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Original Research Article

Postoperative chronic groin pain after open inguinal hernioplasty – a hospital-based assessment of prevalence and severity

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ABSTRACT

Background: Chronic postoperative inguinal pain, or inguinodynia, is an important long-term complication following inguinal hernia repair and may adversely affect daily activities and quality of life. This study assessed its prevalence and severity following open inguinal hernioplasty.
Methods: A prospective observational study was conducted among adult patients undergoing open inguinal hernioplasty at King George Hospital, Visakhapatnam, during 2025-2026. A total of 164 patients were included by consecutive sampling. Demographic and clinical data were collected through medical records and postoperative follow-up interviews. Chronic inguinal pain and pain intensity were assessed using the visual analogue scale.
Results: Among 164 patients, males constituted 85.4% and females 14.6%. The most common age group was 45-54 years (29.9%). Chronic postoperative inguinal pain was reported in 28 patients, giving a prevalence of 17.1%. Among patients with inguinodynia, moderate pain was most frequently reported (42.9%), followed by mild pain (32.1%), severe pain (14.3%), and very severe pain (10.7%). NSAID use was reported by 21 patients (12.8%).
Conclusions: Chronic postoperative inguinal pain occurred in 17.1% of patients following open inguinal hernioplasty. Most symptomatic patients experienced mild to moderate pain, although severe pain occurred in a smaller proportion. Structured postoperative surveillance may facilitate early recognition and appropriate management of persistent inguinodynia.

Keywords: Inguinal hernia, Hernioplasty, Chronic postoperative pain, Inguinodynia, Visual analogue scale

INTRODUCTION

Inguinal hernia repair is among the most commonly performed surgical procedures worldwide, with more than 20 million operations carried out each year. Although recurrence was traditionally regarded as the principal concern following hernia repair, the increasing use of mesh-based techniques has shifted attention toward chronic postoperative inguinal pain as an important long-term complication.[5] Inguinodynia is characterized by persistent pain in the groin following hernia surgery and may remain symptomatic for several months or, in some patients, for years after the procedure.[2,4]

The reported prevalence of chronic postoperative inguinal pain varies considerably, ranging from 10% to 30%, depending on the operative technique used, duration of postoperative follow-up and the diagnostic criteria applied across different studies.[1,4,5] Beyond the presence of pain itself, chronic postoperative inguinal pain can have a substantial effect on patients' quality of life, with potential

consequences for routine daily activities, work performance and social functioning.[2,3]

Clinical studies have demonstrated that the severity of chronic postoperative inguinal pain is variable. While a considerable proportion of patients experience relatively mild symptoms, some develop persistent and severe pain that may require specialized and multidisciplinary management.[3,4] The mechanisms responsible for chronic postoperative inguinal pain are complex and multifactorial. Direct injury to the nerves during surgical dissection, entrapment of nerves by sutures or mesh, subsequent fibrosis and chronic inflammatory responses have all been implicated in its development. The ilioinguinal, iliohypogastric and genitofemoral nerves are particularly relevant because of their anatomical relationship with the operative field.[2-5]

Despite growing recognition of chronic postoperative inguinal pain as an important outcome following hernia repair, relatively limited data are available regarding its prevalence and clinical characteristics in tertiary care hospitals in India. King George Hospital, Visakhapatnam, Andhra Pradesh, is a major tertiary care centre providing surgical care to a large patient population. Assessment of chronic postoperative inguinal pain in this setting may therefore provide useful information regarding the burden and clinical presentation of this complication.

Hence, the present study was undertaken to determine the prevalence and clinical characteristics of chronic postoperative inguinal pain among patients undergoing open inguinal hernioplasty at King George Hospital, Visakhapatnam, Andhra Pradesh, India.

METHODS

A prospective observational study was conducted in the Department of General Surgery at King George Hospital, Visakhapatnam, Andhra Pradesh, India.

Adult patients aged 18 years and above who underwent open inguinal hernioplasty between 2025-2026 were considered for inclusion in the study.

Inclusion criteria

Male or female patients aged ≥18 years who underwent open inguinal hernia repair and had complete clinical records were included in the study.

