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Original Research Article

A comparative study of negative suction drainage in inguinal hernia operations at Saraswathi Institute of Medical Sciences, Pilkhua, Hapur Uttar Pradesh

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ABSTRACT

Background: The inguinal area is the weakest region of the abdominal wall. So, this is the most common site for the development of hernias. Inguinal hernias are the commonest amongst all the hernias and hernia repair is the most frequently done operation worldwide. There is no agreement among surgeons regarding the need for drains. Some use sparingly and some use it routinely. This study aims to evaluate the use of negative suction drain in inguinal hernia surgery.
Methods: We studied sixty patients of inguinal hernias both direct and indirect for one year and followed up for next 1-2 years. This prospective study aimed to see the effect of negative suction drainage in hernia surgery.
Results: Both the groups did well postoperatively. It was beneficial to put a negative suction drain in those patients who had a bigger hernia, fatty patients with the thick fatty lower abdominal wall and older patients.
Conclusion: It is advisable to put a negative suction drain in inguinal hernia surgery and strongly advocated if the dissection had been difficult, old patients and fatty lower abdominal wall

Keywords: Inguinal hernia, Negative suction drainage, Lichtenstein repair, Meshplasty, Mesh repair

INTRODUCTION

A hernia is a protrusion of a viscus through an opening in the wall of the cavity in which it is contained. Abdominal wall hernias occur only in the body areas where aponeurosis and fascia are devoid of the protecting support of the striated muscles. Without a countering force, the bare aponeurotic areas are subjected to the ravages of increased intra-abdominal pressure and give way to produce hernias.

Much research has been made in past for abdominal hernia repair. The hernia operation is being done since very early times. The Latin word hernia means a tear or rupture. William S. Halsted in 1892 from John Hopkins school of medicine read his classic paper 'The cure of hernia in the males'. Astley Cooper of Norfloka described for the first time the superior pubic ligament now called the `` Cooper`s ligament". In the 19th and 20th century Edwardo Bassini revolutionized the repair of inguinal hernia by introducing herniorrhaphy. Then came the Shouldice repair resulting in lesser recurrence of a hernia. Now the concept of hernia repair with synthetic mesh was introduced by Lichtenstein and colleagues in 1989 nowadays this procedure is the gold standard in open hernia surgery.[1,2]

Inguinal hernias are most common among all hernias. Inguinal hernia repairs are the most frequently performed operations by general surgeons. The outcome of hernia operations is good and favourable. But the operation can

have complications like formation of seroma, collection of blood, infection, dehiscence of the wound due to infection and recurrences. There is no consensus among surgeons regarding the use of drains in hernia surgery. Some surgeons use it indiscriminately and others occasionally. If seroma or haematoma are formed that was managed by aspiration, compression and surgical drainage.[3] If dissection was difficult, old age patients, patients on blood thinners, the use of negative suction drain is recommended.[2,4]

Objective of the study

The aim and objective of our study was to find the effectiveness of putting a drain in the inguinal hernia surgery as compared to non-insertion of drain.

METHODS

We have done a prospective comparative study in our institution in Saraswathi institute of medical sciences, Pilkhua, Hapur (U.P.) India. Our hospital is a tertiary care hospital and caters the need of rural and urban people of nearby places.

Ethical approval was obtained from the ethical committee of our institution before beginning of this study.

We took 60 patients for study mostly healthy apparently. All patients were males in the age group 20-70 years. The healthy males without any severe debilitating systemic disease were included in the study. Patients having serious diseases like uncontrolled diabetes, severe hypertension, congestive heart failure, recent myocardial infarction and neurological disorders were excluded from this study. We divided these patients into 2 groups of 30 each during the period from April 2019 to March 2020 and follow up was done for one year postoperatively. Standard Lichtenstein hernia repair was done with good quality prolene mesh of size 6x15 cm. In the study there were both types of hernias direct and indirect. Prolene mesh was inserted in both groups. The repair procedure was adopted as described in the operative surgery books.[1,4-7] The patients were randomly divided into two groups of 30 each 'the drain group" and 'no drain group'. The patients were admitted one day before surgery and informed consent was taken. The operative area was trimmed with a shaver and scrubbed well with soap and water and 10% betadine solution was applied over the area in the evening before surgery, Tab. alprazolam 0.25 and tab rabeprazole was also given. Injection cefotaxime 1 gm amikacin 500 mg and Metrogyl 200 mg IV was given at 10 p.m. to all patients as per our hospital protocol. All operations were done under spinal anaesthesia. Injection cefotaxime 1000 mg was also given before the surgery in the operation theatre.

