Original Research Article

# Correlation between the presence of Inguinal hernias and Lower urinary tract symptoms related to BPH

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## Abstract

**Background:**The co occurrence of lower urinary tract symptoms and inguinal hernia has been reported by some studies. This study was mainly undertaken to study the correlation of inguinal hernia with the lower urinary tract symptoms.**Material and Methods:**A retrospective study was undertaken in the department of Urology of a tertiary care institution in 60 patients. The lower urinary tract symptoms were quantified using 7 questions IPSS and the patients were divided as having mild, moderate and severe symptoms according to the IPSS scores. The details regarding age, prostate volume by ultrasonography and maximum flow rate were taken.**Results:**This study had shown that, there was no statistically significant difference in the severity of IPSSs. The statistical difference between severity of IPSSs was also not statistically significant between the BPH patients with direct and indirect hernia.**Conclusion:**The severity of IPSSs was not significantly different in patients with or without inguinal hernia.

**Keywords:** Benign prostatic hypertrophy, IPSS, Inguinal hernia, Maximum flow rate, intra abdominal pressure



## Introduction

Benign prostatic hyperplasia (BPH) in aged men results in lower urinary tract symptoms (LUTS). Main underlying etiologic factors for the LUTS include atherosclerosis, obesity and insulin resistance. BPH can also be due to aging on the nervous system and bladder, metabolic derangements, changes in fluid regulation, obstruction and autonomic over activity. The risk of BPH is 40% in the men aged 50 years and 90% in men aged 90 – 99 years[1,2].The lower urinary tracts symptoms can be due to mechanical obstruction of the ruine flow or bladder hypo –contractility. These pathophysiologic elements are often seen in elderly men either alone or in combination[3]. Inguinal hernia develops due to a number factors including obesity and work related physical activity. The urologic practice often encounters concurrent existence of lower urinary tract symptoms and BPH. The impairment of the smooth muscles of the bladder due to increase in age which may be due to impairment of smooth muscle function and neurovesical coordination[4].

The coexistence of inguinal hernia and BPH are often common in the urologic practice. A number of scoring systems are in existence in the literature available to assess the degree of symptom severity in LUTS. The International Prostate Symptom Score(IPSS) as adopted by WHO is a valid tool for objectively assessing the patient's symptoms,deciding the choice of treatment for LUTS and monitoring effects of any intervention procedure[3]. The patients with inguinal hernia have shown to have higher IPSS when compared to the patients without Inguinal hernia.

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**Material and Methods**

A retrospective study was undertaken in the department of Urology of a tertiary care institution. The patients with benign prostatic hyperplasia with or without inguinal hernia were included as study samples. A total of 60 patients satisfied the inclusion and exclusion criteria constituted the study sample. An informed consent was obtained from all the patients and clearance from institution ethics committee was obtained before including the patients into the study. The patients with diagnosed benign prostatic hyperplasia with or without inguinal hernia were included in to the study. The patients with history of inguinal hernia repair or prostatic surgery, BPH medication use, prostatic cancer, urinary tract infection or urethral stricture disease were excluded from the study.

The lower urinary tract symptoms were quantified using 7 questions IPSS and the patients were divided as having mild, moderate and severe symptoms according to the IPSS scores. The details regarding age, prostate volume by ultrasonography and maximum flow rate were taken. The data thus obtained was analyzed using Statistical Package for Social services (vs 20). The quantitative variables were presented as mean, SD, median and range. Chi square test was used for the categorical variables and a p value of less than 0.05 was considered as statistically significant.

**Results**

**Table 1:Basic statistics of the study group**

| | N | Mean ± SD | Median | Range |
|---|---|---|---|---|
| Age (in years) | 60 | 59.52 ± 7.37 | 60 | 46 – 78 |
| IPSS score | 60 | 20.45 ± 7.55 | 22 | 4 – 32 |
| $Q_{max}$ (ml/sec) | 60 | 8.44 ± 2.05 | 8.25 | 4.5 – 12.0 |
| Prostate volume (ml) | 60 | 50.87 ± 7.25 | 52 | 38.5 – 50.87 |

The mean age of the patients in this study was 59.52 years, mean IPSS scores were 20.45, maximum flow rate was 8.44 ml/sec and prostate volume was 50.87 ml in this study.

