

## COMPARISON OF THE OUTCOME OF DRAIN VS PRESSURE DRESSING IN VENTRAL HERNIA REPAIR

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### **ABSTRACT:**

#### **OBJECTIVES:**

*The purpose of this study was to compare the outcome of drain vs pressure in ventral hernia repair.*

#### **METHODOLOGY:**

*A cross sectional comparative study conducted at the Department of General Surgery, Hayat Abad Medical Complex Peshawar from January 2018 till December 2019. One twenty six patients both male and female were admitted as elective cases through OPD and were divided into "A" and "B" groups. Experienced surgeons of the unit performed all surgeries. Postoperative pain, seroma/hematoma formation, wound infection and hospital stay was noted in both groups.*

#### **RESULTS:**

*Out of 126 patients, 32 (25.3%) were males while 94 (74.6%) were females with male to female ratio of 1:3. All types of hernia were more common in the age range of 31-50 years. The common complications in both groups were seroma/hematoma formation (7.1%) and wound infection (6.3%). Mean hospital stay was 2-4 days.*

#### **CONCLUSION:**

*Mesh repair is the standard procedure for ventral hernia repair. Postoperative complications are comparatively lesser in pressure dressing than those with drain placement group.*

**KEYWORDS:** *Hernia, Abdominal, Pain, Surgery, Emergency, Paraumbilical hernia*

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#### **INTRODUCTION:**

The word hernia is derived from a Greek word heron, which means branch or protrusion. Thus hernia is protrusion of the normal abdominal cavity contents through weakness in abdominal wall<sup>1</sup>. Abdominal wall hernias also called ventral hernia are a common surgical problem and it comprises of umbilical, paraumbilical, epigastric and hypogastric, about 20 million hernias are repaired per year worldwide<sup>2</sup>. Paraumbilical hernia is midline hernia which occurs through linea alba lying superiorly, inferiorly or at side of umbilicus involving one sidewall of umbilicus<sup>3, 4</sup>. Para Umbilical Hernia (PUH)

constitute 10% of all primary hernias with rising repair rate every year<sup>5</sup>. These are commonly seen in multiparous, obese and middle to old age women<sup>6, 7</sup>. The most common predisposing factor is obesity and multiparity for primary as well as recurrent hernias<sup>7</sup>. Other factors, which can cause hernia formation, are raised intra abdominal pressure due to chronic cough, constipation, ascites, peritoneal dialysis, ventriculoperitoneal shunts, intra peritoneal masses or organomegaly<sup>8</sup>. The hernia sac may contain pre peritoneal fat, omentum, intestine or combination of any of these organs<sup>9</sup>. Pain is the commonest presentation of hernia<sup>6</sup>. They can also present with obstruction and strangulation due to tissue gangrene because of lack of blood supply and present with severe pain and vomiting, which may need emergency surgical repair<sup>3</sup>. The different surgical methods adopted for the repair of ventral are open anatomical repair, open mesh repair (onlay, sublay and inlay), laparoscopic intraperitoneal onlay mesh repair and open Intraperitoneal Onlay Mesh (IPOM). The recurrence rate is lesser with mesh repair<sup>10</sup>. The easiest technique of mesh placement is open onlay method but this technique needs subcutaneous tissue dissection, which may lead to seroma, hematoma, surgical site infection and increase morbidity<sup>11-13</sup>. Drain are placed at end of the surgery to prevent such complications however there is no solid evidence in the literature which can support the actual benefits of drain placements or it may increase the chance of infection<sup>14</sup>. According to the European Hernia Society, hernia is classified into small, medium and large when the defect size is less than 2cm, 2-4cm and more than 4cm respectively<sup>6</sup>. The aim of the study is to compare the results of drains versus pressure dressing in the mesh repair for ventral hernia, to achieve the most acceptable post operative results and to help in decreasing morbidity, chances of wound infection and hospital stay.