For indirect hernia, the hernial sac was dissected and separated from cremaster muscle, facial sheath and other cord structures, contents of the sac pushed in the abdominal cavity, the neck of the sac twisted and ligated with absorbable suture. The extra sac was cut and the remaining stump pushed into the abdominal cavity. For direct hernia, the sac was pushed back in the abdominal cavity with a purse-string suture after separating the other cord structures from the sac. In both cases good quality prolene mesh was placed and fixed to the posterior wall of the inguinal canal keeping the cord structure and out above the mesh. A new artificial deep internal ring was made. In the drain group the negative suction drain no. 16 was put over the mesh prosthesis. In the 'no drain group' no drain was inserted. Then the wound closed in layers and skin closed with 2-0 ethilon suture.

Cases for the study were selected randomly. Every alternate patient was chosen to keep the negative suction drain whether it was an indirect or direct hernia. Drain fluid from the wound was measured daily for 5 days and a table made. Drains were taken out when the discharge of the drain fluid was nil. Intravenous antibiotics were given routinely to all patients for three days and then orally. Intravenous fluid was given for 3 days and then oral antibiotics for two days. The dressing of the wound opened after three days and was examined for any discharge or inflammation. Patients were discharged on seventh or eighth day of operation. All stitches were removed after seven days postoperatively.

It was an observational study only. We did not use any statistical tool to compare the results.

RESULTS

All of the patients with inguinal hernia presented with swelling in the groin region. Patients with inguinal hernias were examined thoroughly and all relevant investigations were done as per routine. Hernioplasty of the hernia defects was done to avoid complications of hernia e.g., pain, irreducibility, obstruction and strangulation. The following observations were made.

Type of inguinal hernia

There were 47 patients with indirect hernia and 13 patients with the direct hernia.

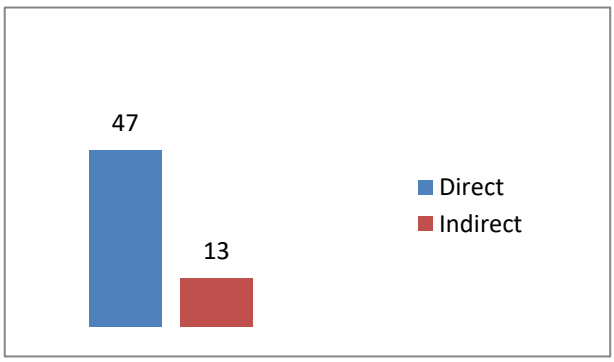

Figure 1: Types of hernia.

Sex of patient

In this study there were only 60 male patients. Inguinal hernias are rare in female population.

Age distribution

Bar diagram showing distribution age and no. of patients. Most of the patients were in 30-60 years age group.

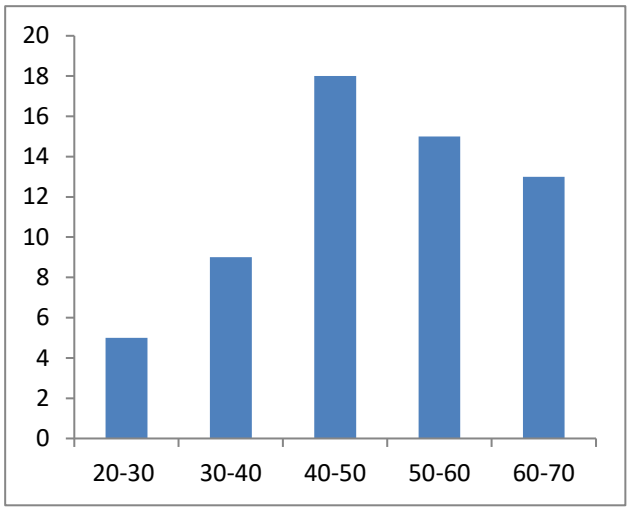

Figure 2: Age distribution.

Non-smoker/ non-smoker

Pie diagram showing non-smokers and non-smokers in the present study. Non-smokers were more in the study.