Exclusion criteria

Patients who developed intraoperative complications, had incomplete clinical records, or were unable to complete the postoperative follow-up interview were excluded from the study.

A total of 164 patients were included in the study using consecutive sampling.

Data collection

Information was collected by reviewing the patients' medical records and conducting postoperative follow-up interviews, either in person or by telephone. Relevant demographic and clinical details were recorded using a standardized data collection format.

Variables analyzed

The variables assessed included age, sex, body mass index, presence or absence of chronic postoperative inguinal pain, intensity of inguinal pain assessed using the visual analogue scale, and use of non-steroidal anti-inflammatory drugs.

Descriptive statistical methods were used for analysis of the study data.

RESULTS

A total of 164 patients were included in the study. The most frequently represented age group was 45-54 years, comprising 29.9% of the study population, followed by the 35-44 years age group, which accounted for 25.6%. Patients aged ≥55 years constituted 24.4%, while those aged 26-34 years and 18-25 years accounted for 14.6% and 5.5%, respectively. Male patients constituted the majority of the study population, accounting for 85.4%, whereas female patients represented 14.6%.

Regarding body mass index, half of the study participants (50.0%) had a BMI of 18.5-24.9 kg/m². Patients with BMI of 25-29.9 kg/m² constituted 25.6%, followed by those with BMI of 30-34.9 kg/m² (11.6%), BMI ≥35 kg/m² (7.3%), and BMI <18.5 kg/m² (5.5%).

The prevalence of chronic postoperative inguinal pain was 17.1% (28/164), while 82.9% (136/164) of patients did not report inguinodynia. The demographic and clinical characteristics of the study population are summarized in Table 1.

Among the 28 patients who developed chronic postoperative inguinal pain, moderate pain was the most frequently reported severity, accounting for 42.9% of symptomatic patients, followed by mild pain in 32.1%. Severe pain was reported by 14.3% of patients, while very severe pain was observed in 10.7%.

The distribution of pain intensity among patients with inguinodynia is presented in Table 2.

Regarding the use of non-steroidal anti-inflammatory drugs, 21 patients (12.8%) reported NSAID use, whereas 143 patients (87.2%) did not report NSAID use.

The distribution of NSAID use among the study participants is shown in Table 3.

Table 1: Baseline characteristics and prevalence of inguinodynia in patients undergoing open inguinal hernioplasty (n=164).

Variables	N	%
Age group (in years)		
18-25	9	5.5
26-34	24	14.6
35-44	42	25.6
45-54	49	29.9
≥55	40	24.4
Sex		
Male	140	85.4
Female	24	14.6
Body mass index (kg/m²)		
<18.5	9	5.5
18.5-24.9	82	50.0
25-29.9	42	25.6
30-34.9	19	11.6
≥35	12	7.3
Presence of inguinodynia		
Yes	28	17.1
No	136	82.9

Table 2: Pain intensity among patients with chronic postoperative inguinal pain (n=28).

Pain intensity	N	%
Mild	9	32.1
Moderate	12	42.9
Severe	4	14.3
Very severe	3	10.7

Table 3: Use of non-steroidal anti-inflammatory drugs among study participants (n=164).

NSAID use	N	%
Yes	21	12.8
No	143	87.2

DISCUSSION

Chronic postoperative inguinal pain remains one of the most clinically important complications following inguinal hernia repair because of its potential to adversely affect quality of life and functional status.[6,7] In the present study, the prevalence of chronic postoperative inguinal pain was 17.1%, corresponding to approximately one in six patients undergoing open inguinal hernioplasty. This prevalence is comparable with the rates reported in previous studies of chronic postoperative inguinal pain following inguinal hernia repair.[6,7] A systematic review by Reinpold reported chronic postoperative inguinal pain in approximately 18% of patients following open inguinal hernia repair, while clinically significant pain affecting daily activities was reported in approximately 10-12% of patients.[7] Similarly, a recent systematic review and meta-analysis involving 29,466 patients reported a pooled incidence of chronic pain of 17.01%, which is very close to the prevalence observed in the present study.[8] Differences between individual studies may be related to variations in sample size, patient characteristics, surgical technique, duration of postoperative follow-up and methods used for assessment and definition of chronic pain.[6-8]

