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ANALYTICAL STUDY OF CORRELATION BETWEEN PLASMA D-DIMER LEVELS AND LYMPHOVASCULAR INVOLVEMENT

Dr. Pandy V [1], Dr. Noorul Ayesha H [2]

1. Professor, Department of GeneralSurgery, Sree Mookambika Institute of Medical Sciences Kanyakumari, Tamil Nadu, India.

2.Junior Resident, Department of General Surgery Sree Mookambika Institute of Medical Sciences College Kanyakumari, Tamil Nadu, India.

Corresponding Author: Dr.Noorul Ayesha H ,Junior Resident, Department of General Surgery ,Sree Mookambika Institute of Medical Sciences College Kanyakumari, Tamil Nadu, India.

ABSTRACT :

Background: Prostate Gland Enlargement is an important cause of Bladder Outlet Obstruction in males leading to chronic straining on micturition. Inguinal Hernia can be precipitated by Chronic Straining for Micturition. In elderly males Inguinal hernia and Symptomatic prostate gland enlargement are found in high frequency. On the basis of this evidence significant correlation between Inguinal hernia and obstructing prostate gland enlargement may be expected.

Methods:There are 50 male patients aged more than 50 years admitted with inguinal hernia to all the Surgical Units of sree mookambika institute between April 2023 and April 2024 are selected as cases.Inclusion criteria were,Those with Inguinal Hernia,Male sex,Age more than 50years.

Exclusion criteria were,Known case of BPH, who are already on drugs or have had any form of surgery for BPH in the past,Presence of complications of hernia, such as irreducibility, strangulation or obstruction,Female sex,Age less than or equal to 50 years,Known case of connective tissue disorders.

Results Among the cases 84 were having unilateral hernia and 16 were having bilateral hernias.Right sided hernia was slightly more common than the left sided hernias (48vs 36).Univariate analysis of association between Inguinal Hernia and Prostate Gland Enlargement (Benign Prostatic Hyperplasia) using International Prostate Symptom Score showed no statistically significant association between the two

Conclusion Both Inguinal Hernia and Benign Prostatic Hyperplasia are seen with increased frequency in the aged male population, this study showed no statistically significant association between the two. Their occurrence together can be considered a chance co-existence rather than cause and effect.

Keywords: Benign prostatic hyperplasia,D Dimer level.

INTRODUCTION:

Prostate Gland Enlargement is an important cause of Bladder Outlet Obstruction in males leading to chronic straining on micturition. Inguinal Hernia can be precipitated by Chronic Straining for Micturition[1,2]. The occurrence of Inguinal Hernia and Prostate Gland Enlargement with accompanied urinary tract obstructive symptoms are related to age. Prostate Gland Enlargement also predisposes to hernia and aggravation of symptoms related to hernia.

In elderly males Inguinal hernia and Symptomatic prostate gland enlargement are found in high frequency. On the basis of this evidence significant correlation between Inguinal hernia and obstructing

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prostate gland enlargement may be expected[2].

Several standard General Surgical text books give chronic straining due to Prostate Gland Enlargement as an etiological factor for Inguinal hernia in elderly male population[1,5-13]. But some of the studies showed that their occurrence together is considered a chance co-existence rather than cause and effect[3,14,15,16]. This study is aimed to find out whether Prostate Gland Enlargement is a significant risk factor for developing Inguinal Hernia in males.

AIM AND OBJECTIVES OF THE STUDY:

- The Aim of this study is to find the prevalence of dilate To find out the incidence of Prostate Gland Enlargement (Benign Prostatic Hyperplasia) among male patients with inguinal hernia.
- To find out whether there is any causal association between Prostate Gland Enlargement (Benign Prostatic Hyperplasia) and Inguinal Hernia.

