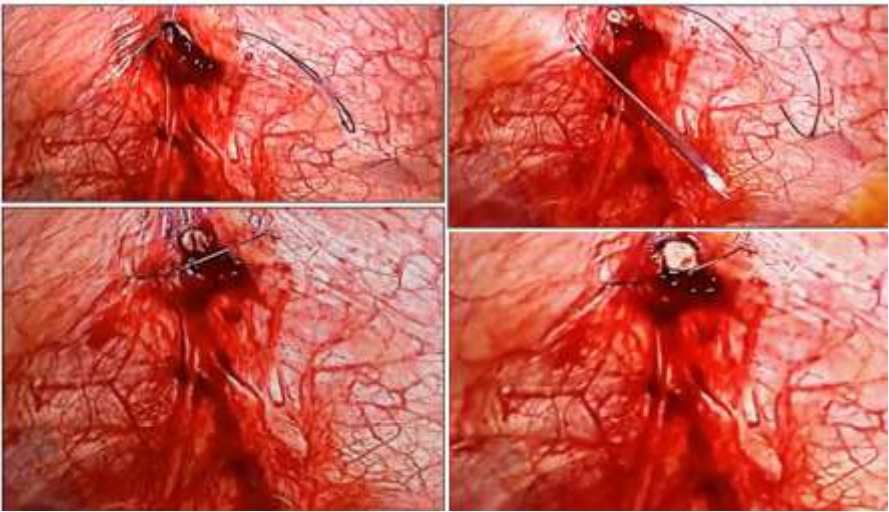


Figure: Steps of fascial closure for trocar site hernia.

Table: Distribution of Studied Cases According to the Follow-up Findings.

Category		Immediately Postoperatively		Fourth Postoperative Week		Sixth Postoperative Month	
		Group I	Group II	Group I	Group II	Group I	Group II
General Assessment	Normal	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Abnormal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wound Inspection	Normal	100.0%	100.0%	97.5%	92.5%	100.0%	100.0%
	Abnormal	0.0%	0.0%	2.5%	7.5%	0.0%	0.0%
Vital Signs	Normal	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Abnormal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Statistical Analysis		----		x² = 12.51		----	
p value		----		p <0.001*		----	

(x²) chi-square test; (p) probability value; (TSH) trocar site hernia.

CONCLUSIONS

- The study demonstrated that using 0 polyglactin absorbable sutures with a fascia closure needle effectively reduced the incidence of trocar site hernia (TSH) without increasing operative time or complication rates. Both groups exhibited comparable recovery in terms of general health, vital signs, and laboratory parameters, reflecting equivalent systemic recovery. Although Group I reported lower postoperative pain scores, the differences were not statistically significant. Group I also showed significantly fewer wound abnormalities during the fourth postoperative week, indicating improved early wound healing, with complete wound healing achieved in both groups by six months. These findings highlight the importance of rigorous early postoperative monitoring and personalized care to enhance recovery and minimize complications. The incorporation of fascial closure techniques in laparoscopic surgeries is recommended to improve patient outcomes and reduce TSH incidence.