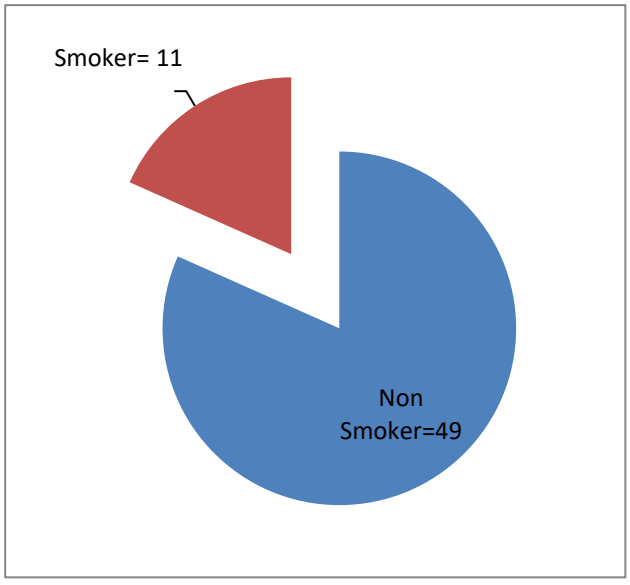

Figure 3: Non-smoker/ smoker.

Working conditions

Bar diagram for working conditions of hernia patients. Heavy and manual workers suffered more due to hernia.

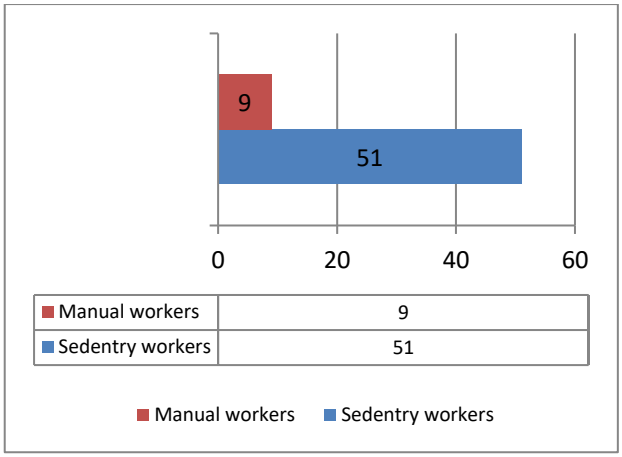

Figure 4: Manual/ sedentary workers.

Associated diseases

Bar diagram showing associated diseases in patients included in the study.

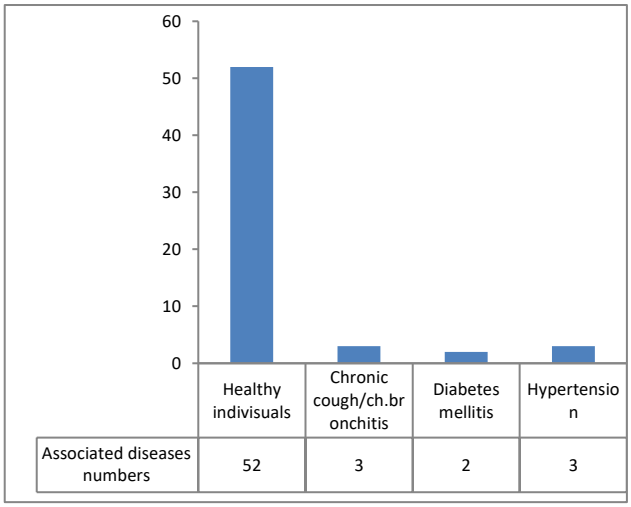

Figure 5: Associated diseases.

Number of patients with drain (negative suction drain)

Column diagram for dry/ fluid in drain.

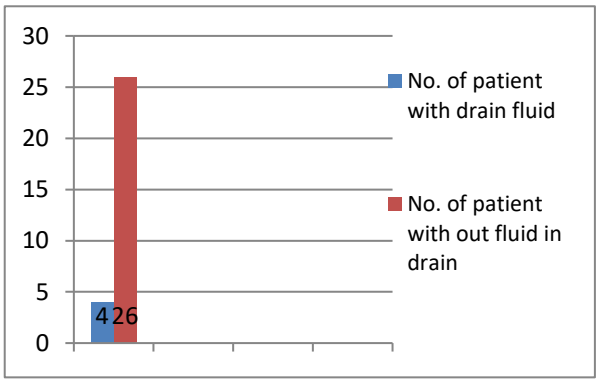

Figure 6: Number of patients with drain fluid.

Quantity of drain fluid in drain group

Patient without negative suction drainage (30 patients). Pie chart for fluid in the in the wound in no drain group.

