## **Original Research Article**

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# Retrospective study of inguinal hernia repair without drainage

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#### **ABSTRACT**

**Background:** A common method for treatment of inguinal hernia is surgical repair using prosthesis. Aim of this study is to evaluate that whether there is need for post-operative drainage of hernia wound or not and various complications of putting drain into hernia wound.

**Methods:** A case study of 50 patients with predominant complain of inguinal swelling fulfilling the required selection criteria which were admitted in Guru Govind Singh Hospital, M P Shah Medical College, Jamnagar, during period of 2014 to 2016 are studied retrospectively. Drain were not put in any of the patient and findings were recorded.

Results: It is found that most of patient recover well, only 8% of patients had wound infection and 2 patients having seroma

Conclusions: It reflects that there is no need to put drain routinely in inguinal hernia surgery.

Keywords: Complications, Drain, Hernia, Infection, Seroma

### **INTRODUCTION**

Hernia is an abnormal protrusion of the whole or part of viscus through an opening in the wall of the cavity in which it is contained. Inguinal hernia is a common surgical problem which increases with aging especially in male. A common method for treatment is surgical repair using prosthesis. One frequent complication after inguinal herniorrhaphy is soft tissue seroma. There are several methods to prevent or to drain seroma. Some surgeons suggest the insertion of closed suction drainage system but other disagree. It may be internal (diaphragmatic hernia) or external (inguinal, femoral, umbilical, incisional etc). Inguinal hernia is one of the most commonly presented form in our hospital setup. In present days there are various techniques of hernia repair and its management. One of them is to repair hernia without any postoperative drainage. Postoperative outcome may be different from that of hernia repaired

with drainage. Most important factors to decide whether to put drain or not are intraoperative bleeding, extent of dissection, anatomy of hernia, duration of surgery, any complication and associated comorbidity of patient. Many patients presented with complicated hernia in which placement of drain become necessary.

This study was carried out to describe management of inguinal hernia repair without any drainage and its benefits and outcomes.

There is many research done on inguinal hernia repair, but only few papers mentioned about postoperative drainage of wound. Most of the author didn't mentioned anything about drainage of wound. Hernia is being operated since ancient times when there is no availability of negative suction drains. The Latin word hernia means "a rupture" or "a tear". On November 17, 1892 William S. Halsted of the John Hopkins School of Medicine read

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his classic paper "The cure of inguinal hernia in the male". He said, "if no other field were offered to the surgeon for his activity than herniotomy, it would be worthwhile to become a surgeon and to devote an entire life to this service."

Astley Paston Cooper of Norfloka (Circa1768 -1841) had great interest in the study of hernia. In his "Treatise on Hernia", published in London in 1804 and 1807 and in "The anatomy and surgical treatment of abdominal hernia", published in Philadelphia in 1844, Cooper described for the first time the superior pubic ligament which now bears his name and the transversalis fascia, with full reorganization of its role in the pathogenesis of hernias.

No disease of the human body, belonging to the province of the surgeon, requires in its treatment a better combination of accurate anatomical knowledge with surgical skill than hernia in all its varieties.<sup>2</sup>

The 19<sup>th</sup> and 20<sup>th</sup> century: Edwardo Bassini (Circa 1844-1924) of Pavia revolutionized the treatment of inguinal hernia by the introducing the operation that has proved to be the basis of modern herniorrhaphy.<sup>3</sup>

In 1889, Bassini published a 106-page book of hernia.<sup>3</sup> Its beautiful illustrations and text were reprinted in a 1937 fiftieth anniversary volume published by his university, Padua. His paper published in German in 1890 and later translated into Italian, made Bassini's work widely recognized. Many modifications have been added by different surgeons all over the world. The principles of the Bassini repair were revitalised within the Shouldice repair, resulting in superior recurrence rates.<sup>4</sup>

Halsted first reported the modern relaxing incision over the rectus fascia, which is illustrated in Koontz's book of hernia.<sup>5</sup> A widely accepted procedure is the Cooper ligament repair.<sup>3</sup> Technique was described in 1898 by George Lotheissen (1868-1935) in Vienna but was popularised by Chester Mcvay (1911-1987) after his landmark article, with Anson as co-author published in 1949. In 1958 and 197, Mcvay presented the basic anatomic concept of the repair using the Cooper ligament.<sup>3</sup>

## Contemporary time

The basic principles of hernia repair were laid down in 19<sup>th</sup> century. The so called "Canadian repair" was developed in 1950s by Shouldice, Obney and Ryan.

