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RESEARCH ARTICLE

INCIDENTALLY DIAGNOSED ADENOCARCINOMA PROSTATE AFTER SURGERY FOR CLINICALLY BENIGN PROSTATOMEGALY A 2 YEARS RETROSPECTIVE STUDY

Dr. Madhurya Bajpai[1], Dr. Sudhir Kumar[2], Dr. A.K. Sanwal[3], Dr. Manish Jain[4], Dr. Mayank Singh[5] and Dr. Sachin Mahur[6]

1. Junior Resident Department of Surgery, M.L.B. Medical College, Jhansi, Uttar Pradesh.
2. Professor and Head, Department of Plastic Surgery, M.L.B. Medical College, Jhansi, Uttar Pradesh.
3. Assistant Professor, Department of Urology, M.L.B. Medical College, Jhansi, Uttar Pradesh.
4. Professor, Department of Urology, SAIMS Indore, Madhya Pradesh.
5. Professor, Department of Radiotherapy, M.L.B. Medical College, Jhansi, Uttar Pradesh.
6. Associate Professor, Department of Radiotherapy, M.L.B. Medical College, Jhansi, Uttar Pradesh.

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Abstract

Introduction: Prostate cancer (PCa) is the second most common cause of cancer and the sixth leading cause of cancer death among men worldwide. The worldwide PCa burden is expected to grow to 1.7 million new cases and 499 000 new deaths by 2030 simply due to the growth and aging of the global population.

Aims: To incidentally diagnose prostate cancer during TURP or open prostatectomy in patients clinically diagnosed with prostatomegaly with severe Lower urinary tract symptoms (LUTS).

Methods: This study "Incidental Prostate Cancer" was conducted on 100 patients selectedin Surgery Department at M.L.B. Medical College, Jhansi between January 2020 to June 2021according to the inclusion criteria; patients were first examined clinically followed specific investigation like PSA, Prostate volume measurement before undertaking surgery for Benign prostatic hyperplasia and the resected specimen/chips of prostate were sent for histopathological examination for confirmation of malignancy.

Result: The result of this study demonstrated 1 12% incidence of IPC on clinically diagnosed BPH patients. Patient's age and PSA level were determined to be factors affecting IPC incidence. Compared to other age groups and PSA level groups, IPC incidence was higher in patients aged ≥60 years and/or with PSA level >4m=ng/mL. A relation between IPC and Gleason GG2 of 50% was determined statistically on histopathological examination.

Conclusion: Incidental prostate cancer diagnosis among patients operated for BPH accounts for a significant proportion. PSA levels and patient's age are valid diagnostic indicators of IPC. Higher Gleason score …… significantly correlated with IPC.

Corresponding Author:- Dr. Manish Jain
Address:- Professor, Department of Urology, SAIMS Indore, Madhya Pradesh.

Introduction:-

Prostate cancer (PCa) is the second most common cause of cancer and the sixth leading cause of cancer death among men worldwide. The worldwide PCa burden is expected to grow to 1.7 million new cases and 499 000 new deaths by 2030 simply due to the growth and aging of the global population (Ferlay et al., 2010)[1].

Demographic and epidemiological transitions in developing countries like India have shown an increasing trend in the burden of various cancer cases including prostate cancer[2].

Previously it was thought that prevalence of prostate cancer in India is far lower as compared to the western countries but with the increased migration of rural population to the urban areas, changing life styles, increased awareness, and easy access to medical facility, more cases of prostate cancer are being picked up and it is coming to the knowledge that we are not very far behind the rate from western countries. The cancer registries are reporting some new information and we can see that we are going to face a major increase in cancer incidences in the coming years. The population of India in general and that of the areas covered by the registries in particular, have displayed rapid changes in life styles, dietary practices and socio-economic milieu. Diagnostic and detection technologies have improved and more of the population has not only access, but can also afford the same.

There are usually no signs or symptoms in the early stages of prostate cancer. However, as the cancer becomes advanced, patients might begin to experience symptoms such as: decreased urine flow, urinary incontinence especially at night, inability to urinate, blood in the urine, pain or burning during urination, or continual pain in the lower back, upper thighs, or pelvis[3]. Patients often perceive these symptoms as harmless, non-specific, or similar to symptoms associated with other less serious conditions. Therefore, it is important to engage in prostate cancer screening behavior early on, since prostate cancer is much more curable in the early stages.

