

Original Research Article

Histopathological findings of prostatic autopsy in a sample of over 50 years old men in Baghdad, Iraq

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ABSTRACT

Background: Incidental carcinoma of the prostate is very important is one of the major life-threatening condition for men at all ages. The incidence was found to increase with age. The aim of this study was to evaluate prostatic autopsy samples from Iraqi men over 50 years of age.

Methods: 100 autopsy samples of whole prostate were collected from the Institute of Forensic Medicine in Baghdad. All the autopsy cases over 50 years of age died from causes unrelated to prostatic disease.

Results: Age ranges from 50-80 years and the mean age was 59.3 years. Benign prostatic hyperplasia was the common pathological finding (92%). Forty-eight cases of benign prostatic hyperplasia were associated with chronic non-specific prostatitis (CNP), 6 cases were associated with low grade prostatic intraepithelial neoplasia and 2 cases with infarction and 6 cases of low grade prostatic intraepithelial neoplasia. Prostatic adenocarcinoma was detected in 6% of the cases. The mean weight was 39.9gm. The mean ellipsoid volume was 34.9cm³. The mean spheroid volume was 36.1cm³. The majority of benign prostatic hyperplasia cases were found in the 6th decade.

Conclusions: From the present study, we can conclude that the majority of cases were in the 6th decade, benign prostatic hyperplasia was the most common finding, the most common association with benign prostatic hyperplasia was chronic nonspecific prostatitis, a low frequency of prostatic carcinoma and it was not associated with benign prostatic hyperplasia.

Keywords: Adenocarcinoma, Colorectal, Carcinoma, Colonoscopy, Retrospective

INTRODUCTION

Incidental carcinoma of the prostate is very important subject concerning the society in which the western population have a high incidence of it and prostatic carcinoma as a common cause of death in male patients, many efforts have been done to detect it in its early stage using many diagnostic tools like serum PSA estimation, Trans rectal ultrasound, biopsy and fine needle aspiration (FNA).¹⁻³ The aim of this study is to interpret histopathologically prostatic autopsy samples from men

over 50 years of age, to determine premalignant and malignant lesions to compare our frequency of incidental prostatic carcinoma with other studies, analyzing the collected samples according to age, volume and weight and application of immunohistochemical techniques on hyperplastic and malignant lesions to be familial with these techniques.

A study of 100 prostatic autopsy samples obtained from over 50 years age collected from the Institute of Forensic Medicine in Baghdad as part of the routine work in the

Institute. The aim of this study was to describe the histopathological pattern of prostatic autopsy among a sample of Iraqi men and to determine of the prevalence of premalignant and malignant lesions.^{1,2}

METHODS

Collection of autopsy cases

100 autopsy samples of whole prostate were collected from the Institute of Forensic Medicine in Baghdad. All the autopsy cases over 50 years of age died from causes unrelated to prostatic disease.

Autopsy dissection

The cadaver is opened by the classical method through a midline incision from the chin to the symphysis pubis. This method involves making an incision starting from the mid-area of the chin and the cut runs down the middle anterior part of the neck, the mid sternum and abdomen, alongside the umbilicus to the level of the symphysis pubis. The cervical skin is reflected towards the lower jaw and the neck organs are exposed. The skin over the chest is turned outwards by incising the sternal and the clavicular attachments of the pectoralis major muscle, followed by lifting the skin and the subcutaneous tissue off the chest wall by gentle traction. After that, the abdomen is opened by careful dissection of the skin and the subcutaneous fat, then the skin is reflected outwards, so that the abdominal and pelvic organs are exposed.

The urinary bladder is exposed and is drawn backwards from the symphysis pubis. If the bladder is full of urine, it can be emptied by making an incision on its anterior wall and the urine is collected by a clean scoop. Then, the bladder is pulled gently with one hand while the other hand is feeling the attached prostate, followed by careful separation of the prostate from the bladder until prostate enucleation is done. Another way to enucleate the prostate is done by pushing the prostate forward from the rectum into urinary bladder by one hand, while by the other hand, we feel the prostate through the opened urinary bladder, after which separation of the prostate is done through the opened bladder as shown in the following figure.

The enucleated prostate is further rimmed to remove the surrounded fatty and remained bladder wall tissue. However, the prostate is further precisely weighted, measured in centimeters and grossly described and sliced before putted in 10% formalin fixative in neutral buffer. Considering the dimensions of the prostate, by which we measure the volume, three dimensions were measured, height, width and length.

Gross description

After estimating the weight and the volume, we describe the prostate grossly by making serial slices of about 5mm

thickness and careful examination of these slices using a hand lenses, especially searching for the suspicious yellowish firmer areas, otherwise the prostate is put in a labeled container with formalin overnight.

