

Research Article

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Comparison Between Laparoscopic And Open Hernia Repair: A Clinical Trial

Dr Satish Jain

Associate Professor, Meenakshi Medical College Hospital and Research Institute, Enathur, Kanchipuram - 631552

E-mail: monikasatishjain@yahoo.com

Dr Monica Jain (Corresponding Author)

Professor, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana 125001

E-mail: neetu14bansal@gmail.com

Abstract

Keywords

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Inguinal hernia repair is one of the most frequently performed general surgical procedures. Because of the large socioeconomic impact of inguinal hernia repairs, it is important for the surgeons to consider the most advantageous approach in each given situation. Currently both open and laparoscopic repairs are employed in the repair of inguinal hernias and confer various advantages and disadvantages.

The aim of the study was to compare laparoscopic versus open repair of hernia with regards to post operative pain & nausea and vomiting, operative time, blood loss, perioperative and postoperative complications, length of hospital stay, return to normal daily activities, cost and reoccurrence rate.

Introduction

Inguinal hernia is one of the most common operations in general surgery. Inguinal hernia is common with risk of 27% in males and 3% in females (Schumpelick et al 1994). Despite so many years of experience, both the surgeons and the patients faces problems regarding decision making of type of surgery: open or laparoscopic- trans abdominal pre peritoneal (TAAP) or totally extra peritoneal (TEP), with mesh or without mesh, type of mesh, surgery or conservative etc. It is a well known fact that hernia repair have morbidity and recurrence rate. Earlier Open technique was

commonly used to repair inguinal hernia. Several studies have suggested that better results are obtained after laparoscopic repair of inguinal hernia than the conventional open surgery, though it is more commonly used for bilateral hernia than primary unilateral hernias (Juil et al, 1999). Now a days laparoscopic technique is getting common for treatment of this problem. The main aim of this study is to examine the outcome of comparison between laparoscopic versus open repair and to find out difference between the two after application of mesh (Dedemadi et al 2010).

Method

A randomized trial comparing trans -abdominal pre peritoneal (TAPP) laparoscopic repair and open surgery was under taken in 50 patients (25 for laparoscopic & 25 for open repair of inguinal hernia). Randomized trial was undertaken as it is less likely to provide least biased assessment of the pros and cons of both laparoscopic and open surgery for inguinal hernia repair. The trial included patients with a clinical diagnosis of inguinal hernia for whom surgical management was judged appropriate. Exclusion criteria included a contraindication for pneumoperitoneum and an absolute contraindication for general anesthesia.

Various parameters considered were duration of operation, time taken to return to usual activities,

surgical complication, duration of hospital stay, persistence and duration of pain (more than 3 months), numbness at the operative site, & reoccurrence with or without mesh.

The aim were to allow the observed short term difference to be quantified, and more importantly, to find difference in long term outcome such as persistent pain, persistent numbness, reoccurrence.

Results

The result of TAPP is almost same as that of open surgery except that groin pain is significant more after open repair than after laparoscopic repair. Due to this pain, patient was restricted from daily physical and sporting activities.

Table 1: showing comparative analysis between TAPP and open surgery

PARAMETERS	TAPP Surgery	OPEN Surgery
Operative time	95 min	52 min
Post operative pain(after 7 days)	less	more
Time for Mesh usage	more	Less
Chronic groin pain/ discomfort	Less	more
Intra operative complications	More(peritoneal breach)	Less
Perioperative complications	More (7%)	Less (3%)
Testicular pain	less	more
Analgesic intake time	5 days	10 days
Hematoma/ seroma formation	less	More
Wound drain	5%	47%
Hospital stay	Slightly more(Almost same)	Slightly less
Reoccurrence (after mesh)	1.7%	2.4%
Reoccurrence	5%	12%
Financial matter	more	less
Return to work	Very early(approx. 15 days)	Late (approx. 50 days)
Nausea and vomiting	Almost same	Almost same

Operative time is more in case of TAPP Laparoscopic surgery as compared to open surgery. Moreover complications are also more in TAPP surgery as compared to open surgery because learning curve is very long in case of laparoscopic surgery. Results of both types of surgery after operation are almost same in case of usage of mesh. The only difference is the route of application of mesh which results in more time intake in case of laparoscopic surgery. Intraoperative as well as perioperative complications are more in laparoscopic surgery as compared to open surgery. Post operative pain as well as chronic groin pain/ discomfort are less in laparoscopic surgery as compared to open time as incision is small. Due to this

pain, patient was restricted from daily physical and sporting activities. Hospital stay is almost same in both the cases as incision are given in both types. Number of patients receiving wound drain is less (5%) in laparoscopic surgery as compared to (47%) in open surgery. Financially patient is more burdened in case of laparoscopic surgery than open surgery but the most important factor favoring laparoscopic surgery is patient very early return to work and his ability to resume day to day work in very short period of time. Significantly less hematoma formation was observed in the laparoscopic group as compared to open surgery group.