#### METHODOLOGY:

This was a prospective clinical study conducted in the Department of General Surgery Hayatabad Medical Complex Peshawar, a tertiary care hospital in Khyber Pakhtunkhwa, Pakistan from January 2018

till December 2019 using 126 patients both males and females. The local ethical committee approved the study protocol. All male and female patients above the age of 15 years who attended the surgical outpatients department with ventral hernia were enrolled in our study. Patients with obstructed or strangulated hernia that had resection and anastomosis, patients with abdominal malignancies, patients with coagulopathy, renal failure, ascites and morbid obesity, and patients with recurrent hernia were excluded from the study. All patients were subjected to clinical evaluation including history taking, general and local examination. Pre operative investigations like complete blood count, liver function tests, renal function tests, radiological investigations including abdominal ultrasound, chest x-ray, ECG were done. Echo was also done in selected cases. After informed consent patients were divided in two groups, A and B. In group A, continuous closed-suction drain was placed in subcutaneous tissue, while in group B, drain was not placed and abdominal belt was applied soon after the procedure. Demographic details like age and gender, clinical presentation, duration, comorbidity, size of defect, associated symptoms like vomiting, reducibility, chronic cough, constipation, difficulty in micturition, intra operative and post operative complications, post operative pain, operating time, seroma and hematoma formation, wound infection and length of hospital stay was noted. Data was analyzed by SPSS version 25. Mean and standard deviation was calculated for quantitative variables like age and hospital stay. Qualitative variables like gender, SSI, seroma/hematoma was expressed as percentages. Independent sample T-test was used to compare number of days in hospital between the two groups while Chi Square test was applied to compare the frequency of SSI, seroma and hematoma formation between the groups. P-value < 0.05 was taken as statistically significant. After proper optimization of the patients with intra venous fluids, proper control of blood sugar level in diabetic patients, prophylactic antibiotics for gram-positive coverage was given pre-operatively at the time of induction and continued till 5<sup>th</sup> postoperative day. All patients were operated under general

anesthesia in supine position, with a transverse or vertical incision over the bulge near the umbilicus after removing hairs from the skin and cleaning with the disinfectant. With the blunt and sharp dissection the rectus sheath was cleared off the fatty tissue and the defect containing hernia contents was identified. The defect was opened along with the sac. The contents were reduced into the abdominal cavity. The redundant hernia sac was excised. The defect in the linea alba was closed with non-absorbable suture Prolen-1. A prolene mesh was applied on the fascia and fixed with non-absorbable suture Prolene 2/0 in all patients with 2cm overlap on the defect all around. After securing the hemostasis the wound was closed with redivac drain in group A while no drain was put in group B in which pressure dressing in the form of abdominal belt was applied soon after the surgery. In group A the drain was left for 5-10 days and was removed when the drain volume was less than 20 ml per 24 hours while in group B, pressure dressing was continued for up to 10 days. Patients were followed on 1<sup>st</sup>, 2<sup>nd</sup>,

3<sup>rd</sup> and 12<sup>th</sup> postoperative day to look for early complications like pain, seroma/hematoma formation and surgical site infection. All patients were subjected to abdominal wall USG to assess seroma/hematoma formation specifically in-group B.

### RESULTS:

A total of 126 patients both males and females with ventral hernia (epigastric and PUH/UH) were included in this study who underwent open onlay mesh repair. These 126 patients were divided into group A, in which suction drain was used and group B in which suction drain was not used rather pressure dressing in the form of abdominal belt was used soon after the surgery. Each group had 63 patients. Out of 63 cases, 35 patients were having PUH, 18 were having epigastric and 10 patients had hypogastric hernia in-group A. While in-group B, 39 patients had PUH, 16 had epigastric while 8 patients had hypogastric hernia.

