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A Retrospective Analysis on Clinical Characterization and Post-Operative Complication of Patient with Inguinal Hernia in Single Centred Health Care Setting

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Abstract: ***Background An inguinal hernia is a common condition associated with advanced age, male gender, risk factors and clinical characteristics.A hernia occurs when an organ pushes through an opening in the muscle or tissue that holds it in place. It protrudes through bodily parts due to abnormalities in the anatomical structures that ordinarily contain it. Objectivethis study is aimed to clinical characterization and post-operative complication of patient with inguinal hernia. Methodology: The study was a single-centred retrospective cross-sectional study. The study was performed on patients with inguinal hernia and those who underwent inguinal hernia repair at Vivekanandha Medical Care Hospital in Tiruchengode from March 2022 to May 2022. A total of 62 patients were enrolled in the study based on inclusion and exclusion criteria the data is collected through chart review of existing medical record of study site. Results: The participants were primarily in the 40–59 age range (41%), and gender indicated significant disparities, with more male patients than female patients. Inguinal hernias more frequently affect active employees than sedentary ones. The majority of them were overweight (42%) with normal weight (40.3%), obesity (12.9%), and underweight (4.8%) following closely behind. The most prevalent risk factors were persistent constipation. Conclusion:A complete physical examination and history are used to diagnose the majority of inguinal hernias***
Keywords: inguinal hernia, gender, BMI, risk factors.

I. INTRODUCTION

A hernia occurs when an organ pushes through an opening in the muscle or tissue that holds it in place. It protrudes through bodily parts due to abnormalities in the anatomical structures that ordinarily contain it. The abdomen is the most commonly affected area. Abdominal wall hernia are more prevalent, accounting for around 15-18% of all operative methods[1, 2].

Effectively, any risk factor that raises intra-abdominal pressure or weakens the front abdominal wall may result in the establishment of an inguinal hernia[3].For example, chronic cough, chronic obstructive pulmonary disease, chronic constipation, benign prostatic hyperplasia, family history of hernia, collagen diseases, previous right lower quadrant incision, smoking, physical activity, and bearing the burden may be named.[4,5]

Inguinal hernia repair is one of the most common procedures performed worldwide, with over 20 million patients undergoing the procedure each year

The lifetime prevalence of groin hernias (visceral or adipose tissue protrusions through the inguinal or femoral canal) in males is 27-43 percent and 3-6 percent in women.[6, 7]Inguinal hernias are almost always symptomatic, and the only cure is surgery. Therefore it is successful in the majority of cases. [6]

There are two primary surgical methods: open surgery and laparoscopic. There are several ways for repairing the herniation site, the most common of which are classical and preperitoneal.

The classical approach is the gold standard in herniorrhaphy and is simpler than alternative methods of treatment used by most surgeons (8-10). In this method, the mesh is placed on the base of the inguinal canal, under which is inserted the thin transverse abdominal fascia. As a result, it creates a relapse-prone region.

The preperitoneal approach, on the other hand, reduces recurrence rates since the mesh is implanted beneath the fascia and on the peritoneum (11, 12)

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II. METHODOLOGY

The study was a single-centred retrospective cross-sectional study. The study was performed on patients with inguinal hernia and those who underwent inguinal hernia repair at Vivekanandha Medical Care Hospital in Tiruchengode from March 2022 to May 2022. A total of 62 patients were enrolled in the study based on inclusion and exclusion criteria. Patients aged 20 and above, individuals who underwent inguinal hernia repair, patients with primary or recurrent hernia, and patients with post-operative complications were included in the study. Patients of less than 20 years of age, cardiac patients or immunosuppressive patients were excluded from the study.

The information and data were gathered through a chart review of the study site's existing medical records. Detailed demographic details such as age, gender, occupation, BMI, risk factors/past medication history etc. were collected along with the clinical presentation of hernia and also post-operative complications. All the relevant data was filled into Microsoft Excel, and the analysis was done with the graphs and tables.

III. RESULT

A sum of 62 patients was enlisted in the study based on both inclusion and exclusion criteria.

