



PREVALENCE AND RISK FACTORS OF INGUINAL HERNIA: A STUDY IN BUNDELKHAND AREA, SAGAR, MADHYA PRADESH, INDIA

Surgery

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ABSTRACT

Background: The protrusion from the abdominal cavity through the inguinal canal is called inguinal hernia. Although several hypothesis regarding the etiology of inguinal hernia have been proposed, large-scale data on the occurrence of inguinal hernia may provide further understanding to the pathophysiology of inguinal hernia development. This study was conducted with the intention of identifying the various types of inguinal hernia observed in our area as well as their risk factors.

Methods: All the study subjects had come to the hospital with complaints of groin swelling with or without pain. The patient was palpated at each groin to observe if there was a visible and clearly palpable hernia, a palpable impulse or a previous operational scar. Details of the hernia, such as the type of hernia, primary or recurrent were also noted.

Results: Out of the 265 patients, 87.92% patients were males and 12.08% were females and the commonest age group was 31-60 years. 80% of the cases were primary inguinal hernia while 20% were recurrent hernia. Period of swelling was less than one year for majority of the patients, while the least of them had swelling for more than 2 years. The most common cause for the presence of hernia was lifting heavy objects in 60% and improper bowel movements 40%.

KEYWORDS

INTRODUCTION

A hernia occurs when an organ of the body pushes itself through an opening in the muscle or tissue that is supposed to hold it in place. This type of hernia is most common in the abdominal region. This opening or orifice is a defect in the innermost layer of the abdomen and hernia is outpouch of the peritoneum. Abdominal wall hernias only occur in certain areas namely, where aponeurosis and fascia are devoid of the protecting support of striated muscle. These may be acquired through muscular atrophy, surgery or trauma. Therefore the common sites of hernia include the groin, umbilicus and the linea alba.¹ The protrusion from the abdominal cavity through the inguinal canal is called inguinal hernia. This is the most common type of hernia and affects chiefly men.² It is often said to be associated with ageing and repeated strain to the abdominal muscles. The prevalence of the abdominal wall hernia is estimated to be 1.7% for all ages and 4% of those who are over 45 years of age. The inguinal hernias account for 75% of the abdominal hernias with a life time risk of 27% in males and 3% in the females.³

In International and US surveys conducted 20 or more years ago, the prevalence of non-surgically-treated inguinal hernia among men was 5-7 percent and a similar number of men had a history of hernia repair.⁴ Ninety Five percent of patients presenting to primary care are Male, and in men the incidence rises from 11 per 10,000 person years aged 16-24 years to 200 per 10,000 person years aged 75 years or above.⁵

The well known risk factors and causes of inguinal hernias have been reported as increased abdominal pressure, pre-existing weakness of abdominal muscles, straining during defaecation, heavy lifting of weights, obesity, pregnancy etc. Although several hypothesis regarding the etiology of inguinal hernia have been proposed, large-scale data on the occurrence of inguinal hernia may provide further understanding to the pathophysiology of inguinal hernia development.⁶

This study was conducted with the intention of identifying the various types of inguinal hernia observed in our area as well as their risk factors.

METHODS

This study was conducted as an observational study at Bundelkhand Medical College on 265 adults who had come to the surgery outpatient department for inguinal hernia repair or recurrence from July 2018 to August 2019.

All the study subjects had come to hospital with complaints of groin swelling with or without pain. After obtaining informed consent from all the participants, demographic details were taken by means of a questionnaire, which included the patients identity, family history, life style habits, nature of job, duration of swelling, cough constipation and comorbidities.

A thorough clinical examination was performed by the surgeon and the nature of the examination, privacy and confidentiality was explained to the patient. Details of the hernia, such as type of hernia, primary or recurrent, time gap between present and the primary operation, nature of mesh used, time of recurrence and nature of the final repair were also noted.

The patient was palpated at each groin to observe if there was a visible and clearly palpable hernia, a palpable impulse or a previous operational scar. Clearly visible hernias were identified by a visible lump. If its neck was continuous with the inguinal canal or directed backwards into the abdomen, it was diagnosed as palpable hernia. If there was no visible lump, the scrotum was invaginated by the little finger to reach the external ring, and the subject was asked to cough, in order to determine whether there was a palpable impulse. Scarring at the site was taken as recurrence of hernia.

RESULTS

Out of 265 patients, 233(87.92%) patients were males and 32(12.08%) were females. 25.28 % of the patients were aged between 46-60 years, which was the commonest age group, followed by 31-45 years with 65(24.52%) of the patients (Table 1).

Table 1: Age wise Distribution of the Patients

Age	Number	Percentage
<15	33	12.45
16-30	44	16.60
31-45	65	24.52
46-60	67	25.28
61-75	50	18.86
> 75	6	2.26

212 (80%) of the cases were primary inguinal hernia while 53 (20%) were recurrent hernia (Figure 1).

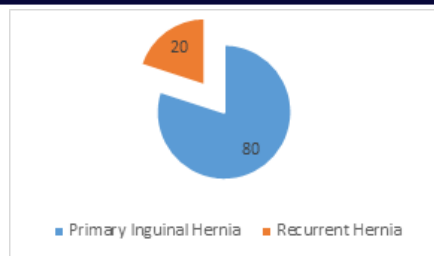


Figure 1: Type of hernia

Period of swelling was less than 1 year for majority of the patients, while the least of them had swelling for more than 2 years (Table 2).

Table 2: Period of Swelling.