Discussion

Inguinal hernia repair is one of the commonest general surgical procedures performed in surgical practice in United States, accounting for 10% -15% of all the operations (Wellwood et al 1998). These numbers are largely attributed to the high incidence of the disease, which carries a life time risk of approximately 27% for men and 3% for women (Schumpelick et al 1994). The introduction of a laparoscopic technique has sparked a debate in the literature over the superiority of this method versus open repair. In this article, we examine the advantages and disadvantages of these two approaches in inguinal hernia repair.

Since evidence in the literature does not point to either the laparoscopic or open approaches as the clear superior procedure, surgeon preference and circumstantial influences will probably continue to dictate the approach employed in inguinal hernia repair. With regards to operation length, most evidence in the literature points to a shorter operation duration with open repair (Kuhry et al 2007, Smink et al 2009).

The difference in the duration of the operation can be partly attributed to operative complications, which although uncommon for both methods, were more frequent in the laparoscopic group for visceral and vascular injuries. The laparoscopic approach to inguinal hernia repair is also associated with a steeper learning curve probably due to the increased complexity and technical difficulty of the surgery (McCormack et al 2003).

The reoccurrence is the most important indicator of the success of hernia procedure. It occurs after surgical repair in 15% of the cases or more (Neumayer et al 2004).

The frequency of hernia recurrence depends on a number of factors including the type of hernia repair initially performed, the co-morbidities of the patient and the length of time from the original hernia repair. The largest review of hernia repair suggests no apparent difference in recurrence between laparoscopic and open mesh methods of hernia repair (Feliu et al 2011, Tanphiphat et al 1998, Yang et al 2011).

The most important variable used as primary outcome in numerous studies comparing laparoscopic surgery and open technique is patient very early return to work and his ability to resume day to day work in very short

period of time (Kozol et al 1997, McCormack et al 2005, Wall et al 2008).

When comparing the cost of laparoscopic repair and open repair of inguinal hernias, it is difficult to assess the true cost of each procedure. Although a number of studies have pointed to higher procedure-related disposable costs for laparoscopic repair. There seems to be a higher reimbursement for laparoscopic procedures (Jacob et al 2008, Payne et al 1994). Further-more, in their economic evaluation of the two procedures, Khajanchee et al. found that the majority of the difference in direct cost between the two procedures was sensitive to cost-containment measures. Considering this sensitivity to cost-containment measures (Khajanchee et al 2004), the financial implications on the decision between laparoscopic and open repair probably depends very much on the institutional policies and procedures.

Studies reported no differences in postoperative pain after laparoscopic and open hernia repair (Olmi et al 2007, Misra et al 2006, Carbajo et al 1999). One trial reported reduced use of analgesics after laparoscopic repair (Navarra et al 2007). Postoperative pain after hernia repair often originates not from the hernias itself, but from the surrounding tissues. Mesh fixation materials, e.g., tackers or transfascial sutures, are believed to be responsible for postoperative pain (Topart et al 2005). The advantages of laparoscopy regarding surgical wounds and wound pain could possibly be offset by mesh fixation materials such as tackers and transfascial sutures.

Several studies have shown a shorter length of hospital stay after laparoscopic hernia repair (Olmi et al 2007, Misra et al 2006, Carbajo et al 1999, Navarra et al 2007, Barbaros et al 2007). After laparoscopic surgery, patients are expected to mobilize and recover faster. This, however, could not be confirmed by our data since length of hospital stay was comparable for both groups.

Conclusion

Evidence in the literature does not point to either of these approaches as the clear superior procedure. Most randomized studies comparing laparoscopy to open repair have confirmed that the laparoscopic approach is associated with a marginal increase rate of recurrence, lengthier operation with a steeper learning curve, increased cost, reduced post-operative pain and an earlier return to work when compared with open repair. Because the evidence is somewhat equivocal

it is likely that surgeon's preference will continue to dictate the approach employed in hernia repair for the foreseeable future.

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