The concept of the tension free repair was introduced by Liechtenstein and colleagues in 1989 by using synthetic mesh.<sup>4</sup>

Condon described the anterior iliopubic tract repair.<sup>3</sup> Thomas Annandale of Edinburgh first presented the concept of the preperitoneal approach in 1876.<sup>3</sup>

The preperitoneal approach studied by Nyhus and associates and reported the results since 1959 have made this approach the preferred one for many surgeons.

#### **METHODS**

Retrospective study of 50 cases over a period of 3 years is carried out in our institute Guru Govind Singh Government Hospital, M. P. Shah Medical College Jamnagar, Gujarat. Patients above 18 years of age having direct, indirect and pantaloon, non-complicated inguinal hernia were studied. All patient below 18 years of age and operated for any other surgical condition along with inguinal hernia, complicated inguinal hernia was not included in the study. All the patients were followed and examined at 1, 3 and 6 months interval for condition of local scar, recurrence and any local complain.

#### Inclusion criteria

- Patients above 18 years of age
- Must be admitted in Guru Govind Singh Hospital Jamnagar
- Patients without any previous major surgical history
- Patients with direct, indirect, pantaloon and recurrent hernia.

#### Exclusion criteria

Patients below 18 years of age, patients with mental illness, having complicated hernia and having major surgical history was not included in the study.

All these patients were studied, and findings were recorded according to the proforma which includes patient basic information like name, age, sex, occupation and residence, chief complain, past, personal and family history. Further general and systemic examination were done, which include local inguinoscrotal, abdominal and rectal examination.

## **RESULTS**

From the present study it is evident that most patients of inguinal hernia present with swelling in groin region. These swellings if not taken care of, then of course progress to irreducibility, obstruction and strangulation. Patients of inguinal hernias have thus to be clinically examined and thoroughly investigated including ultrasonography.

All the patients underwent surgery and hernial defect repaired followed by meshplasty was done. But post-operative drainage was not kept in any patients. In the present study, infection rate is 8%, morbidity rate is 20% and mortality rate is 0%. This figure reflects the effectiveness of inguinal hernia repaired without drain. No patient had recurrence of hernia in subsequent follow up period. Low morbidity and mortality rate shows that hernia repair without drainage is better procedure as it

also reduces hospital stay and thus preventing further complications. Considering only small numbers of patients studied in this group, furthermore detail study was required for better understanding of benefits and management of complications of inguinal hernia repair without post-operative drainage.

- There is decreases in post-operative wound complications.
- Reduced hospital stays.
- Reduces post-operative pain.
- Reduces mortality and no effect on recurrence rate.
- Inguinal hernia is presented in middle age group ranging from 41 to 60 years.
- Majority of the studied patients have direct inguinal hernia (78%).

#### **DISCUSSION**

Maximum no. of patients (29) 58% are operated within 1 to 1:30 hours, 16% of patients (8) are operated within 1:00 hour where as 18% of patients (9) are operated within 2 hours and only 8% of patients are operated are operated in 2:30 to 3:00 hours (Table 1).

**Table 1: Duration of surgery.** 

<b>Duration</b> (hours)	No. of patients	Percentage
Upto 1:00	8	16
1:00-1:30	29	58
1:30-2:00	9	18
2:00-2:30	3	6
2:30-3:00	1	2

In the study negative suction drain was not kept in any of the patients. On table hemostasis was good and there was less tissue dissection, so there is no need of any postoperative drainage. Rather sometimes drain site wound become source of infection to the main stich line (Table 2).

Table 2: Drainage of wound.

Negative suction drain	No. of patients	Percentage
Kept	0	0
Non-kept	50	100

In the study done by Rodrigues AJ jr, Yoo JH, patients were divided into 2 groups, group A, 12 patients undergoing drainage and Group B, 14 patients not undergoing drainage.

