# **Original Research Article**

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# A study of burden and risk factors of inguinal hernia from Western Uttar Pradesh, India

Veerabhadrappa P. S.<sup>1</sup>, Abhishek Singh<sup>2</sup>\*, Shewtank Goel<sup>3</sup>

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# \*Correspondence: Dr. Abhishek Singh,

E-mail: abhishekparleg@gmail.com

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## **ABSTRACT**

**Background:** Hernias pose a tremendous economic and physical burden to the patients. The well known risk factors and causes of the inguinal hernias have been reported as increased abdominal pressure, pre-existing weakness of abdominal muscles, straining during defecation, heavy lighting of weights, obesity, pregnancy etc. The objective of this study was to find out burden of various types of inguinal hernia observed in the region of western Uttar Pradesh as well as risk factors associated with them.

**Methods:** This retrospective study was executed by Department of General Surgery, FH Medical College, Tundla. A retrospective cohort of patients who had come to the hospital with complaints of groin swelling with or without pain and took treatment during August 2015 to September 2016 formed the study population. Data of 98 patients, who had come to the surgery outpatient department for inguinal hernia repair or recurrence from, were included in this study.

**Results:** 36.7% patients were aged between 46-60 years, which was the commonest age group, followed by 31-45 years with 28.6% of the patients. 79.6% of the cases were primary inguinal hernia while remaining 20 cases (20.4%) were recurrent hernia. Duration of swelling was less than one year for majority of the patients (57%), while the least of them had swelling for more than 2 years (10%). The common risk factors responsible for the presence of hernia among these patients were lifting heavy objects in 48 (48.9%) and constipation, seen in 47 (47.9%) of the patients. 42 (42.8%) had chronic obstructive pulmonary disease whereas 30 (30.6%) had diabetes. 35 (35.7%) of the patients were alcoholics and 32 (32.6%) of them were smokers.

**Conclusions:** This study highlights burden of various types of inguinal hernia observed in the region of western Uttar Pradesh as well as risk factors associated with them. This information can be of great importance of surgeons managing such cases in this area.

Keywords: Epidemiological study, Rural, Uttar Pradesh, Hernia

# INTRODUCTION

An Inguinal hernia is a protrusion of abdominal cavity and its contents through the inguinal canal. It is very common in men with lifetime risk of 27% and 3% for women.<sup>1</sup> Inguinal hernia repair is a commonly performed general surgery procedure in both adults and children with inguinal hernias constituting more than 95% of all groin hernia repairs.<sup>2</sup> Inguinal hernias can either be congenital or acquired.

<sup>&</sup>lt;sup>1</sup>Department of General Surgery, FH Medical College, NH-2, Tundla, Uttar Pradesh, India

<sup>&</sup>lt;sup>2</sup>Department Community Medicine, SHKM Govt. Medical College, Mewat, Haryana, India

<sup>&</sup>lt;sup>3</sup>Department of Microbiology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India

Inguinal hernias, both primary and recurrent, are one of the most commonly encountered surgical problems in the out patients' department.<sup>3</sup> So a study of inguinal hernias in different categories of patients is deemed relevant in context of serious magnitude of the problem in our country. Hernias pose a tremendous economic and physical burden to the patients.<sup>4</sup>

The well known risk factors and causes of the inguinal hernias have been reported as increased abdominal pressure, pre-existing weakness of abdominal muscles, straining during defecation, heavy lighting of weights, obesity, pregnancy etc.<sup>5</sup> Although several hypotheses 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.<sup>6</sup> Thus this study was planned to find out the burden of various types of inguinal hernia observed in the region of western Uttar Pradesh as well as risk factors associated with them.

#### **METHODS**

This retrospective study was planned and executed by Department of General Surgery, FH Medical College, Tundla. A retrospective cohort of patients who had come to the hospital with complaints of groin swelling with or without pain and took treatment during August 2015 to September 2016 formed the study population. Data of 98 patients, who had come to the surgery outpatient department for inguinal hernia repair or recurrence from, were included in this study.

Patient's records served as study tools. Medical records department (MRD) was approached and data was collected on all patients who received surgical treatment for inguinal hernia repair or recurrence from during the study period. The relevant data were recorded from medical records, bedside flow sheets, radiographic reports, and other lab reports of these patients.

Demographic details were taken by means of a questionnaire, which included the patient's identity, family history, life style habits, nature of job, and duration of swelling, cough, constipation and comorbidities. Details of the hernia, such as the 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 study adhered to the tenets of the declaration of Helsinki for research in humans. Permission of institutional ethics committee (IEC) was sought before the commencement of the study. All the questionnaires along with other relevant data were manually checked and were then coded for computer entry. After compilation of the collected data, analysis was done using statistical package for social sciences (SPSS), version 20 (IBM, Chicago, USA). The results were expressed using appropriate statistical methods.