MATERIALS AND METHODS:

There are 50 male patients aged more than 50 years admitted with inguinal hernia to all the Surgical Units of sree mookambika institute between April 2023 and April 2024 are selected as cases.Inclusion criteria were,Those with Inguinal Hernia,Male sex,Age more than 50years.
Exclusion criteria were,Known case of BPH, who are already on drugs or have had any form of surgery for BPH in the past,Presence of complications of hernia, such as irreducibility, strangulation or obstruction,Female sex,Age less than or equal to 50 years,Known case of connective tissue disorders.

Informed written consent was obtained from each of the cases and controls. All subjects were interviewed and examined by the single observer.Very few if any clear cut off points have been established that allow differentiation between disease absent and present states Hence for this study three independent variable - International Prostate Symptom Score, Prostate- specific antigen (PSA), prostate volume, post voidal residual urine, Uroflowmetry studies were taken and prevalence of BPH in cases and controls were found out for each of the three variables separately.

International Prostate Symptom Score was obtained by reading out the questionnaire and answer options in the prescribed format as many of the study subjects were not able to read the questionnaire and mark the answers in the prescribed format. Each question was read out with its answer options and score for each question was marked separately and the sum is calculated to find out the International Prostate Symptom Score of each subject. The International Prostate Symptom Score (IPSS) is an 8 question (7 symptom questions + 1 quality of life question) written screening tool used to screen for, rapidly diagnose, track the symptoms of, and suggest management of the symptoms of the disease benign prostatic hyperplasia (BPH). The score of 7 symptom questions were added to get the International Prostate Symptom Score (IPSS).

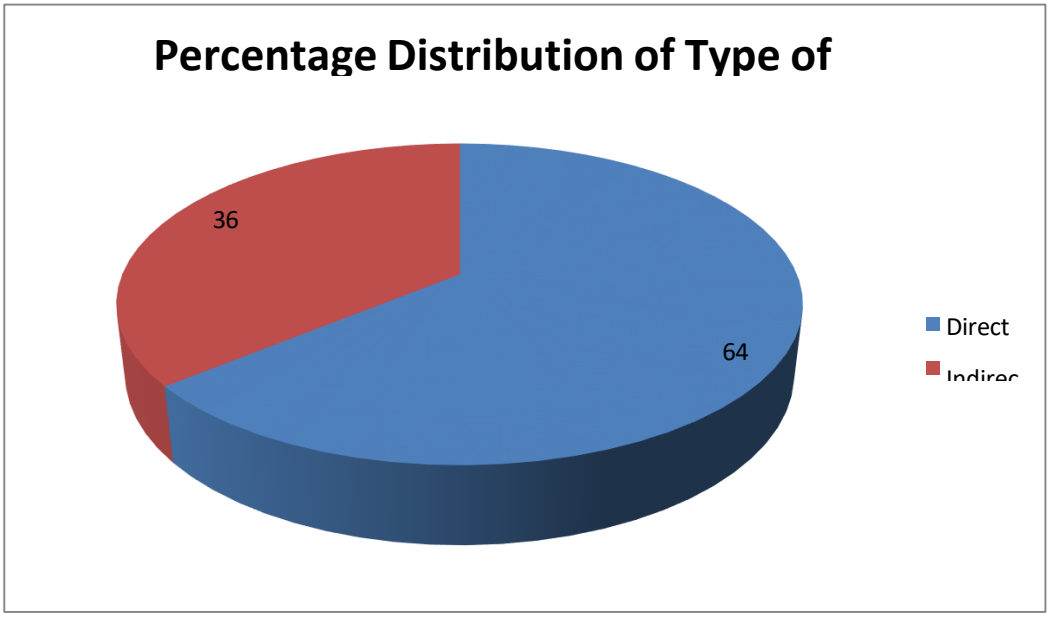
Statistical analysis was done using the statistical package for social sciences (SPSS).Different statistical methods were used as appropriate. Mean ± SD was determined for quantitative data and frequency for categorical variables. The independent t- test was performed on all continuous variables. The normal distribution data was checked before any t-test. The Chi-Square test was used to analyze group difference for categorical variables A p- value < 0.05 was considered significant.