Processing

After fixation of the prostate in formalin overnight, the following steps are done:

- Step sectioning of the prostate in 5mm slices
- The number of the sections taken ranges from (15-20) sections, which are taken from the prostate proper, with attached capsule, urethral attachment and seminal vesicles
- Finally, selected sections were proceeding in a classic paraffin micro technique method to obtained ideal sections of around 5 μ thickness to be further stained by H and E
- Prostatic specific antigen (PSA) immuno-staining.

RESULTS

100 autopsy cases were analyzed in this study. The age ranged between 50-80 years and the mean age was 59.3 year. The distribution of overall diagnostic histopathologic categories showing that BPH is the most common pathological finding (92%) of the total cases 48 case with CNP and 2 cases with infarction. 6 cases showing low grade PIN, all cases were associated with BPH. Prostatic adenocarcinoma was found in 6 out of 100 cases (6%) (Table 1).

Table 1: Distribution of histopathological diagnosis.

Hispathological diagnosis	Cases	
	Number	Percent
Bph	92	92.0%
Cnp	48	48.0%
Pin	6	6.0%
Ca	6	6.0%
Infarction	2	2.0%
Total	100	100%

BPH: benign prostatic hyperplasia, CNP: chronic nonspecific prostatitis, CA: carcinoma.

Regarding the volume and weight, we found that the weight ranged between 20gm and 300gm and the mean weight was 39.9gm, while the range of ellipsoid volume (EV) and the spheroid volume (SV) was found to be from 7.85cm³ to 376.9cm³ and from 8.18cm³ while the mean spheroid volume (SV) was 36.1cm³ while the mean spheroid volume (SV) was 36.1cm³.

Concerning the relation of the diagnostic hispathologic categories with different age groups, it shows that the majority of BPH autopsy cases were found in the 6th decade (50 case out of 92 case), 36 case in the 7th decade, 4 cases in the 8th decade and 2 case in the 9th decade,

while the majority of BPH autopsy cases with associated CNP were found in the 6th decade (22 case out of 48 case), 20 case in 7th decade, 4 case in the 8th decade and 2 with 9th decade, however the 6 low grade PIN lesions, 4 were found in 7th decade and 2 in the 6th decade, while 2 cases of infarction was found in the 6th decade, concerning the 6 prostatic adenocarcinoma autopsy cases, 4 of them were found in the 8th decade while the 2 in the 6th decade (Table 3). Figure 1 shows the distribution of different volumes for each type of diagnosis. It is observable that CNP got the largest volume among other diagnosis.

Table 2: Age of sample and volume of lesions.

	Age	EV(cm ³)	SV (cm ³)	WT (gm)
Mean	59.3000	34.9556	36.1824	39.9720
Median	58.5000	19.0450	19.3900	28.5000
Std. deviation	6.9407	54.1753	54.8317	42.9572
Range	50-80	369.14	373.52	280.00
Minimum	50.00	7.85	8.18	20.00
maximum	80.00	376.99	381.70	300.00

EV: Ellipsoid Volume , SV: Spheroid Volume, WT: Weight.

Table 3: Association of hispathologic diagnosis and age groups.

Diagnosis		Age groups (years)				Total
		50-59	60-69	70-79	80-89	
BPH	No	50	36	4	2	92
	%	50%	36%	4%	2%	92%
CNP	No	22	20	4	2	48
	%	22%	20%	4%	2%	48%
PIN	No	2	4			6
	%	2%	4%			6%
Infarction	No	2				2
	%	2%				2%
Carcinoma	No	2				6
	%	2%				6%