Table 1: Quantity of drain fluid in drain group.

Post op days	Drain fluid in container (CC)
1	30-40
2	20-10
3	4-7
4	Nil
5	Nil

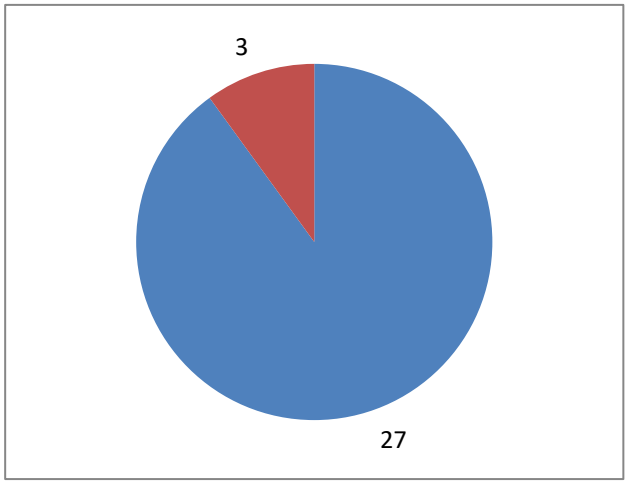

Figure 7: No fluid in drain (number of patients).

Recurrence of hernia

There was no recurrence of hernia in both groups after 1-2 years of follow up after operation.

There was some collection in the no drain group. It was taken care by aspiration with wide bore needle. No major complication occurred in this group.

All the patients were discharged on eight postoperative days of operation in good condition with a dry healthy scar.

Follow up of patients was done on OPD days twice a week for one week and weekly for three weeks. All the patients were fine without any complications of the operation. All the patients were advised to report back if any discharge or discomfort occurs in the operative area.

From the present study it is inferred that we kept drain in 30 patients and drain fluid was in only in 4 patients. Drain fluid reduced to nil after three days. The suction drain was removed after five days. Other remaining patients of this group were dry with no discharge or collection of fluid. In the group without drain there was collection in three patients which was aspirated with wide bore needle and patients did well after this.

Figure 1 shows total number of patients in the study and types of hernias patient suffering from. Most of the patients were male. Figure 2 shows age distribution of patients included in this series. Non-smokers were more shows in Figure 3.

Figure 6 and 7 shows that there was not much difference in seroma fluid collected. There was no mesh infection in both groups. The pain was reported in all the patients for 2-3 days. It was relieved with analgesic injections. Hospital stay was around 7-8 days in both groups.

DISCUSSION

Inguinal hernia repair by open surgery is the most commonly done operation in the world. All general surgeons begin their carrier with open surgery. Hernia repair is the simplest and commonest operation to begin with the surgical carrier of a general surgeon. It has a favourable outcome. Much advancement has been done in hernia surgery from simple repair to mesh repair, laparoscopic and robotic repairs. Now the gold standard for open inguinal hernia repair is Lichtenstein mesh plasty. It is practiced all over the world routinely.

To use drains in open elective surgery is a matter of controversy. Some surgeons use drains frequently and others rarely.[8] If seroma or haematoma develops, it is treated by post-operative puncture and drainage.[9] But when dissection is difficult or patients have other complicating factors the usage of the negative suction drain is recommended.[10] This reduces the postoperative complications of seroma, haematoma and wound sepsis and so lessen the discomfort of the patients.[11] But surgeons fear putting drains when using prosthetic material i.e. because of fear of introducing infection. Because drains act as a foreign body and increase the chances of infection.[12] In our study there was not any infection in either group with drain or with no drain.

Since serum or blood collected in the wound in the dead spaces is a good media for infection. Negative suction drainage is advisable over the mesh and under the external oblique sheath to drain the collecting fluid. The negative pressure would facilitate the collapse of the potential space when dissection is difficult e.g., old patients, patients with other debilitating conditions. It would reduce wound infection and dehiscence and hence the recurrence of hernia also. One can imagine the agony of the patient and embarrassment to the operating surgeon if there is infection or wound dehiscence.

Since it was a small study and with healthy persons so there are chances for varying results in other set of persons. This may be a limitation of the study.

CONCLUSION

From the above study it is concluded that putting a drain in open hernia surgery is beneficial in potential risky

patients. It lowers the chances of post operative complications, stay in hospital and suffering to patient is reduced.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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