

# Factors Associated with Paraumbilical Hernia and its repair by Mesh Hernioplasty Technique

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## ABSTRACT

**Background:** The awareness of repair of para umbilical hernia (PUH) is well known, however, dispute is mostly concerning the choice of surgical procedure.

**Aim:** To find the factors associated with Paraumbilical hernia and its repair by hernioplasty technique.

**Methods:** A retrospective study of 50 subjects, with PUH was included in the study. The age range of patient was 18- 60 years with >3cm size hernia. These were treated with onlay Synthetic polypropylene mesh, from March 2018 to August 2018. Demographic data including gender, age and BMI were collected from Surgical Ward of local hospitals. A questionnaire based on factors associated with hernia was filled by consented patients. These cases were repaired with Open mesh repair.

**Results:** Demographics and predisposing factors of patients showed that the ratio of male to female was 14: 1. Most of the patients have age range of 18-44 years. Among females, most of them were multi-parity with high BMI (over weight). Their mode of work was hard and tense.

**Conclusion:** It is concluded that incidence of para umbilical hernia is more common in female patients and more prevalent in all age groups of female than male. However, early finding of hernia and appropriate treatment and avoidance of post operative obesity (increase BMI) may prevent from recurrence.

**Keywords:** Paraumbilical hernia, hernioplasty technique, adult

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## INTRODUCTION

Para-umbilical hernia (PUH) is mainly due to a defect in the linea alba. Hernia sac is usually consists of fat tissues of peritoneal cavity, small intestine and omentum<sup>1</sup>. This surgical problem is about 10% of primary hernia<sup>2</sup>. Paraumbilical hernias are more common in female than male<sup>3</sup>. Factors related with occurrence and recurrence of PUH are obesity, pain, middle age and multiparity<sup>4,5</sup>.

Treatment of choice is elective surgery due to chances of incarceration, obstruction and strangulation<sup>4</sup>. Previously tension free suture was used which was replaced by the usage of mesh to repair the hernia, which may reduce the rate of recurrence<sup>6</sup>.

Factors that are associated with recurrence after repair of PUH are size of hernia (>5cm), weight gain after repair, surgical site of infection and large seroma<sup>7,8</sup>.

The technique of usage of mesh is based on the placement of mesh through open and laparoscopic approaches<sup>9</sup>. Application of mesh may be onlay, inlay, sublay and underlay associated with hernia is anterior fascia, in preperitoneal space and in the intra-peritoneal side respectively<sup>10</sup>.

Among these techniques, the placement of open onlay mesh is an easiest approach; though there is a need of subcutaneous dissection that may be a reason of development of haematoma surgical site of infection in some patients<sup>11</sup>. It is found that onlay based repair has little relapse rate, with minor complications<sup>12</sup>. Inlay repair is also an easy technique but patient may be susceptible to insincere complications related with wound. Sublay based repair is difficult to perform. Although underlay based repair

may protect from insincere wound complications but bareness of mesh to content of intra-peritoneal cavity<sup>13</sup>.

Retrospective study was designed to find the factors associated with para umbilical hernia and its repair by mesh hernioplasty technique.

## MATERIALS AND METHODS

Fifty patients, with PUH were included in the study. The age range of patient was 18- 60 years with >3cm size hernia. These were treated with onlay placement Synthetic polypropylene mesh, from March 2018 to August 2018. Patient's age <18 or having hypertension, diabetes, chronic liver disease or with hernia defect of < 3cm were excluded. The study protocol was permitted by the ethical committee of Institute. Demographic characteristics include gender, age and BMI were collected from Surgical Ward of local hospitals. A questionnaire based on factors associated with hernia were filled by all patients. Hernia subjects were operated with general anesthesia, in supine side, with skin incision near umbilicus. Umbilicus preserved in all cases

**Statistical Analysis:** Data was analyzed by SPSS 20.0. Demographic and predisposing factors of patients were expressed in frequency and percentages.

## RESULTS

Demographics and predisposing factors of patients underwent hernioplasty showed that the ratio of male to female was 14:1. Most of the patients have age range of 18-44 years. Among females, most of them were multiparity with high BMI (over weight). Their mode of work was hard and tense. However the chances of surgical site infection, seroma and recurrence rate were 2-3%.

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Table: Demographics and predisposing factors of hernia patients

Variables	Frequency	%age
Gender		
Male	04	08
Female	56 (1: 14)	52
Age (years)		
18-44	35	70
45-60	15	30
Parity		
Multi-parity	30	85.71
Non multi-parity	05	14.28
BMI (kg/m <sup>2</sup> )		
Normal	10	20
Over weight	30	60
Obese	10	20
Occupation		
Hard work	30	60
Non hard work	20	40
Surgical site infection	02	04
Seroma	02	04
Recurrence	03	06

## DISCUSSION

Hernia may be congenital or may be due to loss of some structures after birth or may attain in later life with a reason of weakness of muscles, obesity, illness or surgery<sup>14</sup>.

We observed that in all age groups para umbilical hernia is diagnosed. However a study found that most common hernia in their patients was inguinal hernia<sup>15</sup> and other study found that incidence of para umbilical hernia was 14.54%<sup>16</sup>. According to our study; females are more prone to develop hernia than male. It is proposed that frequency and pattern of hernias based on gender difference may be due to a difference in the musculofascial layers of the lower abdomen, bony pelvis and gonads from the peritonium<sup>16</sup>.

We found that para umbilical hernia was present in male / female with a ratio of 14: 1. However, other studies reported low male to female ratio i.e., 1:8 and another study found 1:4 respectively<sup>17,18</sup>. The age range of our most of the patients was 18-44 years. A study report that hernia in either common in childhood stage or in the age of 60 -70 years<sup>16</sup>.

Among females, most of them were multi-parity with high BMI (over weight). A study reported that mode of work in most of the female was hard and tense. Beside multi-parity, obesity, continue work for long time may be the predisposing or promoting factors to paraumbilical hernias<sup>19</sup>. It is reported that repeated or multiple pregnancies are main precursor of para umbilical hernia in Women<sup>16,3</sup>. However, no relationship was observed between hernia and obesity<sup>20</sup>.

However in our patients, the chances of infection of site of surgery, seroma and recurrence rate were 2-3%. It is reported that the position of prosthetic mesh reduces not only reduces the risk of infection and avoid the re-estimation of avascular tissue which may decrease the rate of recurrence<sup>21</sup>. A study demonstrated that mesh onlay

repair can be used in any size of para umbilical hernias, with little recurrence and morbidity rate<sup>22</sup>.

## CONCLUSION

It is concluded that incidence of para umbilical hernia is more common in female patients and more prevalent in all age groups of female than male. However, early finding of hernia and appropriate treatment and avoidance of post operative obesity (increase BMI) may prevent from recurrence.

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