#### **RESULTS**

During the study period 98 patients were diagnosed as having hernia. Out of total, 36 (36.7%) patients were aged between 46-60 years, which was the commonest age group, followed by 31-45 years with 28 (28.6%) of the patients (Table 1).

Table 1: Age group wise distribution of the patients (n = 98).

Age groups (years)	Frequency	Percentage
18-30 years	5	5.1%
31-45 years	28	28.6%
46-60 years	36	36.7%
61-75 years	17	17.3%
>75 years	12	12.3%

Out of total 98 patients, 78 (79.6%) of the cases were primary inguinal hernia while remaining 20 cases (20.4%) were recurrent hernia (Figure 1).

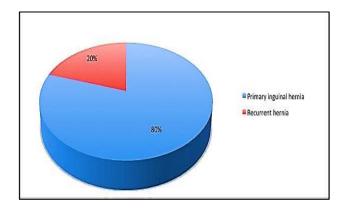


Figure 1: Types of hernia at the time of presentation.

Regarding period of swelling, duration of swelling was less than one year for majority of the patients (57%), while the least of them had swelling for more than 2 years (10%) (Table 2).

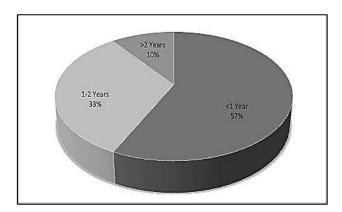


Figure 2: Distribution of patients according to duration of swelling.

The common risk factors responsible for the presence of hernia among these patients were lifting heavy objects in 48 (48.9%) and constipation, seen in 47 (47.9%) of the patients. 42 (42.8%) had chronic Obstructive Pulmonary Disease whereas 30 (30.6%) had diabetes. 35 (35.7%) of the patients were alcoholics and 32 (32.6%) of them were smokers (Table 2).

Table 2: Risk factors for inguinal hernia among study subjects (n = 98).

Risk factors*	Number	Percentage
Lifting heavy objects	48	48.9%
Constipation	47	47.9%
COPD	42	42.8%
Alcoholism	35	35.7%
Smoking	32	32.6%
Diabetes	30	30.6%
Family history	22	22.4%
Urethral strictures	20	20.4%
Ascitis	10	10.2%
Benign hypertrophy of prostate	8	8.1%

<sup>\*</sup>Multiple responses permitted.

## **DISCUSSION**

Data of 98 patients, who had come to the surgery outpatient department for inguinal hernia repair or recurrence from, were included in this study. Regarding the age groups, we observed that 46-60 years was the commonest age group (36.7% patients), followed by 31-45 years with 28.6% of the patients for hernia.

Bimodal peaking among the young and the elderly was observed by others. A much younger age group was shown to have more prevalence of hernia in a study by Kumar BRK et al, 20-49 age group seemed to have almost 0% of the burden in his hospital based study. Hernia was seen to be less common among the adolescents. Findings of Sayanna et al were in concordance with our observations.

In this study, 79.6% of the cases were primary inguinal hernia while remaining 20.4% were cases of recurrent hernia. The preponderance of males to females was also seen in other studies such as Sayanna et al and Gulzar et al. 8,9 This dominance of hernia in males can be explained by the fact that here was involvement of more strenuous exercises and lifting of weights by them and the anatomical differences between the two.

We observed in this study that duration of swelling was less than one year for majority of the patients (57%), while the least of them had swelling for more than 2 years (10%). This was in agreement to a study by Kumar BRK et al wherein 68% of the patients had swelling for less than 1 year. It could be due to the fact that 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 few cases irreducible hernia occur which cause complications such as obstruction, incarceration and strangulation.

In this study common risk factors for hernia among these patients were observed as lifting heavy objects in 48.9% cases and constipation, seen in 47.9% of the patients. 42 (42.8%) had chronic obstructive pulmonary disease whereas 30 (30.6%) had diabetes. 35 (35.7%) of the patients were alcoholics and 32 (32.6%) of them were smokers. The risk factors observed in this study were comparable to the study done in USA which indicated that the inguinal hernia was associated with older age, obesity, greater height, chronic cough, rural residence. This was supported by many other studies like Lau H et al and Junge K et al, which showed that family history is an important predictor for development of inguinal hernias and as well as recurrent hernia. 3,10 The other risk factors suggested were hypertension and diabetes were present in approximately 11% and 5% cases respectively while chronic cough, chronic constipation, chronic diabetes and prostatic hypertrophy. 11,12

# **CONCLUSION**

This study generated data on burden of various types of inguinal hernia observed in the region of western Uttar Pradesh as well as risk factors associated with them. This information can be of great importance of surgeons managing such cases in this area. Prospective studies with bigger sample size are warranted to validate the findings.

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Ethical approval: The study was approved by the

institutional ethics committee

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