Table 1: Socio-Demographic data distribution

Socio-Demographic Data	Variables	Frequency	Percentage
Age	20-39 Years	14	22%
	40-59 Years	29	47%
	Above 60 Years	19	31%
Gender	Male	58	94%
	Female	4	6%
Occupation	Strenuous workers	40	65%
	Sedentary workers	22	35%
BMI	Underweight	3	4.8%
	Normal	25	40.3%
	Overweight	26	42%
	Obese	8	12.9%

A. Age Wise Distribution

Among 62 patients, the predominant age group were 40-59 (47%), than other age group, followed by age group above 60 (31%).And the least number of participants were age group 20-39 (22%).In our study participants predominantly with age group 40-59 was described in table 1 and figure 1.

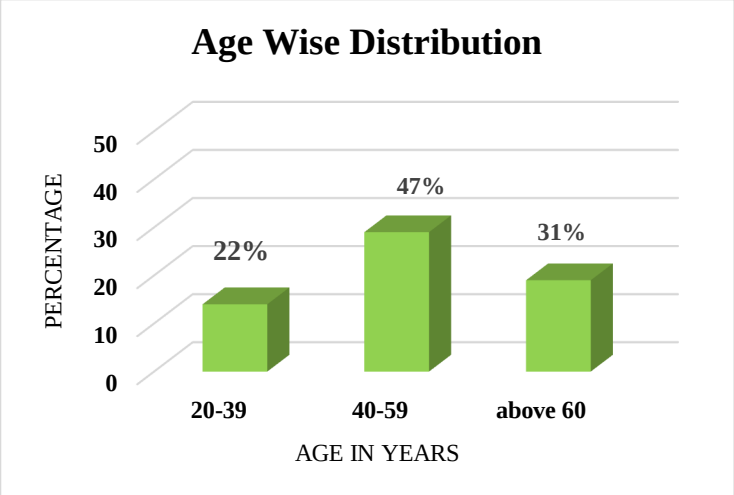


Figure 1: Age Wise Distribution

B. Gender Wise Distribution

Among 62 participants, 58 (94%) were males and 4 (6%) were females. In our study male participants was outnumbered than female was described in table 1 and figure 2.

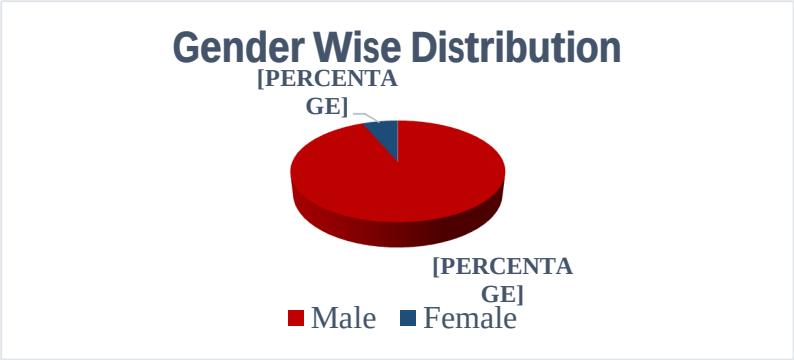


Figure 2:Gender wise distribution

C. Employment Wise Distribution

Among 62 patients, 40(65%) were strenuous workers like farmers, heavy weight lifters and 22(35%) were sedentary workers like teachers, business man and bank employee. In our study strenuous workers were more suffered with inguinal hernia than sedentary workers was described in table 1 and figure 3.

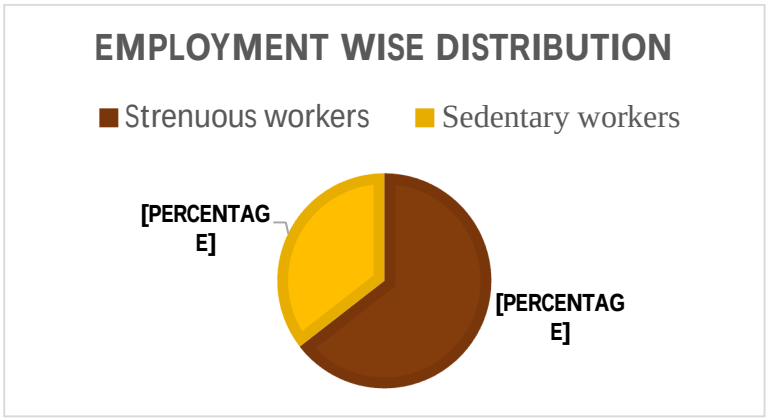


Figure 3: Employment wise distribution

D. BMI Wise Distribution

Among 62 patients, majority were having overweight 26(42%), followed by normal weight 25(40.3%), 8(12.9%) were obese and 3(4.8%) were underweight. In this study half of the patients had over weight was described in table 1 and figure 4.