ISSN: 0975-3583,0976-2833 VOL16, ISSUE 4, 2025

RESULTS:

Type of hernia – Direct or Indirect

Type of Hernia	Direct	Indirect
Number	32	18
Percentage	64.0%	36.0%



All the subjects were having reducible hernia only. The control subjects were also selected from the ward from those patients admitted for diseases other than Hernia. The control subjects were having different illness such as Diabetic Foot, Haemorrhoids, Hydrocele, Acid Peptic Disease, Acute Gastritis, Carcinoma Rectum, Chronic Pancreatitis, Fissure in ano, Ileocaecal Tuberculosis, Gastric Outlet Obstruction, Cellulites, Varicose Veins, Liver Abscess, Carcinoma Stomach, Peripheral Vascular Disease, Fournier's Gangrene, Lipoma, Malignant Melanoma, Basal Cell Carcinoma, Carcinoma Colon, Fistula in Ano, Obstructive Jaundice and Carcinoma Penis.

INTERNATIONAL PROSTATE SYMPTOM SCORE:

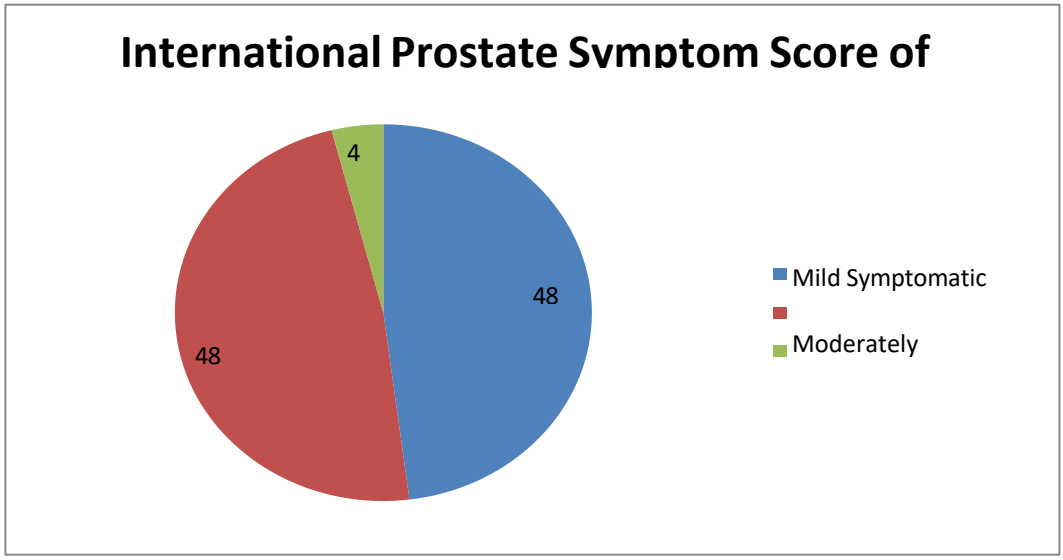
Among the cases none of the subjects were asymptomatic, 24 were mildly symptomatic, 24 were moderately symptomatic and 2 were severely symptomatic at the time of admission. Among controls, 33 were mildly symptomatic or having no

ISSN: 0975-3583,0976-2833 VOL16, ISSUE 4, 2025

symptoms, 15 were moderately symptomatic and 2 were severely symptomatic.

International Prostate Symptom Score of Cases:

