A Comparative Study of Hernioplasty With Suction Drain and Without Suction Drain in Inguinal Hernias at Tertiary Care Hospital

D. Ramesh

Associate professor, Department of General surgery, Osmania general hospital, Hyderabad

How to cite this article: D. Ramesh et al A Comparative Study of Hernioplasty With Suction Drain and Without Suction Drain in Inguinal Hernias at Tertiary Care Hospital. Volume 13 | Issue 4 | October-December 2022

Abstract

Background: Inguinal hernia occurs in about 15% of adult population and inguinal hernia repair is one of the most commonly performed surgical procedure. In the era of minimal invasive surgery, hernia repair has seen a paradigm shift from open to laparoscopic technique.

Objectives: To assess the outcome of drain placement Vs no drain use, in patients undergoing open mesh repair of inguinal hernias.

Methods: This is a prospective study comprising of 50 patients of inguinal hernia over a period of 23 months. The patients were randomized into 2 groups – With and without the use of drains. The patients underwent open inguinal hernia mesh repair by a standardized method. The outcome of seroma formation, hematoma formation, infection at surgical site, and duration of hospital stay was recorded and analyzed.

Results: In the present study 16% of cases in drainage group and 20% in non-drainage group developed post operative wound infection. P value is insignificant. The mean post operative hospital stay in drainage group was 9.7 days and in non-drainage group was 6.7 days.

Conclusion: The early post operative complications like seroma, hematoma, wound infection rates are similar in both drainage and non-drainage groups. So, it appears that suction drain usage can be restricted in Lichtenstein's tension free mesh repair in simple inguinal hernias unless hernia is complicated or there is extensive dissection

Keywords: Hernioplasty, Inguinal Hernias, Seroma, Lichtenstein

Introduction

Hernia is defined as a protrusion of a viscus or a part of a viscus through an abnormal opening in the walls of its containing cavity.[1] Most commonly seen in the inguinal region followed by paraumbilical/ incisional hernia. Inguinal hernia occurs in about 15% of adult population and inguinal hernia repair is one of the most commonly performed surgical procedure. In the era of minimal invasive surgery, hernia repair has seen a paradigm shift from open to laparoscopic technique. Evolution in the treatment of inguinal hernias has equalled to the technological developments in this field. The most significant advances to impact inguinal hernia repair have been the addition of prosthetic materials to conventional tissue repairs.[2]

The laparoscopic inguinal hernia repair includes Totally Extraperitoneal approach (TEP)/Trans Abdominal Preperitoneal approach(TAPP).[3] Following introduction of mesh for hernia repair, newer measures focus on post hernioplasty pain syndrome, quality of life and return to normal

Corresponding Author:
B. Moksha prasuna,
Associate professor, Department of General surgery, Osmania general hospital, Hyderabad

activities .They show although laparoscopic operation takes longer to perform, proven advantages are reduced pain both following surgery, more rapid return to full activity and reduced chance of wound complications. They commonly occur due to pre-existing risk factors which include age, obesity, chronic obstructive pulmonary disease (especially emphysema), diabetes mellitus, smoking, drug intake around the time of surgery (like steroids), infection at the surgical incision site. The prosthetic materials available for inguinal hernia repair may be of Biological or Synthetic type. Because of various factors, like the increased cost and non- availability, the biological mesh use is very less. The synthetic materials are used more frequently.[4]

Available synthetic meshes include polypropylene (Prolene, Marlex),expanded PTFE (Gore-tex) and polyester Prolene mesh is the most commonly used material in our institute for open repair of inguinal hernias. Regardless of the technique employed in open repair of inguinal hernias the use of drains is almost universal, especially for large hernias. Insertion of drain is usually to evacuate the blood and fluid collection, which might happen in the potential space created, and to allow tissue apposition and better healing. Hence traditional teaching tells us that drains reduce the accumulation of fluid and blood, which reduce the incidence of postoperative hematoma, seroma and wound infection, and thereby reduce the recurrence of inguinal hernia.[5]

However, many have found no discernable benefit of the insertion of drains, while others have in fact found a better outcome without the insertion of drains. The proponents of no-drain insertion also argue that the complications of inserting a drain can be avoided.

Materials and Methods

Study design: Comparative study.

Setting: Department of General Surgery, Osmania General Hospital, Hyderabad. **Study population:** Patients admitted to department of General Surgery during the period of the study.

Study period: 18 months From 14th october 2019 to 5th december 2021.