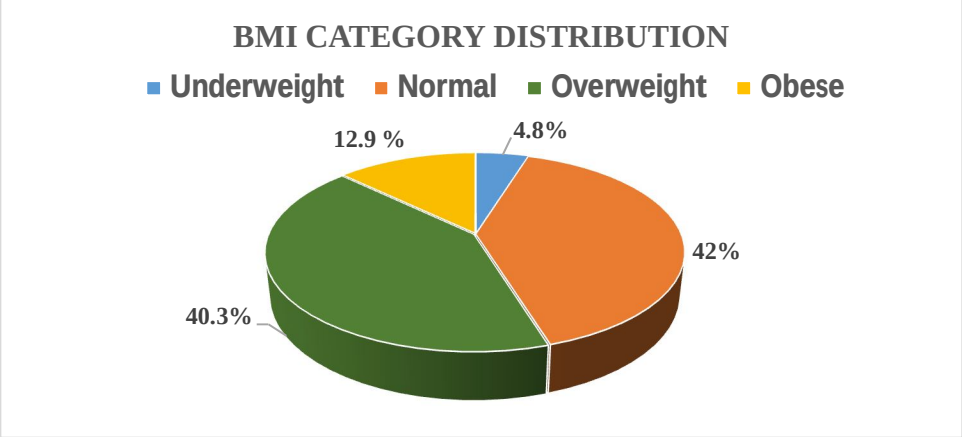


Figure 4: BMI categorization

IV. RISK FACTOR/PAST MEDICATION HISTORY

Among 62 patients, majority were having chronic constipation 10(16.1%) followed by COPD 9(14.5), BPH 8(13%), DM 8(13%),Smoking 7(11.2%), HTN 6(9.7), Alcoholism 5(8.1%), CKD 2(3.2%) and 7 (11.2%) without having any kind of risk factors and past medication history was described in table 2 and figure 5.

Table 2: Risk factor/ Past medication history categorization

	Variables	Frequency	Percentage
Risk factors/ Past medication History	Htn	6	9.7%
	Ckd	2	3.2%
	Bph	8	13%
	Dm	8	13%
	Copd	9	14.5%
	Chronic Constipation	10	16.1%
	Smoking	7	11.2%
	Alcoholism	5	8.1%
	Nil	7	11.2%

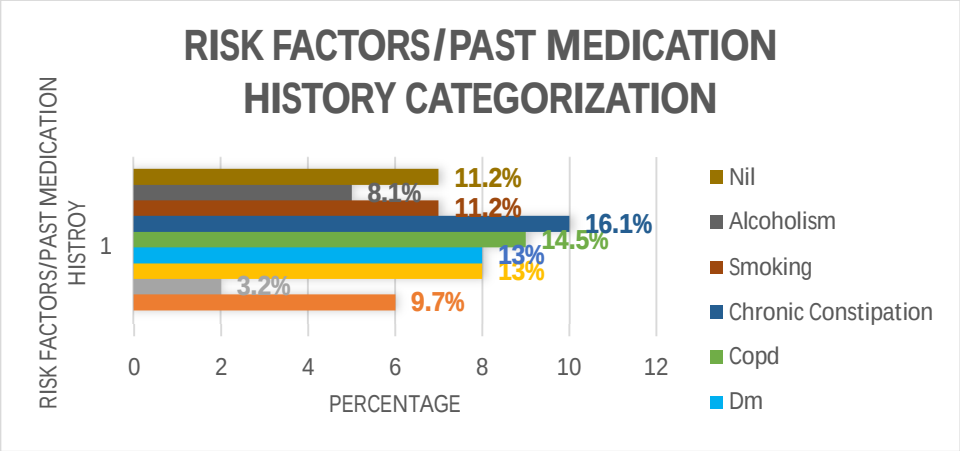


Figure 6: Risk factors/ Past medication history categorization

V. CATEGORISATION OF CLINICAL PRESENTATION OF INGUINAL HERNIA

Among the participants, majority were presented with right inguinal hernia 24(38.7%) followed by left inguinal hernia 22(35.5%) and bilateral hernia 16(25.8%) and majority of participants were having reducible hernia 32(35.5%) followed by irreducible hernia 18(29.0%),incarcerated hernia 8(13%) and least number of participants had strangulated hernia 4(6.4%). 44 (71%) of patients had primary hernia while 18(29%) were having recurrent hernia was described in table 3.