On the  $2^{\rm nd}$  post-operative day, all patients underwent abdominal CT scan to detect the presence of fluid collection.<sup>6</sup>

Majority of the patients (28), (56%) stays in hospital for 5-8 days, whereas 16 patients (32%) stays for 1-4 days

and other 5 patients for longer duration, 9-12 days. Only 1 patient stay for 13-16 days. These findings suggest that hospitalization stay was less in majority of the patient, as drain was not kept in the wound, it will permit for early discharge of the patient (Table 3).

**Table 3: Duration of total hospital stay.** 

No of days	No. patients	Percentage
1-4	16	32
5-8	28	56
9-12	5	10
13-16	1	2
>16	0	0

In the study done by Ergul Z and his team, drains are more commonly used in patients on anticoagulants, who had long duration of the operation and recurrent hernias. The drains were used in 66 of 795 open mesh repairs of inguinal hernias. He concluded that drain use in selected patients seems to not increase infection risk but are associated with longer hospital stay.<sup>7</sup>

In 4 patients (8%) post-operative wound gets infected. So, antibiotics were further continued. In 2 cases (4%) seroma and in another 2 cases (4%) hematoma was developed which was aspirated and antibiotics were continued. Post-operative wound gapping occurred in 2 cases (4%), for which secondary suturing of the wound was done, hence antibiotics cover was given according to culture and sensitivity report and for longer time and hospital stay become longer (Table 4).

**Table 4: Postoperative complication.** 

Type of complication	No. of patients	%
Hematoma formation	2	4%
Seroma collection	2	4%
Infection	4	8%
Mortality	0	0%
Recovery uneventful	0	0%
Woumd gap	2	4%
Septicaemia	0	0%

In the study done by Rodrigues AJ, Yoo JH, in group A, no patient develops fluid collection and 1 patient presented with abscess in the preperitoneal space on 15<sup>th</sup> post-operative day.

In group B, 12 patients presented with fluid collection on CT scan. however, only 3 patients presented minor complication. None of the patients developed major complications.<sup>6</sup> Conclusion is that the use of suction drainage with stoppa procedure does not provide any benefit.<sup>6</sup>

Another study done by Chetty YVN and team, in which suction drain was inserted up to the bottom of scrotum in 71 patients in group A and suction drain was kept in the

inguinal region in 67 patients in group B. In group A it was found that the incidence of scrotal edema was lesser as compared to group B showing the significance of position of drain in complicated inguinal surgery.<sup>8</sup>

In this study all patients were followed and examined at 1 month, 3 months, 6 months interval for condition of local scar, recurrence and any local complain. There was no recurrence of hernia in this study (Table 5).

Table 5: Recurrence.

No. of patients	Recurrence
50	0

Recurrence rate of inguinal hernia in general population is 2.3 to 20%.<sup>9</sup> In this study out of 50 patients in 44 patients (88%) content of sac was omentum (omentocele) and in 6 patients (12%) content was small bowel (enterocele), (Table 6).

We can see here that more commonly, hernia sac contains omentum as compared to bowel. So, it's true that omentocele is more common than enterocele.<sup>10</sup>

Table 6: Contents of sac.

Type	No. of patients	Percentage
Omentum	44	88
Small bowel	6	12

In this study of 50 patients, maximum no. of patients (20) was in group of 41-60 years of age making 40%. Then in the age group of 1840 years, there were (16) patients making 32%.

Then in age group of 6180 years, there were (4) patients making 8%. And in 81-100 years (0) patients making 0%. As hernia is more common in middle age group of 30 to 60 years was maximally affected.

As people of this age group are engaged in strenuous heavy work they were the sufferers (Table 7).

Table 7: Age distribution.

Years	No. of patients	Percentage
18-40	16	32%
41-60	20	40%
61-80	4	8%
81-100	0	0%

In the present study majority (78%) of patients presented with a direct hernia. 8% of the patients had indirect complete hernia and 14% had indirect incomplete hernia.

These finding favors the earlier presentation of the inguinal swellings, before it reaches up to the scrotum (Figure 3).

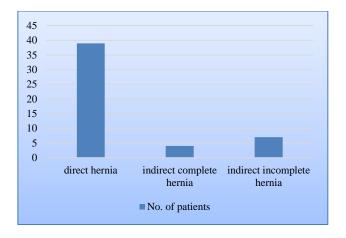


Figure 3: Type of hernia.

#### **CONCLUSION**

It reflects that there is no need to put drain routinely in inguinal hernia surgery.

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