**Table 1: Types of Ventral Hernia and its Percentage**

	Group A (63)	%	Group B (63)	%	Total = 126
<b>PUH</b>	35	55%	39	61.9%	58.7%
<b>Epigastric Hernia</b>	18	28.5%	16	25.3%	26.9%
<b>Hypogastric</b>	10	15.8%	8	12.6%	14.2%

**Table 2: Distribution of Ventral Hernia**

Age in Years	PUH A + B	Epigastric Hernia A + B	Hypogastric Hernia A + B	Total = 126
<b>15-30</b>	2 + 3	0 + 1	0 + 0	6 (4.7%)
<b>31-50</b>	21 + 20	10 + 12	6 + 6	75 (59.5%)
<b>&gt;50</b>	12 + 16	8 + 3	4 + 2	45 (35.7%)
<b>Gender</b>				
<b>Male</b>	10 + 8	6 + 5	2 + 1	32 (25.3%)
<b>Female</b>	25 + 31	12 + 11	8 + 7	94 (74.6%)

Table 3: Post-Operation Complications

Complications	Group A = 63	Group B = 63	Total = 126
Seroma/Hematoma	6 (9.5%)	3 (4.7%)	7.1%
Wound Infection	5 (7.9%)	3 (4.7%)	6.3%
Mesh Removal	2 (3.1%)	1 (1.5%)	2.3%
Hospital Stay in Days	2-4	1-3	

Table 3 shows that seroma and hematoma formation is more common in group A; there were 6 patients developed seroma/hematoma formation even in the presence of suction drain while in group B, 3 patients had seroma/hematoma formation which was diagnosed on ultra sound of abdominal wall post operatively during follow up. Similarly wound infection is also more common in-group A where 5 patients developed wound infection and thus caused increased morbidity and prolonged hospital stay. Four patients required wound exploration while in 2 patients, mesh had to be removed in group A while in group B, 2 patients required wound exploration and only 1 patient underwent mesh removal. Pain was assessed by VAS and was comparable in both groups.

#### DISCUSSION:

All hernias of anterior abdominal wall are grouped as ventral hernia, which consists of umbilical, paraumbilical, epigastric and hypogastric hernias. Umbilical hernia is more common in children and is usually small in size. Para umbilical hernia is a large defect in linea alba around umbilicus. Epigastric and hypogastric hernias occur above and below umbilicus respectively<sup>8, 15</sup>. In our study all types of hernias were common in the adult age group i.e. above 30 years which is similar to Prushuthum et al and Shaikh et al<sup>3, 7</sup>. Generally PUH and all other types of hernias are common in females than in males<sup>3, 6, 11</sup>. The adipose tissue is different in both genders, which is considered to be the causative factor<sup>6</sup>. In the current study, male to female ratio is 1:3. Similar results were found in the other international studies<sup>3, 6-8, 14</sup>. For the repair of hernia, open onlay mesh repair is the most simple and safe procedure, which is easily learnt by the surgeons<sup>6, 13, 16</sup>. The common

complications related to the repair are hematoma or seroma formation and wound infection, which leads to prolong hospital stay<sup>17, 18</sup>. In the current study the complications found in-group A is higher than group B and overall it is comparable with other studies<sup>3, 7, 8</sup>. These complications happen because of subcutaneous tissue dissection while preparing a bed for the mesh in onlay technique. Seroma formation is due to the blood and lymphatic's injury during tissue dissection<sup>14</sup>. It can be prevented by the placement of suction drain in subcutaneous tissue although several studies show that drains are not only ineffective but also lead to increase chances of infection<sup>19</sup>. Current study also found the same results, which shows that group B in which drain was not used rather abdominal belt was used soon after the surgery has much less number of seroma and hematoma formation, wound infection and subsequently shorter hospital stay and decreased morbidity.

#### CONCLUSION:

Mesh repair remains the standard procedure for ventral hernia and use of drain among patients having mesh repair for ventral hernia resulted in post operative complications and also prolong stay at hospital while those having pressure dressing in the form of abdominal belt had less complications and shorter duration of in-patient hospital stay. We suggest more trials on the use of pressure dressing in patients having ventral hernia repair with the inclusion of larger number of cases and as longer period of time of follow up.

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