Trans abdominal Preperitoneal Inguinal Hernia Repair: Mesh Fixation by Polyglactin Suture Versus Tacker

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ABSTRACT

Objective — *To compare operative time, postoperative pain and cost of procedure in trans abdominal preperitoneal (TAPP) inguinal hernia repair using polyglactin suture versus tacker, for fixing mesh and peritoneal closure.*

Study design — *Quasi experimental study.*

Place & Duration of study — *Department of Suregery Jinnah Postgraduate Medical Center Karachi, from April 2016 to May 2017.*

Methodology — *This study included 60 patients, divided into 2 groups. Each group had 30 patients. In group A polyglactin suture was used for mesh fixation and peritoneal closure while in group B metallic tacker was used. Operative time and pain score were compared between two groups. Cost incurred by the use of tacker and polyglycolic suture was also calculated.*

Results — *Mean age in group A was 49.93 + 13.82 year and in group B 45.4 + 13.56 year. Operative time and pain scores were statistically significant between two groups. The operative time was more in group A than group B (p=.004), but pain score was much lower in group A (p=.001). Cost of tacker equipment was Rs. 10,000 and that of polyglycolic suture Rs. 500.*

Conclusion — *Use of polyglactin suture for mesh fixation and peritoneal closure in TAPP is preferable due to less postoperative pain.*

Key words — *Trans abdominal preperitoneal, Inguinal hernia, Tacker, Polyglactin suture.*

INTRODUCTION:

Surgery for inguinal hernia is a commonly performed procedure all over the world. Life time risk for developing inguinal hernia in males is 27%.[1,2] Transabdominal preperitoneal repair and total extraperitoneal (TEP) repair are the two commonly performed laparoscopic procedures for inguinal hernia.[3,4] Kapiris stated that TAPP repair is a technically demanding but once mastered, is safe and effective with a high degree of patient satisfaction.[5]

Mesh fixation is an important step in laparoscopic trans abdominal preperitoneal hernia repair because tackers used for fixation may cause neuralgia.[6] The major criticism against laparoscopic hernia repair is the cost, particularly the tacker which is an expensive instrument. The objective of this study was to compare the mesh fixation and peritoneum closure by polyglactin suture versus tacker (titanium) in trans abdominal preperitoneal approach in terms of operative time, pain score and cost effectiveness.

METHODOLOGY:

This study was conducted in the Department of Surgery Jinnah Postgraduate Medical Center Karachi, from April 2016 to May 2017. Sixty male patients of inguinal hernia were included in this study.

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Patients with lower abdominal surgeries, irreducible or complicated hernia (obstructed or strangulated hernia) and unfit for general anesthesia, were excluded. Written informed consent was obtained after discussing the two techniques with the patients.

Patients were divided into two groups. Each group had 30 patients. In group A mesh was fixed and peritoneum was closed by polyglactin suture while in group B mesh was fixed and peritoneum was closed by metallic titanium tacker. Operative time and pain score was compared between two groups. Pain was measured by Visual Analogue Scale **(**VAS - 0-10 cm scale). Cost was also calculated.

Standard laparoscopic technique for surgery was used. A 15 x 15 cm polypropyelene mesh was tailored according to patient physical status. In group A mesh was fixed by two polyglactin stitches. Stitches were applied to the pubic bone and muscle laterally. The peritoneum was repositioned by polyglactin suture in continuous method. In group B mesh was stapled in place by pro tack fixation device. Staples were applied to the pubic bone and muscle laterally. The peritoneum was repositioned by stapling. Data were collected on the pre designed form. Mean with standard deviation were calculated for duration of operation and pain score. Student t test was applied and p value less than 0.05 was taken as significant.

RESULTS:

Mean age of patients in group A was 49.93+13.82 year while in group B it was 45.4+13.56 year. Duration of operation was 49.13±15.63 minutes and 38.33±12.34 minutes in group A and B respectively (p=0.004). Mean VAS was high in group B than group A (p=0.001). Operative time and pain were statistically significant between two groups (table I). Cost of tacker was approximately Rs. 10,000 compared to polyglactin suture which cost approximately Rs. 500.

DISCUSSION:

Inguinal hernia is the most common disease encountered in general surgery. There are several techniques for hernia repair. Laparoscopic hernia repair (TAPP and TEP) has gained popularity all over the world.[7] Transabdominal preperitoneal repair has few advantages over total extraperitoneal in terms of short learning curve, large working space, familiar anatomy and examination of opposite deep inguinal ring for asymptomatic hernia at the same operation with only moderate increase of operation time.[8] TAPP was preferable technique for large scrotal hernias and in obese patients even by surgeons expert in TEP.[9] According to Wirth, TAPP surgery can be considered as a gold standard in inguinal hernia repair.[10]

Mesh fixation is an important step in hernia repair. It may results in postoperative acute and chronic pain. Mesh fixation with staple is one of the known causes of chronic groin pain but according to Andresen mesh fixation technique did not affect long term persistent pain.[11] Nowadays absorbable tacker is also available to fix the mesh and to close the peritoneum.[12] It provides better outcome in TAPP.

In this study operative time was 49.13±15.63 minutes and 38.33±12.34 minutes in group A and B respectively. Mean operative time in tacker group is almost similar to other studies.[13,14] Mean operative time difference was approximately 11 minutes (more in group A) which was statistically significant. In this group low postoperative pain score coupled with less procedure related cost made it more acceptable than use of tacker (group B). Another advantage of using polyglactin suture is the release of nerve entrapment due to absorbable nature of suture if done inadvertently. In developing countries where finance is an issue the mesh fixation and peritoneum closure by polyglactin suture is cost effective.

CONCLUSION:

Use of polyglactin suture for mesh fixation and peritoneal closure in TAPP for hernia repair is preferable due to less postoperative pain and low cost.

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Table I: Outcome of TAPP : Polyglactin Suture Versus Tacker

Variable	Group A (n=30)	Group B (n=30)	P value
Operative time (minutes)	49.13+15.63	38.33+12.34	.004
Postoperative Pain (VAS 0-10)	3.9+1.91	5.93+1.79	.001

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