The most common risk factors associated with prostate cancer are age, ethnicity, diet, and family history of prostate cancer[3-4]. Globally, Jamaican men of African descent as well as African-American men are known to have the highest incidence of prostate cancer[5-6]. Compared to Caucasian men, the risk of developing prostate cancer in black men based purely on ethnicity is estimated to be 40 – 80% higher[7].

Increased intake of dietary fat has been shown to contribute to the risk of developing prostate cancer[8]. Cumulative exposure to androgens and high fat diets are also related to prostate cancer risk[9-10]. This pattern of exposure has been established across case-control studies, ecologic studies, animal models and studies involving immigrants[11-15].

Treatment options available depend on stage of presentation, age and the presence of other diseases. Treatment for prostate cancer can be invasive and cause long-term complications such as incontinence or impotenceSurgery, such as radical prostatectomy (removal of the prostate gland), and radiation are the most common forms of treatment at the early stage of the disease.Hormone therapy, chemotherapy, and radiation are commonly used in combinations for metastatic or advanced stages of the disease. Nonetheless, chemotherapy and hormone therapy can be used in treating early stages of the disease as well. “Watchful waiting” is employed with much older individuals, those with less aggressive forms of the disease, or those with a shorter life expectancy; this involves close monitoring and almost no treatment at all[3].

The aim of the study was to-

1. Incidentally diagnose prostate cancer during TURP or open prostatectomy in patients clinically diagnosed with prostatomegaly with severe Lower urinary tract symptoms (LUTS).
2. And to Segregate themon the basis of Gleason's score for further treatment options.

Material And Methods:-

This observational prospective study was conducted in Surgery Department at M.L.B. Medical College, Jhansi between January 2020 to June 2021 after clearance from institutional ethical committee.

Source Of Data:-

The study was done between January 2020 to June 2021 and includes 100 patients of incidental prostate cancer.

Method Of Collection Of Data (Including Sampling Procedure If Any):

Inclusion Criteria:-

All cases of clinically diagnosed prostatic enlargement with severe Lower urinary tract symptoms (LUTS) with proper documentation of serum PSA level and post-operative HPE report.

Exclusion Criteria:

Patients previously diagnosed with PCa.

Study Design:-

Observational prospective study

Data Collection:-

A database was created that included such details as age, Prostate specific antigen (PSA), prostate volume, Risk factors and Residence histopathological results.

Statistical Analysis:-

Statistical analysis was done using the MS Excel 2013 version software. Quantitative data were expressed in mean and standard deviation and paired t-test. p value <0.05 considered significant, Qualitative data was analyzed with chi-square test.

Methodology:-

This study "Incidental Prostate Cancer" was conducted over 100 patients selected according to the inclusion criteria; who came with the complaints of Lower urinary tract symptoms (LUTS). Patients were examined clinically, digital rectal examination done, PSA levels assessed and prostate volume measured after which these patients were undertaken for surgery for Benign prostatic hyperplasia via TURP , HoLEP or MFP and the resected specimen/chips of prostate were sent for histopathological examination. Reports of the biopsy were awaited to confirm the diagnosis or to rule out carcinoma.

Observations And Results:-

Table 1:- Age in years.

Variable	Age (in years) [n=100]		Cancer present [n=12]	
	N	%	N	%
40-50 years	04	04.00%	0	0.00%
51-60 years	23	23.00%	0	0.00%
61-80 years	64	64.00%	9	75.00%
>80 years	09	09.00%	3	25.00%
Total	100	100%	12	100.00%
p value	<0.05 (S)			

Mean age 70.00 years.

Table 2:- Type of Surgery.

Type of surgery	Number of Patients	Percentage (%)
Modified frayers procedure	20	20.00%
Transurethral resection prostate	74	74.00%
Holmium laser enucleation of prostate followed by TURP of the enucleated lobes	6	6.00%
Total	100	100%

Table 3:- Prostate specific antigen.

Variable	Prostate specific antigen [n=100]	Cancer present [n=12]

	N	%	N	%
0-4ng/ml	91	91.00%	5	41.67%
5-10ng/ml	8	8.00%	6	50.00%
>10ng/ml	1	1.00%	1	8.33%
Total	100	100%	12	100%
p value	<0.05 (S)			

Table 4:- Incidental carcinoma prostate of histopathological examination.

Cancer Present	Number of Patients	Percentage (%)
MFP	2	2.00%
TURP/HOLEP	10	10.00%
Total	12	12.00%

Table 5:- Gleasons group grade.