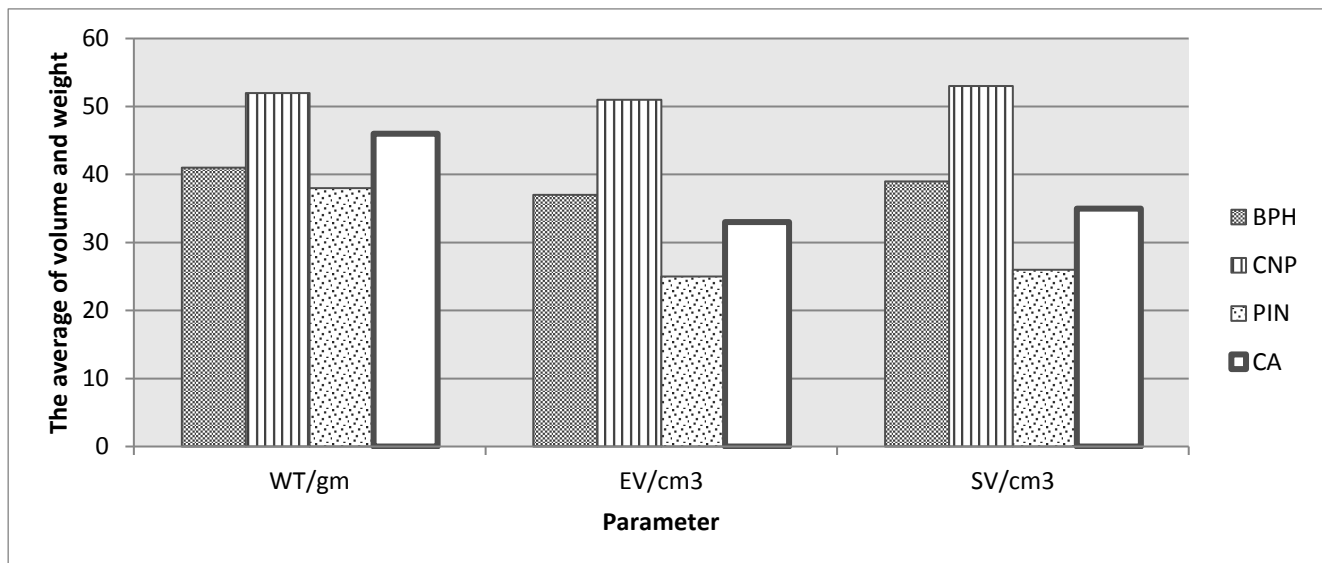


Figure 1: Distribution of different volume by pathological diagnosis.

DISCUSSION

Over 10% of admissions to general hospitals are for urological problems, and diseases of the prostate represent a major part of the clinical cases.^{3,4} Anatomically and functionally, as well as pathologically, the prostate gland is not homogenous structure. The main

diseases that affect the prostate such as BPH, inflammatory and infectious disorders as well as carcinoma, arises with greater frequency in different anatomic regions of this organ.⁵⁻⁸

Such different prostatic zones may be endowed with particular features in regard to their embryologic origin,

histological appearance, and responsiveness to various steroid hormones.⁹⁻¹³

In present series, both neoplastic and non-neoplastic lesions of the prostatic glands were diagnosed histologically at autopsy with an overall accuracy of approximately 100%.^{1,9} Regarding the BPH which is the commonest pathological change seen in our study which compatible with other studies at autopsy, however may reach the Figure 80.1% with a maximum of 95.5% in the eight decades of life.^{7,9,14} All cases of PIN are low grade subtype which is not significant in clinical practice.^{4,14}

The risk of developing prostatic pathology increases with age, particularly after the age of 40 years in both benign and malignant lesions although the relations between them has been controversial issue.¹⁵⁻¹⁹ There is accumulation of unique, if not exclusive, features in PC that is un-equated by any other tumor in humans. Statistically, PC becomes the most prevalent cancer in the male, if incidental cancer found at prostatectomy or latent carcinoma discovered at autopsy are included.

In other study concerning latent PC in autopsy specimens, the frequency has been estimated to be 6.6%-66.7% in various long list of studies all over the world, the most clinicians find a significant increase with aging.²⁰⁻²² This wide range is explained by (1) The method of examination of the prostate and (2) the histologic criteria of malignancy. Regarding the first point depend on thorough fixation of the prostatic specimens for one day or longer in 10% formalin after freeing of prostate from the surrounding tissue, the posterior lobe was main portion of the gland to be examined totally, step sections of the posterior lobe in coronal planes at interval of 0.3-0.5cm thickness.^{8,9,13,15,23,24}

As for histological criteria for malignancy, we adopted both histological criteria for diagnosis of malignancy including evidence of stromal invasion as well as architectural disarrangement.^{5-10,24} Our finding showing frequency of latent prostatic carcinoma around 6% (three out of fifty autopsy cases). This low figure differs from other studies all over the world may be partly explained by differences in age distribution because the majority of autopsy prostatic specimens taken from lower age classes comparing with other studies.

All cases arose from the posterior lobe and similar findings are recorded by others.^{18,20} our results showed that the absence of significant relationship of latent carcinoma to the associated nodular hyperplasia is in agreement with other authors.^{8,18,21} Extent of latent carcinoma correlated significantly with Gleason grading system including the presence or absence of cribriform pattern arrangement. Two out of the 6 Cases showed extension to another prostatic gland lobe with Gleason grade. The other 4 cases were limited to the posterior lobe and grades between 2 and 3 accounting to Gleason

grading system this is in agreement with other studies which indicated.¹⁷⁻¹⁹

CONCLUSION

From the present study, we can conclude that most of cases were in the 6th decade, benign prostatic hyperplasia was the most common finding, the most common association with benign prostatic hyperplasia was chronic nonspecific prostatitis, a low frequency of prostatic carcinoma and it was not associated with benign prostatic hyperplasia.

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Ethical approval: The study was approved by the institutional ethics committee

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