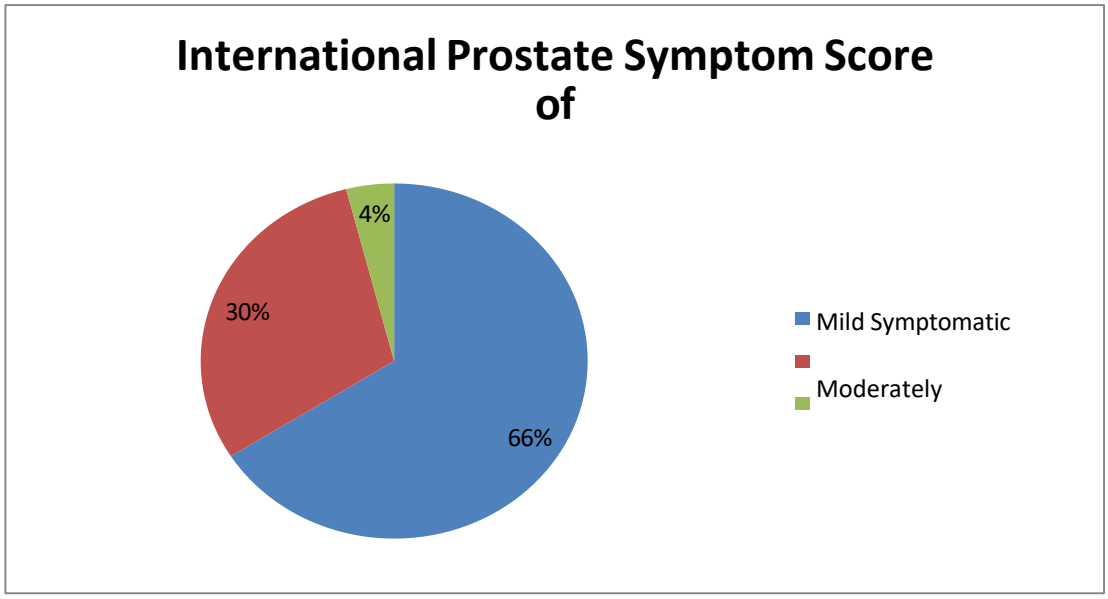
IPSS_Score	Frequency	Percent
Mild	24	48.0
Moderately Symptomatic	24	48.0
Severely Symptomatic	2	4.0
Total	50	100.0



International Prostate Symptom Score of controls

IPSS_Score	Frequency	Percent
Mild	33	66.0
Moderately Symptomatic	15	30.0
Severely Symptomatic	2	4.0
Total	50	100.0

ISSN: 0975-3583,0976-2833 VOL16, ISSUE 4, 2025



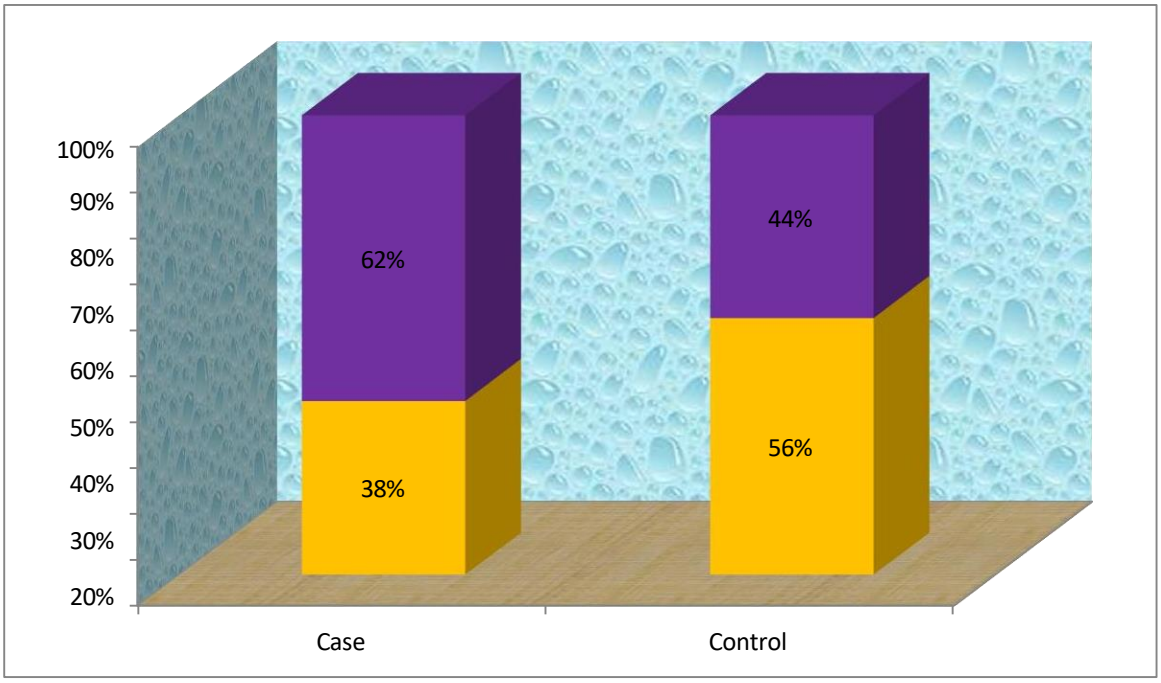
All subjects who were moderately or severely symptomatic were considered as having significant BPH. Hence there were 26 subjects among cases and 17 subjects among controls were having significant BPH.