Sample size: This is a prospective study comprising of 50 patients of inguinal hernia over a period of 23 months

Inclusion Criteria:

1. Age >18 years of age
2. Patients giving consent for participation in the study.
3. Patients fit for surgery.
4. All patients with reducible non obstructive direct or indirect inguinal hernia

Exclusion criteria:

1. Patients not willing to participate in the study
2. Patients not fit for surgery.
3. All the patients with irreducible or obstructed or recurrent inguinal hernias.

All patients fitting the inclusion criteria for the study were. Data collection was done in the ward. The patients were planned for an ultrasound between 7-10 days, and necessary arrangements done.

In order to assess the outcome of patients undergoing open inguinal hernia mesh repair, with and without the use of drains, the patients were randomized into 2 groups – With and without the use of drains. The patients underwent open inguinal hernia mesh repair by a standardized method. The outcome of seroma formation, hematoma formation, infection at surgical site, and duration of hospital stay were recorded and analyzed.

Intraoperative procedure

- Open Inguinal Hernia repair.
- Polypropylene Mesh (Ethicon) used.
- Skin to be closed by 3-0 Prolene.

Postoperatively, they were followed up in the ward by examination of the wound following dressing removal prior to discharge. In the out-patient department, they were reviewed at the first outpatient department visit. An ultrasound examination was done for patients who did not have wound gaping or intervention or a clinically obvious seroma.

Statistical methods: Data entry was done using the Epidata software version 3.1. Descriptive statistics were computed with use of the SPSS software (version 21). Sample size was calculated. Data Analysis was done using SPSS software and p values were computed with Pearson's Chi square.

Observation and Results

Table 1: Distribution based on Age group

AGE GROUP	NO. OF CASES	PERCENTAGE
10-20	1	2%
21-30	8	16%
31-40	8	16%
41-50	10	20%
51-60	15	30%
61-70	7	14%
71-80	1	2%

Over the period of study only male patients presented with inguinal hernia. The age of patients ranged between 18 to 80 years. In the study majority of patients presented between 50-60 years of age.

Table 2: Type and location of Hernia

TYPE	NO.OF CASES	PERCENTAGE
DIRECT	21	42%
INDIRECT	29	58%
BOTH	0	0%
LOCATION		
RIGHT	25	50%
LEFT	22	44%
BOTH	3	6%

In the present study 42% cases were of direct type and 58% cases were of indirect type. In present study 56% cases had right sided hernias and 44% had left sided.

Table 3: Distribution based on pain

TYPE	C/O OF PAIN	No Significant pain	Percentage
Drainage group	8	17	32%
Non-drainage group	2	23	8%

In drainage group pain was seen in 8 patients as compared to 2 in non-drainage group.

Table 4: Distribution based on Hematoma and Seroma group

TYPE	HEMA-TOMA	NO HEMATO-MA	PER-CENT-AGE
Drainage group	0	25	0%
Non-drainage group	1	24	4%
TYPE	SERO-MA	N0 SEROMA	
Drainage group	3	22	12%
Non-drainage group	3	22	12%

In our study 0% and 4% of patients developed hematoma in drainage and non-drainage group. The difference was statistically insignificant (p-value> 0.05)

Table 5: Distribution based on Post-operative complications and hospital stay

TYPE	INFEC-TION	NO IN-FECTION	PERCENT-AGE
Drainage group	4	21	16%
Non-drainage group	5	20	20%
Hospital stay			
Average hospital stay	9.1	6.7	

In the present study 16% of cases in drainage group and 20% in non-drainage group developed post operative wound infection. P value is insignificant.

In the present study, patients in drainage group mean post operative hospital stay is 9.7 and in non-drainage group is 6.7 days.

Discussion

The use of drains in elective surgery appears to be a never ending story. The increasing use of minimally invasive techniques for hernia repair has raised new interest in reducing discomfort after open hernia repair. Such discomfort may be in part may be due to insertion of drains into wound area. Another though slightly minor issue is the need for drains regarding to treatment cost. Finally may be undesirable when surgery needs to be performed as an outpatient procedure. On the other hand all of us recall patients with large and unpleasant seromas and hematomas following hernia repair. Such seromas and hematomas may cause considerable discomfort and embarrassment to the surgeon. PAIN Residual

neuralgia following Lichtenstein meshplasty represents the mosting vexing complication in the inguinal region. In some cases, the post operative pain can be debilitating requiring re-exploration and divising of the nerves. In the present study only immediate post operative pain was evaluated.[6] 32% of patients in the drainage group complained of pain whereas 8% of patients complained of pain in non drainage group. P value being less than 0.05, difference was significant. In a previous study, there was no significant difference in pain following Lichtenstein mesh hernioplasty with and without drains(95%vs90%). Here p value is insignificant.[7]

Hematoma: Bleeding from either artery or vein may result at all anatomic levels during an inguinal hernia repair resulting in hematoma formation. In our study 0% and 4% of patients developed hematoma in drainage and non-drainage group respectively. The difference was insignificant (p value >0.05).

