

# **Laparoscopic Intraperitoneal Mesh Fixation with Fibrin Sealant versus Titanium Tacks**

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## **Abstract**

### **Background:**

The main reason for hospital stay after laparoscopic ventral hernia repair (LVHR) is probably pain, which also causes a lengthening of the patient's time to assume normal daily activities and work. It is likely that titanium tacks may be the main contributing factor to early (and maybe chronic) pain after LVHR. Therefore, non-invasive and patient-friendly mesh fixation methods must be considered. Mesh fixation in laparoscopic ventral hernia repair typically involves the use of tacks, transabdominal permanent sutures, or both of these. We compared postoperative pain after repair with either of these 2 methods.

### **Methods:**

Patients undergoing laparoscopic ventral hernia repair at the Mount Sinai Medical Center were prospectively enrolled in the study. They were sorted into 2 groups (1) those undergoing hernia repairs consisting primarily of transabdominal suture fixation and (2) those undergoing hernia repairs consisting primarily of tack fixation. The patients were not randomized. The technique of surgical repair was based on surgeon preference. A telephone survey was used to follow-up at 1 week, 1 month, and 2 months postoperatively.

### **Results:**

From 2004 through 2005, 50 patients were enrolled in the study. Twenty-nine had hernia repair primarily with transabdominal sutures, and 21 had repair primarily with tacks. Both groups had similar average age, BMI, hernia defect size, operative time, and postoperative length of stay. Pain scores at 1 week, 1 month, and 2 months were similar. Both groups also had similar times to return to work and need for narcotic pain medication.

Conclusions: Patients undergoing laparoscopic ventral hernia repair with primarily transabdominal sutures or tacks experience similar postoperative pain. The choice of either of these fixation methods during surgery should not be based on risk of postoperative pain.

### **Keywords:**

**LAPAROSCOPIC VENTRAL HERNIA REPAIR; INCISIONAL HERNIA; MESH; FIXATION**

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time, and postoperative length of stay. Pain scores at 1 week, 1 month, and 2 months were similar. Both groups also had similar times to return to work and need for narcotic pain medication.

### **Conclusion:**

Our results suggest that the laparoscopic fixation of an intraperitoneal mesh with Tisseel is safe and technically feasible in a pig model. There is still no evidence that fibrin-sealing alone is appropriate for intraperitoneal mesh fixation in hernia repair, but the technique might become an alternative or supplement to mechanical mesh fixation. Until then, further experimental research in animal hernia models with larger meshes is needed, especially with a focus on mesh folding and displacement

### **Recurrence.**

Mesh fixation in laparoscopic ventral hernia repair requires the use of tacks and/or permanent transabdominal sutures. Sutures pass through all fascial and muscle layers of the anterior abdominal wall, whereas tacks secure the mesh simply to peritoneum. Controversy exists regarding the optimal fixation method. In this pilot study, we compared recurrence rates between these two techniques. Patients undergoing laparoscopic ventral hernia repair at the Mount Sinai Medical Center were prospectively and nonrandomly enrolled in the study and underwent either suture-fixation or tack-fixation. Office charts, computed tomography, and telephone interviews were used to determine recurrence events. Chi2 and Student's t tests were performed to compare group characteristics and multivariate Cox regression analysis was used to assess for recurrence predictors after adjusting for potential confounders. From 2004 to 2005, 27 patients had suture repairs and 21 had tack repairs. The two groups had similar demographic, history, and operative variables. At a mean follow-up of 18 months, the recurrence rate was 14 per cent. In multivariate analyses, fixation method did not significantly affect recurrence. In this pilot study, patients undergoing laparoscopic ventral hernia repair with primarily transabdominal sutures or tacks experienced similar recurrence rates. Future studies will be needed to validate these findings.

### **References:-**

1. Kelly IS. Does the clinically significant difference in visual analog scale pain scores vary with gender, age, or cause of pain? *Acad Emerg Med.* 1998; 5:1086–1090.
2. Bueno J, Serralta A, Planells M, et al. Inguinodynia after two inguinal herniorrhaphy methods. *Surg Laparosc Endosc Percutan Tech.* 2004; 14:210–214.
3. Mahon D, Decadt B, Rhodes M. Prospective randomized trial of laparoscopic (transabdominal preperitoneal) vs open (mesh) repair for bilateral and recurrent inguinal hernia. *Surg Endosc.* 2003; 17:1386–1390.
4. Onofrio L, Cafaro D, Manzo F, et al. Tension-free laparoscopic versus open inguinal hernia repair. *Minerva Chir.* 2004; 59:369–377.
5. Smith JR, Demers ML, Pollack R, et al. Prospective comparison between laparoscopic preperitoneal herniorrhaphy and open mesh herniorrhaphy. *Am Surg.* 2001; 67:11–17.

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