Table 3: Clinical presentation of inguinal hernia

Clinical Presentation data	Variables	Frequency	Percentage
Position of Hernia	Left	22	35.5%
	Right	24	38.7%
	Bilateral	16	25.8%
Type of Hernia	Reducible	32	35.5%
	Incarcerated	8	13%
	Irreducible	18	29.0%
	Strangulated	4	6.4%
Classification based on recurrence	Primary Hernia	44	71%
	Recurrent Hernia	18	29%

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VI. POST OPERATIVE COMPLICATION OF INGUINAL HERNIA

Among 62 participants, majority of patients did not develop any postoperative complication whereas 16(25.8%) patients developed post-operative complication, hematoma 6(9.7%) and wound infection 6(9.7%) was the main post-operative complication, least number of participants developed with wound site pain 2(3.2%), scrotal swelling 1 (1.6%) and Orchitis 1(1.6%) was described in table 4 and figure 6.

Table 4: Post-operative complication of inguinal hernia repair

	Variables	Frequency	Percentage
Post-operative complication of Hernioplasty	Hematoma	6	9.7%
	Wound Infection	6	9.7%
	Wound site pain	2	3.2%
	Scrotal Swelling	1	1.6%
	Orchitis	1	1.6%
	Nil	46	74.2%

VII. DISSCUSSION

Inguinal hernias are prevalent surgical issue, although they can be devastating. The prevalence of inguinal hernia increase with age. In our study, majority of patients belongs to age group 40-59 years were the most commonly affected. This result was similar to the study conducted byBalamaddaiah G et al[13].,the study revealed that, the most common affected age group was 46-60 years followed by 30-45 years.

A total of 62 patients were included in this study.Inguinal hernia affects men more frequently than women. Among them (94%) were males and (4%) were females. Gender showed significant differences, with males patients were outnumbered than the females. This result was similar to the study conducted by A. Z. Khalaf et al[14] .,the study revealed that majority of patients were male, which may be due to the abdominal wall's intrinsic weakness where the spermatic cord crosses through the inguinal canal.

The study reveals that strenuous worker are most commonly affected by inguinal hernia than sedentary workers the study was similar to the study conducted byBalamaddaiah G et al[13]showed the most common cause for the presence of hernia was lifting heavy objects i.e. strenuous workers are more likely to have hernia than sedentary workers.

The present study depicted to the BMI distribution of the patients revealed that majority of them were havingoverweight (42%) followed by normal weight (40.3%), obese (12.9%) and underweight (4.8%).The study was unlike to the study conducted by Sundar et.al.,[15] the study revealed that majority of population belongs to BMI group 18.5-22.9 kg/m2 and lowest in ≥30 kg/m2 .The prevalence of inguinal decreased as the BMI category increased and vice versa

The study observed that chronic constipation was most common risk factors (16.1%), followed byCOPD 9(14.5), BPH 8(13%), DM 8(13%),Smoking 7(11.2%), HTN 6(9.7), Alcoholism 5(8.1%), CKD 2(3.2%) and 7 (11.2%) without having any kind of risk factors and past medication history, The study was dissimilar to the study conducted bySundar et al.,[15] the study revealed that most Common risk factors responsible for the inguinal hernia were: smoking ,chronic cough ,heavy work and COPD

While assessing the clinical presentation of inguinal hernia, Among the participants, majority were presented with right inguinal hernia 24(38.7%) followed by left inguinal hernia 22(35.5%) and bilateral hernia 16(25.8%), the study was similar to the study conducted by Gulzar MR et.al.,[16] the study revealed that majority patient had right-sided hernia, fewer had left-side hernia, while bilateral hernia was the least common. Majority of participants were having reducible hernia 32(35.5%) followed by irreducible hernia 18(29.0%), incarcerated hernia 8(13%) and least number of participants had strangulated hernia 4(6.4%). 44 (71%) of patients had primary hernia while 18(29%) were having recurrent hernia.

The study observed that majority of patients did not develop any postoperative complication whereas 16(25.8%) patients developed post-operative complication, hematoma 6(9.7%) and wound infection 6(9.7%) was the main post-operative complication, least number of participants developed with wound site pain 2(3.2%), scrotal swelling 1 (1.6%) and Orchitis 1(1.6%),the study was similar Chan Yong Park, et al.,[17]the study revealed that most commonpost-operative complication, was hematoma and wound infection.