Gleasons group grade	Score	Number of Patients	Percentage (%)
Group Grade 1	≤6	0	0%
Group Grade 2	3+4	6	50.00%
Group Grade 3	4+3	5	41.67%
Group Grade 4	8	0	0%
Group Grade 5	9-10	1	8.33%

Discussion:-

The incidence of prostate cancer has increased in recent years[16]. In this study, 100 patients were examined prospectively to determine the incidence of incidental prostate cancer in patients clinically diagnosed with BPH and to evaluate the relationship of age, type of residence, PSA level and various risk factors associated. In several current studies, the prevalence of IPC has been reported to vary between 1.4% and 16.7%[17-18].The results of the study determined the IPC incidence to be 12%. The IPC rate in the current study was seen to be consistent with the data reported in the previous literature.

The current study results of increased IPC incidence in the age group 61-80 years of 75% goes in concordance with Nergiz et al[19] which stated increased IPC incidence in the age group ≥60 years of 85% (p value 0.0001). Zhonghua Nan Ke Xue et al[20]studied incidental prostate cancer and found that maximum incidences were in patients aged more than 60 years; these results were consistent with the findings in the literature of reports by Morita M et al[21] and Di Siverio et al[22] stating maximum IPC incidence in the age group of ≥80 years.

Serum PSA level, digital rectal examination and imaging modalities can be used for prostate cancer diagnosis, but PSA level is considered a better predictor of cancer than other methods[23]. Serum PSA levels correlate strongly with the risk of prostate cancer, although PSA is not specifc to prostate cancer and may be elevated in conditions such as BPH, prostatitis and mechanical manipulation[24]. Although up to 27% of prostate cancers were determined incidentally before PSA screening, this rate decreased with the start of the widespread use of PSA screening.

Sakamoto et al[25] reported that age ≥75 and high PSA level of >4ng/ml were independent risk factors for IPC determination in TUR-P in older patients; indicating a T1b score of 25% when combined together. In the current study, statistically significant difference of p value <0.05 was determined in respect of mean PSA level of 4-10ng/ml accounting to 50%; and 41.66% for the mean PSA level of 0-4ng/ml indicating a p-value of <0.05. A significant difference was determined between IPC and BPH groups in respect of age and mean PSA level in a study by Nafe et al.[26]. Morita et al[21] also found a significant difference between IPC and BPH groups in respect of mean age, but unlike the study by Nafe et al[26], there was no significant difference in PSA .

In a study conducted by Nergiz et al[19] Prostate cancers of T1a stage were found to be usually Gleason GG 1, and those at T1b stage were Gleason GG 4–5.Maximum number of patients occupied gleason's group 1 (67%) which was in contrast to our study in which maximum no of patients lied in Gleason's group 2 (50%).In the study by Silverio et al[22], 34.4% of T1b stage IPCs were Gleason GG≥2 and all the T1a stage patients were Gleason GG 1.

In our study, 80% of the patients underwent TURP and HoLEp and the remaining were treated by MFP. There was no significant relationship found between the type of surgery performed and the incidence of prostate cancer. Jones et al[27] compared HoLEP with MFP and found that for a larger volume of prostate that is > 80ml MFP is the preferred choice. Abedi et al[28] demonstrated Prostate cancer in 40 patients who underwent TURP (12.6%) for a prostate volume of 67.96±12.1ml and in 44 patients who underwent MFP (40.7%) for a prostate volume of 117.3±15.15 ml , with significant difference between the occurrences of IPC between both groups, higher being in the MFP group. However, because of the retrospective nature of their analysis, the distribution of patients in the two groups was not equivalent.

Out of the 12 incidentally diagnosed patients of prostatic cancer 2 were advised radiotherapy, 2 were advised radical prostatectomy and 3 were advised ADT and 5 patients were referred to higher center. The treatment advised patients were followed up.

Conclusion:-

1. The results of this study demonstrated a significant incidence of IPC in clinically diagnosed BPH patients. Patient age and PSA level are determined to be factors affecting IPC incidence. A relation between IPC and Gleason GG 2 was established statistically on histopathological examination.
2. According to the current study results, to be able to avoid missing IPC in patients applied with TURP or MFP because of BPH, it can be recommended that sufficient material is sampled and carefully evaluated, and when necessary, all the resected specimen should be examined. We also recommend that further studies should be conducted with more extensive case series including the data of patient follow-up, treatment and prognosis to be able to reach more definitive results.

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