Period of Swelling	Number	Percentage
< 1 Year	186	70.18
1-2 Years	60	22.64
> 2 Years	19	7.16

Primary inguinal hernia was seen in 122 of the males, which accounted for 57.54% of the primary hernias diagnosed, while in females, the incidence of primary hernias was 90 (42.46%). Recurrent hernias were seen in 40 males accounting for 15.10% of the recurrent cases while it was 4.90% in females (Table 3).

The most common side where the hernia was observed was on the right side with 125 cases (47.17%) followed by the left side with 88 patients (33.20%). 52 (19.63%) patients had inguinal hernia on both the sides (bilateral) [Figure2].

Table 3: Prevalence of Primary and Recurrent Hernia among Men and Women.

Sex	Primary Hernia (%)	Recurrent Hernia (%)	Total (%)
Males	122(46.04)	40(15.10)	61.14
Females	90(33.96)	13(4.90)	38.86
Total	212(80)	53(20)	100

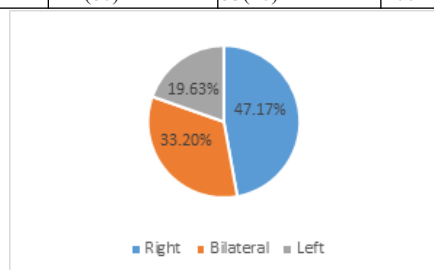


Figure 2: Side Of Hernia.

The most common cause for the presence of hernia was lifting heavy objects in 159 (60%) and improper bowel movements, largely which was constipation, seen in 98 (36.98%) of the patients. 62 (23.39%) had diabetes and 80 (30.18%) had Chronic Obstructive Pulmonary Disease. 76 (28.67%) of the patients were alcoholics and 70(26.41%) of them were smokers (Table4).

Table 4: Risk factors for Inguinal Hernia.

Risk Factors	Number	Percentage
Family History	27	10.18
Smoking	70	26.41
Alcoholism	76	28.67
Lifting Heavy Objects	159	60
COPD	80	30.18
Bowel Disturbances	98	36.98
Old Age (>60 Years)	58	21.88
Ascitis	23	8.67
Diabetes	62	23.39
Benign Hypertrophy of Prostate	12	4.52
Urethral Strictures	30	11.32
Unknown	8	3.01

DISCUSSION

A hernia occurs when an internal part of the body pushes through a weakness in the muscle or surrounding tissue wall. In many cases, hernias cause no or very few symptoms, although you may notice a swelling or lump in your tummy (abdomen) or groin. The lump can often be pushed back in, or will disappear when you lie down. Coughing or straining may make the lump appear. Hernia is considered a complication of PD. The pathophysiology is based on the concept of increased abdominal pressure (mechanical effect) affecting a weak abdominal wall.⁷

In the present study, the most common affected age group was 46-60 years followed by 30-45 years. This was in concordance with a study by Balram et al, wherein, 42-50 years age group was the most common age group in Jalaun, Uttar Pradesh.⁸ This was similar to other studies such as Sayanna et al and Basu et al.^{9,10} A much younger age group was shown to have more prevalence of hernia in a study by Kumar et al, 20-49 age group seemed to have almost 0% of the burden. Hernia was seen to be less common among the young and the elderly was observed in some other studies.¹¹

In present study, primary hernia was more common than recurrent hernia. Both primary and recurrent hernia was more common in males than in females. The preponderance of males to females was also seen in other studies such as Balram et al, Sayanna et al, Gulzar et al and Ruhl et al.^{8,9,12,13} This preponderance of hernia in males was attributed to the fact that here was involvement of more strenuous exercises and lifting of weights by them and the anatomical differences between the two.⁴

Most of the patients (70.18%) had swelling for less than a year before they came to the OPD. This was in accordance to a study by Kumar et al wherein 68% of the patients had swelling for less than 1 year.⁶ This is because most of the patients do not seek medical attention till the pain or discomforts limits their daily activity. In most of the cases, the hernia is reducible i.e. pushed back into the abdomen when lying down or putting pressure on it. In some cases irreducible hernia occur which cause complications such as obstruction, incarceration and strangulation.

47.17% of the patients had right side hernia followed by left. Bilateral hernia was seen in least number of patients. Similar was the case in the study by Balram et al where the right side hernia was the commonest. 6.9% of the patient in his study showed bilateral hernia.⁸ Other workers also reported similar results.¹⁴⁻¹⁶ This dominance was similar in both the genders equally. The cause for the right side predominance was said to be due to late fall down of the testis and more frequent failure of closure of right processus vaginalis.^{17,18}

The main risk factor in present study was lifting of heavy weights (60%) followed by bowel disturbance which accounted for 40% of the cases. Smoking and diabetes were other common reasons for hernia. Hernia due to heavy object lifting was common in a similar study by Kumar R et al, 48.8% had hernia due to lifting heavy objects, with smoking habits and chronic cough being the other common risk factors. The occupation of many of the men was farming, hauling construction, lifting weights at the factory etc. These factors increase the abdominal pressure during cough or straining, which further increase the risk of inguinal hernia. A study in USA reported that inguinal hernia was associated with older age, obesity, greater height, chronic cough or rural residence.¹⁹

Family history was another important factor contributing to occurrence of hernia in patients. This was concurred by others such as Lau et al and Junge et al, who also predicted hernia if a family member previously had it.^{20,21}

Diet, diseases and personal habits of the patients are known to affect and cause recurrence of inguinal hernia.²²

CONCLUSION

The study shows a predominance of males over females in the middle age group in the incidence of primary and recurrent inguinal hernia. Right side occurrence is more common and the main risk factors are straining or lifting heavy objects and irregular bowel movements.

These type of studies need to be conducted in every geographical area so that it can be helpful for future studies in prediction of the

prevalence of inguinal hernias.

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