VIII. CONCLUSION

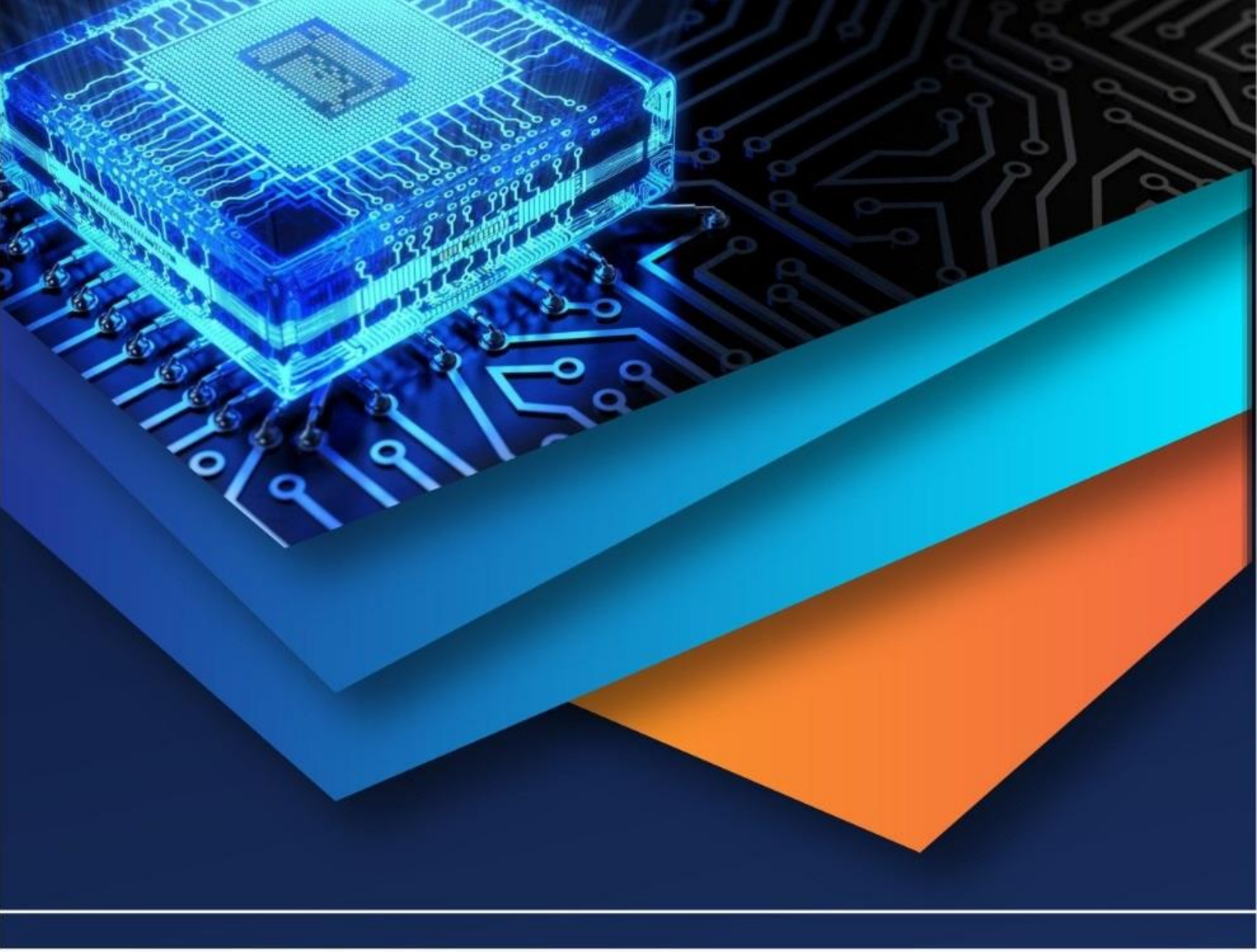
A complete physical examination and history are used to diagnose the majority of inguinal hernias. The socio –demographic result obtained from this study shows that 41-59 years old male overweight and strenuous working patients are most predominantly affected by inguinal hernia.

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The most common clinical characteristics such as chronic constipation, right position, reducible and primary hernia. The majority of the patients have no post-operative complication of hernioplasty. The most important risk factors such as overweight and heavy weight lifting increases the strain and pressure on the abdominal muscles and make them weaker and prone to developing hernias.

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