**Table 2:Comparison of patients with or without hernia**

| | Group | N | Mean ± SD | Median | Range |
|---|---|---|---|---|---|
| Age (in years) | BPH - IH | 33 | 59.1 ± 7.87 | 60.0 | 48 – 74 |
| | BPH | 27 | 59.96 ± 6.81 | 60.0 | 46 – 78 |
| IPSS score | BPH - IH | 33 | 20.54 ± 6.66 | 21.0 | 5 – 30 |
| | BPH | 27 | 25.57 ± 4.0 | 24.0 | 18 – 32 |
| $Q_{max}$ (ml/sec) | BPH - IH | 33 | 8.48 ± 2.11 | 8.4 | 4.5 – 11.8 |
| | BPH | 27 | 7.6 ± 2.01 | 8.1 | 4.5 – 12.0 |
| Prostate volume (ml) | BPH - IH | 33 | 50.6 ± 6.8 | 52.0 | 39.8 – 66.2 |
| | BPH | 27 | 51.22 ± 7.9 | 52.0 | 38.5 – 66.2 |

Table 2 shows the comparison of basic characteristics in BPH patients with or without inguinal hernia. The mean age was 59.1 years in patients with hernia and 59.96 years for patients without hernia. The mean IPSS scores was 20.54 in BPH patients with hernia and 25.27 for the patients without hernia. The maximum flow rate was 8.48 ml/sec in patients with hernia and 7.6 ml/sec in patients without hernia. The mean prostate volume was 50.6 ml in patients with hernia and 51.22 in patients without hernia.

**Table 3: Comparison of IPSS severity symptoms between patients with or without hernia**

| IPSS | MildN (%) | Moderate N (%) | Severe N (%) | P value |
|---|---|---|---|---|
| BPH | 4 (14.8) | 7 (25.9) | 16 (59.3) | 0.528 |
| BPH - H | 2 (6.1) | 9 (27.3) | 22 (66.7) | |

About 66.7% of the patients with hernia and 59.3% of the patients with hernia had severe IPSS symptom scores.However, this difference was not statistically significant between the patients with or without hernia.

**Table 4: Comparison of IPSS severity symptoms for the patients with Hernia**

| IPSS | MildN (%) | Moderate N (%) | Severe N (%) | P value |
|---|---|---|---|---|
| Direct | 1 (50.0) | 5 (55.6) | 12 (54.5) | 0.99 |
| Indirect | 1 (50.0) | 4 (44.4) | 10 (45.5) | |

About 54.5% of the patients with direct hernia and 45.5% with indirect hernia had severe IPSS symptoms which was not statistically significant.

**Discussion**

The literature available shows that the symptoms from lower urinary tract are non specific and difficult to link to a specific process. But LUTS represent most common clinical manifestation of BPH. Benign prostatic hypertrophy increases with age and it is the most common cause for the LUTS in elderly men. The co occurrence of inguinal hernia and LUTS is very common in the elderly men and the risk increases with increase in age.This study had shown that, the mean age of the patients in this study was 59.52 years, mean IPSS scores were 20.45, maximum flow rate was 8.44 ml/sec and prostate volume was 50.87 ml. A study by Senturk et al had shown that, the mean age was 61.45 years, mean IPSS scores were 15.24, maximum flow rate was 13.4 and prostate volume was 44.3 ml.The mean age was 59.1 years in patients with hernia and 59.96 years for patients without hernia. The mean IPSS scores was 20.54 in BPH patients with hernia and 25.27 for the patients without hernia. The maximum flow rate was 8.48 ml/sec in patients with hernia and 7.6 ml/sec in patients without hernia. The mean prostate volume was 50.6 ml in patients with hernia and 51.22 in patients without hernia. A study by Senturk had shown that, there was no statistically significant difference in the age, IPSS score, maximum flow rate and prostate volume[5].About 66.7% of the patients with hernia and 59.3% of the patients with hernia had severe IPSS symptom scores. However, this difference was not statistically significant between the patients with or without hernia. A study by Senturk et al also shown that, there was statistically significant difference in BPH patients with or without hernia. But a study reports that, the inguinal hernia tend to have higher IPSSs than patients without it which may be due to increased intra abdominal pressure in patients with obstructed voiding symptoms[6].About 54.5% of the patients with direct hernia and 45.5% with indirect hernia had severe IPSS symptoms which was not statistically significant. A study by Senturk et al had shown that, there was no statistically significant difference in the IPSS symptoms between the patients with Direct and indirect hernia.A study by Ludwig et al had reported that about 33% of the patients scheduled to undergo radical prostatectomy had concomitant inguinal hernia[7]. A study by Sekita et al had reported that, the incidence of inguinal hernia was 23.9%, 18.9% and 2% respectively among the patients undergoing radical prostatectomy, open prostatectomy and transurethral resection of the prostate (TURP)[8]

**Conclusion**

The patients with inguinal hernia had no difference in the IPSS scores when compared to the BPH patients without inguinal hernia.

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