With regard to demographic characteristics, males constituted the majority of patients in the present study (85.4%), reflecting the well-established predominance of inguinal hernias among men.[6] The most frequently represented age group in our cohort was 45-54 years, followed by 35-44 years. This distribution is consistent with the occurrence of inguinal hernia repair predominantly among middle-aged and older adults. Previous evidence has demonstrated that younger age may be associated with a higher risk of chronic postoperative inguinal pain, although the relationship between demographic characteristics and chronic pain may vary between individual patient populations.[7,8]

Regarding the severity of postoperative pain, moderate pain was the most commonly reported symptom among patients with inguinodynia, followed by mild pain. Severe and very severe pain were observed in a smaller proportion of symptomatic patients. These findings are in agreement with previous observations that, although chronic postoperative pain occurs relatively frequently following hernia repair, severe disabling pain affects a smaller subset of patients.[6,7] A systematic review of chronic pain following mesh-based inguinal hernia repair reported that more than one quarter of patients with chronic pain experienced moderate to severe symptoms, with neuropathic mechanisms accounting for a substantial proportion of cases.[9] The clinical severity of chronic postoperative pain is important because persistent symptoms may interfere with normal activities and occupational functioning.[7]

The development of chronic postoperative inguinal pain is considered multifactorial. Factors associated with an increased risk include younger age, female sex, greater preoperative and early postoperative pain, recurrent hernia and open repair technique.[7] A prospective cohort study of patients undergoing open mesh-based inguinal hernia repair also identified recurrence, postoperative complications, mesh characteristics, higher preoperative pain and age as factors associated with chronic postoperative pain.[10] These findings emphasize the importance of careful operative technique, adequate knowledge of inguinal nerve anatomy and appropriate postoperative assessment in reducing the burden of chronic pain.[7,10]

In the present study, NSAID use was reported by 12.8% of participants. This finding indicates that only a minority of the study population reported use of non-steroidal anti-inflammatory drugs. Nevertheless, the presence of severe and very severe pain in a subset of patients emphasizes the

importance of structured postoperative surveillance. Earlier recognition of persistent postoperative inguinal pain allows appropriate clinical assessment and timely initiation of treatment. Current evidence recommends an individualized approach incorporating pharmacological and other nonsurgical measures, with referral to multidisciplinary teams for patients with persistent or difficult-to-manage symptoms.[11,12]

The management of chronic postoperative inguinal pain may be challenging because of its multifactorial etiology and the potential contribution of neuropathic mechanisms. International recommendations emphasize careful identification and handling of the inguinal nerves during open hernia repair and support multidisciplinary management when chronic pain develops.[11,12] In patients who fail to respond adequately to conservative measures, selected interventional or surgical approaches may be considered.[12,13] Therefore, systematic postoperative assessment may help identify patients who require further evaluation and prevent prolonged functional impairment.

Limitations

The present study has several limitations. First, its single-centre design may limit the external validity of the findings. Second, the moderate sample size may reduce the precision of the prevalence estimate. Third, pain assessment was partially based on postoperative interviews, which may introduce recall bias. Despite these limitations, the study provides local epidemiological information regarding chronic postoperative inguinal pain in a tertiary care setting in India. Future multicentre studies involving larger patient populations and longer follow-up periods are warranted to better characterize risk factors associated with chronic postoperative inguinal pain and to evaluate strategies aimed at preventing this complication.

CONCLUSION

The prevalence of chronic postoperative inguinal pain after open inguinal hernioplasty in the present study was 17.1%. Most patients with inguinodynia experienced mild to moderate pain, although severe and very severe pain were identified in a smaller proportion of patients. Chronic postoperative inguinal pain therefore remains an important postoperative complication that warrants appropriate clinical attention. Standardized postoperative surveillance protocols may facilitate early recognition and timely management of persistent pain following inguinal hernia repair.

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