Seroma: In the present study 12% of patients in drainage group developed seroma and 12% of patients in non-drainage group developed seroma.

Studies concerning post operative drainage to prevent seroma are contradictor. In two RCTs of patients following open intervention, no advantage was observed. The risk of seroma is rarely big enough to necessitate leaving a drain, except in a case of excessive diffuse blood loss or patients with coagulopathies.[8]

Infection: Infection represents a dreaded complication for all types of surgeries and it is no difference in inguinal hernia surgeries. Inguinal hernia surgeries complicated by infections have a higher rate of recurrence as the repairs are destroyed along with the tissues. Furthermore, it is important to recognize superficial from deep infections as deep infections are ominous and requires removal of mesh. In the present study 16% of cases in the drainage group and 20%of patients in the non-drainage group developed post operative superficial wound infection. None of the patients required removal of mesh.

The risk increased with increased duration of wound drainage. In a previous study presence of risk factors for wound infection based on surgery are the use of drains and the use of antibiotic prophylaxis.[9]

Post operative hospital stay: In the fast paced life of today, duration of mean hospital stay after surgery may be the determining factor when the rates of other complications are comparable. In our present study the mean hospital stay in case of drainage group is 9.1days whereas in non-drainage group is 6.7days

In a previous study, post operative hospital stay is 2.9 days in drainage group and 1.48 days in the non-drainage group which is statistically significant.[10]

Conclusion

The early post operative complications like pain, mean post operative stay in hospital is increased in Lichtenstein's with drainage group. The early post operative complications like seroma, hematoma, wound infection rates are similar in both drainage and non-drainage groups. So, it appears that suction drain usage can be restricted in Lichtenstein's tension free mesh repair in simple inguinal hernias unless hernia is complicated or there is extensive dissection

Ethical Clearance: The ethical clearance was obtained from Osmania Medical College and General Hospital prior to the commencement of the study.

Conflict of Interest: Nil

Source of Funding: Self

References

1. Lichtenstein IL, Shulman AG, Amid PK, Montllor MM. The tension-free hernioplasty. Am J Surg. 1989;157(2):188-93.
2. Palanivelu C. Result of hand sutured laparoscopic hernioplasty: an effective method of repair. Indian Journal of Surgery 2000;62(5):339-41.
3. Simchen E, Rozin R, Wax Y. The Israeli Study of Surgical Infection of drains and the risk of wound infection in operations for a hernia. Surg Gynecol Obstet. 1990;170(4):331-7.
4. Kuo YC, Mondschein JI, Soulen MC, Patel AA, Nemeth A, Stavropoulos SW et al. Drainage of collections associated with hernia mesh: is it worthwhile? J Vasc Interv Radiol. 2010;21(3):362-6 Oonwala ZG. Inguinal Hernia Repair: Past & Present. Pak J Surg 2005; 21(2): 54-55.
5. Moro ML, Carrieri MP, Tozzi AE, Lana S, Greco D, Risk factors for surgical wound infections in clean surgery: a multicenter study. Italian PRINOS Study Group. Ann Ital Chir. 1996;67(1):13-9.
6. Mohammad S, Molaei H, Jalali A. The effects of Hemovac on short term outcomes of Lichtenstein herniorrhaphy. Med Sci J Islamic Azad University. 2011;21(1):44-9.

7. Mahmudlu R. Investigating the short-term complications of drainage appliance post inguinal hernia repair operation with Lichtenstein's method in patients admitted to surgery ward of Imam Khomeini hospital. Urmia Med J. 2011;22(1):48-52.

8. Perkins SW, Williams JD, Macdonald K, Robinson EB. Prevention of seromas and hematomas after face-lift surgery with the use of postoperative vacuum drains. Arch Otolaryngol Head Neck Surg. 1997;123(7):743-5

9. Saratzis A, Soumian S, Willetts R, Rastall S, Stonelake PS. Use of multiple drains after mastectomy is associated with more patient discomfort and longer postoperative stay. Clin Breast Cancer. 2009;9(4):243-6

10. Rodrigues AJ Jr, Jin HY, Utiyama EM, Rodrigues CJ. The Stoppa procedure in inguinal hernia repair: to drain or not to drain. Rev Hosp Clin Fac Med Sao Paulo. 2003;58(2):97-102