Pr_volume_score * GROUP Cross tabulation

			GROUP		Total
			Case	Control	
Pr_volume_score	≥20	Count	19	28	47
		% within GROUP	38.0%	56.0%	47.0%
	<20	Count	31	22	53
		% within GROUP	62.0%	44.0%	53.0%
Total		Count	50	50	100
		% within GROUP	100.0%	100.0%	100.0%

Chi square value = 3.252 p value = 0.071

ISSN: 0975-3583,0976-2833 VOL16, ISSUE 4, 2025



Among those who had a prostate vol >20 ng/ml, 58.5% were cases and 41.5 % were controls. However, the difference is not statistically significant.

POST - VOID RESIDUAL URINE VOLUME

The measurement of Post – void residual urine volume is done by Ultra sonogram of abdomen. A volume of > 50ml is taken as significant. But there was no significant difference in the distribution of the number of patients with Post – void residual urine volume >50ml between cases and controls (17 and 13 respectively).

PROSTATE SPECIFIC ANTIGEN:

Among the cases 8 subjects were having PSA > 4ng/ml and 42 were having PSA less than or equal to 4ng/ml. Therefore 8 out of 50 cases were taken as having significant Benign Prostatic Enlargement.Among the controls 9 subjects were having PSA > 4ng/ml and 41 were having PSA less than or equal to 4ng/ml. Therefore 9 out of 50 controls were taken as having significant Benign Prostatic Enlargement.

PSA_score * GROUP Cross tabulation

		GROUP		Total
		Case	Control	
PSA_score	≤ 4 Count	42	41	83
	% within GROUP	84.0%	82.0%	83.0%

ISSN: 0975-3583,0976-2833 VOL16, ISSUE 4, 2025

	>4	Count	8	9	17
		% within GROUP	16.0%	18.0%	17.0%
Total		Count	50	50	100
		% within GROUP	100.0%	100.0%	100.0%

Pearson Chi-Square = 0.071; p value = 0.790

DISCUSSION:

Among the cases 84 were having unilateral hernia and 16 were having bilateral hernias.Right sided hernia was slightly more common than the left sided hernias (48vs 36).Univariate analysis of association between Inguinal Hernia and Prostate Gland Enlargement (Benign Prostatic Hyperplasia) using International Prostate Symptom Score showed no statistically significant association between the two.Univariate analysis of association between Inguinal Hernia and Prostate Gland Enlargement (Benign Prostatic Hyperplasia) using Serum Prostatic Specific Antigen showed no statistically significant association between the two.

Prostatic size also showed no statistically significant association between Inguinal Hernia and Prostate Gland Enlargement (Benign Prostatic Hyperplasia).There was no significant difference in the distribution of the number of patients with Post – void residual urine volume >50ml between cases and controls.Univariate analysis of association between Inguinal Hernia and Prostate Gland Enlargement (Benign Prostatic Hyperplasia) using Uroflowmetry Study also showed no statistically significant association between the two.

CONCLUSION:

Both Inguinal Hernia and Benign Prostatic Hyperplasia are seen with increased frequency in the aged male population, this study showed no statistically significant association between the two. Their occurrence together can be considered a chance co-existence rather than cause and effect.

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