ISSN : 2949 - 9100

International Journal of Health and Dentistry Care (IJHDC)

IJHDC : Health and Dental Publication
Available Online at: www.ijhdc.com
Volume – 3, Issue – 5, September – October - 2024, Page No. : 20 - 23

Onlay and Sublay Mesh Hernioplasty Repair in Treatment of Umbilical Hernia and Para Umbilical Hernia

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Citation This Article: Kemichel P, Zijarne O, Lringman U, "Onlay and Sublay Mesh Hernioplasty Repair in Treatment of Umbilical Hernia and Para Umbilical Hernia", IJHDC – September – October – 2024, Volume. – 3, Issue – 5, P. No. 20 – 23.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: A hernia is a protrusion of an organ through an abnormal opening, often occurring in the abdominal wall. Para-umbilical hernias are common in middle-aged and older adults, especially in women. Obesity is a major risk factor. Surgical mesh repair is the preferred treatment, reducing recurrence but carries arisk of infection.

Methods: A study in India will involve 100 patients with umbilical and para-umbilical hernias, divided into two groups (50 each) for onlay and pre-peritoneal mesh repair. Random allocation will be done using computer-generated numbers. The primary objective is to assess postoperative seroma formation and surgical site infections over four weeks, using the Southampton and ASEPSIS systems for infection grading.

Results: In Onlay mesh repair post-operative complications seroma 5(2.75%) patients followed by purulent discharge 5(2.75%) patients followed by erythema 3(1.5%) patients. In sublay mesh repair seroma, purulent discharge, erythema were 3(1.5%), 0, 2(1%) patients respectively.

Conclusions: There is significant difference in occurrence of surgical site infections in onlay mesh repair (7%) vs sublay mesh repair (2.5%). Therefore, I would like to conclude that sublay mesh repair (retrorectus and preperitoneal mesh repair) is better surgical procedure than onlay mesh repair for treating umbilical hernia and paraumbilical hernia with regards post-operative surgical site infection.

Keywords: Hernia, Congenital Pediatric, Radiological Diagnosis

Introduction

A hernia is derived from the Latin word for rupture. A hernia is refers to an abnormal protrusion of an organ ortissue through a weakness in the abdominal wall.

While most congenital pediatric umbilical and paraumbilical hernias close over time, hernias persisting beyond 3-4 years or those larger than 2 cm often require surgical intervention. Adult umbilical and paraumbilical hernias are usually symptomatic, with no tendency to close spontaneously, and carry a higher risk of strangulation, necessitating early surgical repair. Factors such as pregnancy, obesity, and ascites, which increase intra-abdominal pressure[2], are common in adults with these hernias.

Methods

Study Design; Prospective observational study was conducted between January 2024 – June 2024.

Sample Size: Randomly 100 Patients

Divide randomly into two groups by using computer generated random numbers.

All the patients with following common properties were included in the study. Patients of both gender Age between 25-50 years patients with clinical and investigatory support for the diagnosis and willingness for the surgical management of umbilical hernia and paraumbilical hernia.

Inclusion Criteria

1. who are prepared to sign the informed consent form meet the

Exclusion Criteria

1. Patient not willing to give informed consent.
2. Patient less than 25 years and above 50 years.
3. Patient with inguinal hernia, incisional hernia, epigastric hernia, divarication of recti, recurrent hernia.
4. Immunosuppressive disorders like diabetes, HIV, hepatitis, severe renal /hepatic failure.
5. Advanced tumors/ currently treated malignancies.

The patients who met the inclusion criteria were enrolled in the study after receiving informed consent and approval from the institutional ethics committee. Patients aged 25-50 years having clinical and radiological diagnosis of umbilical and paraumbilical hernia with full filling inclusion criteria will be chosen for the study. Patients will divide randomly into two groups by using computer generated random numbers.

Group A patients undergoing onlay meshplasty

Group B is sublay/pre- peritoneal mesh repair.

The primary objective of the study is post-operative seroma formation and surgical site infection for post operative period of 3 weeks.

Statistical Analysis Methods

All data collected will be compiled and entered into a Microsoft excel worksheet. Quantitative data/continuous variable such as duration of operation will be presented mean with standard deviation. Qualitative variable such as diagnosis, surgery, will be analysed using frequency and percentage. Unpaired t test or Mann Whitney U Test will be used to compare post operative seroma and surgical site infection in two groups with Group A patients undergoing onlay meshplasty and group B is sublay/pre-peritoneal mesh repair. The data was analysed using statistical software Statistical Package for Social Science (SPSS) 20.

Results

Prospective observational study consisting of 100 UH and PUH patients was taken up for investigating the etiology, clinical features and the factors associated with the development of paraumbilical hernia, to discuss the methods of treatment of paraumbilical hernia and to study the morbidity and postoperative

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complications of patients who met with the inclusion criteria were studied over a period of 1 year.

Table 1: Occurrence of umbilical hernia and para umbilical hernia

	Number	Occurrencerate
Total hernias operated from January 2024 – June 2024.	639	100%
Inguinal hernia	415	63%
Umbilical and paraumbilical hernia	112	8.75%
Incisional hernia	76	5.99%
Epigastric hernia	33	2.6%
Femoral hernia	02	0.15%

Table 2: Surgical Procedures

Procedures	Number (n=100)	Percentage
Onlay mesh repair	50	25%
sublay mesh repair	50	2%
Retrorectus	35	17.5%
Preperitoneal	15	7.5%

Table 3: sex distribution

	Frequency	Percentage
Female	38	19%
Male	66	31%

Table 4: Precipitating factors among female sex

Precipitating factors	Frequency(n=38)	Percentage
Multiparity	17	23
Obesity	9	12
Constipation	5	7
Chronic cough	2	2.5

Discussion

In this clinical study, 100 patients with umbilical and paraumbilical hernia were admitted and treated with different surgical procedures from January 2024 – June 2024. The two group of patients were studied for occurrence, risk factors, clinical features, treatment and postoperative complications pertaining to disease. Discussion is mainly concentrated on compare surgical site infections in two different surgical techniques.

Occurrence of different types of hernia operated in our hospital is as follows: Inguinal hernia 37.5%, umbilical and paraumbilical hernia- 7.4%, incisional hernia-6%, epigastric hernia- 2.6 % and femoral hernia-0.1%. Although exact incidence of paraumbilical hernia is not mentioned in available literature, it is considered as one of the common hernias apart from inguinal hernia.

Umbilical and Paraumbilical hernia is more common in females. But in our study 38 patients were females and 62 patients were males. In our study ratio between male

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and female sex is 1.36:1. There is no significance difference in age distribution in males and females, as disease is more common between 3th and 5th decade in both sex.

Conclusion

Based on our study comparative study between the two surgical procedures of umbilical and para-umbilical hernia came out with following conclusions:

1. There is significant difference in occurrence of surgical site infections in onlay mesh repair (7%) vs sublay mesh repair (2.5%) with p value 0.001.
2. That sublay mesh repair (retrorectus and preperitoneal mesh repair) is better surgical procedure than onlay mesh repair for treating umbilical hernia and paraumbilical hernia with regards post operative surgical site infection.
3. The strength of our study is that our sample size was 100

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