YIELDS FROM TRANSRECTAL NEEDLE BIOPSY OF PROSTATE

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Summary A study of transrectal prostatic needle biopsy correlated with rectal digital examination was conducted on 52 patients (mean age 55 years), presented with bladder outlet obstructive symptoms and associated complications. Of 12 patients with marked prostatic induration (suspected carcinoma), 3 had carcinoma and were confirmed by biopsy. Of the 15 patients with no induration (carcinoma not suspected), non had positive biopsy result for carcinoma. Of the remaining 23 patients with slight induration (carcinoma unlikely), 1 had carcinoma. Fever was the main complication (12%) after taking a biopsy, and hematuria occurred in 5 patients(10%). Both symptoms subsided spontaneously within 24-48 hours. The routine use of transrectal needle biopsy for indurated prostate can aid in the diagnosis of early carcinoma.

Introduction

It is generally agreed that the diagnosis of prostatic carcinoma should be confirmed microscopically before treatment is started. While perineal route of prostatic needle biopsy was used long ago, it was not until Astraldi[1] first described good results with transrectal approach. This procedure is now generally accepted because of it's ease in performance and accuracy.

Although prostatic needle biopsy is a simple procedure to perform, it requires the skill and clinical evaluation that each urologist must have, as the comparative clinical importance of nodular and occult or latent carcinoma, the types of treatment available and probable errors of biopsy, based on variable standards of comparison which he elects to employ.

When a nodule or induration is palpated on rectal digital examination of the prostate, there is suspicion of malignancy. The accuracy of trans-rectal needle biopsy varied with the studies conducted and it was up to 95% in the study conducted by Hendry[2].

Material and Methods

In this study we included 52 patients with age incidence 40-70 years(mean 55 years), complaining of obstructive symptoms, urinary tract infection and/or hematuria. The patient was put in knee-elbow or left lateral position, rectal digital examination was done to ascertain the size of the prostate and the site of induration (if present). Vim-Silverman needle (size 15 c/m gauge 2 m/m) was used. The sheath of the needle with the trochar were advanced, being

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Presenting symptoms	No. of patients	Percentage
Retention of urine	24	48%
Prostatism	13	26%
UTI	3	6%
Hematuria	2	4%
Uraemia	2	4%
Urethral stricture	2	4%
Previous incomplete prostatectomy	2	4%
Testicular swelling	1	2%
Weight loss	1	2%
Total	50	100%

TABLE I: Presentation of the patients participating in this study.

Induration	BPH	Ca-Prost.	Ca-bladd. Infilt.Pr.	Prostatitis	Normal tissue	Negative Biopsy
None						
No.	14/15	0/15	0/15	0/15	1/15	5
Percent	93	0	0	0	6.6	-
Slight						
No.	21/23	1/23	0/23	1/23	0/23	5
Percent	91	4.3	0	4.3	0	-
Marked						
No.	7/12	3/12	1/12	1/12	0/12	2
Percent	58.5	25	8.4	8.4	0	-
Total						
No.	42/50	4/50	1/50	2/50	1/50	12
Percent	84	8	2	4	2	-

TABLE II: Histopathological results correlated to rectal exam.

Result	No.	Percentage
BPH±Prostate	42	84
Adenocarcinoma of prostate	4	8
Prostatitis	2	4
Ca-Bladder infilt.Prostate	1	2
Normal glandular tissue	1	2

TABLE III: Results of histopathological studies of needle biopsy.

attached to the tip of the index finger, through the anal canal and it was introduced in the site previously located by rectal examination. The needle passes through the rectal mucosa, fascia, prostatic capsule which was once entered, the trochar was removed and a bivalved knife was put and pushed, the sheath was introduced deeper over the knife and both of them were pulled out together. The procedure could be repeated twice or thrice in one or both lobes (preferred) and the biopsy specimen was sent for histopathological examination in 10% formaldehyde. The patient was then followed up for 48 hours.

Results

Transrectal prostatic needle biopsy was performed on 52 patients. Two revealed crushed tissue and therefore were excluded from the study. Of the remaining 50 patients, 24 presented with retention, 13 with prostatism, 3 with urinary tract infection, 2 with hematuria, 2 were uraemic, 2 had urethral stricture, 2 had previous history of partially removed prostate , 1 had testicular swelling and 1 presented with weight loss (Table 1).

The findings on rectal digital examination were divided into 3 groups according to the presence or absence of induration and its degree. Out of the 50 patients, 15 were in group 1 (no induration, carcinoma not suspected) none had carcinoma on histological examination of needle biopsy and negative biopsy was confirmed by prostatectomy in five patients, 23 were of group 2 (slight induration, carcinoma unlikely) one had carcinoma on histological examination of needle biopsy and negative biopsy was confirmed by prostatectomy in 5 patients, 12 were of group 3 (marked induration, carcinoma suspected) 3 had carcinoma on histological examination of needle biopsy and negative biopsy was confirmed by prostatectomy in 2 patients (Table II).

Of the 50 patients who had transrectal needle biopsy, 4 had adenocarcinoma of the prostate of variable differentiation, 1 had carcinoma of bladder infiltrating the prostate, 42 had BPH ±prostatitis, 2 had prostatitis and 1 revealed normal glandular tissue(Table III). Three out of 7 patients who had cystoscopy revealed bladder tumor, 1 transitional cell carcinoma of the bladder and 3 had sign of prostatic enlargement.

After taking the biopsy, out of the 50 patients, 6 (12%) had fever (0.5-1 ^{0}C) and 5 (10%) had mild hematuria, all subsided spontaneously within 24-48 hours (Table IV).

Discussion

In general needle biopsy is the simplest, inexpensive method, which causes minimal disturbance of the surrounding tissue.

Difficulties encountered may be due to uncooperativeness of the patient, fibrosis and infection, prostatic stones interpreted as induration, old surgery as TUR and small carcinomatous lesion which might be missed by the needle or examining finger. The danger of implanting tumor cells in the needle tract is extremely small, a case reported by Goldman E J [3].

The differential diagnosis of prostatic induration includes adenocarcinoma; adenofibrohyperplasia; chronic prostatitis with or without calculi; granulomatous prostatitis. In this series 3 out of 12 patients (25%) had

Induration	Fever	Haematuria
None		
No.	2/15	1/15
Percent	13.3	6.6
Slight		
No.	0/23	2/23
Percent	0	8.7
Marked		
No.	4/12	2/12
Percent	33.3	16.6
Total		
No.	6/50	5/50
Percent	12	10

TABLE IV: Complications correlated to rectal digital examination.

	Fever	Haematuria	Rectal bleeding
Emmett[6]	Occasional	5/200(2.5%)	-
Davis[7]	2/175(1.1%)	1/175(0.5%)	-
Nesi[8]	7/140(4.9%)	27/140(18.9%)	15/140(10.5%)
Barne[9]	12/217(6%)	19/217(9%)	4/217(2%)
Current Series	6/50(12%)	5/50(10%)	0/50(0%)

TABLE V: Complications correlated to other studies.

	Induration					
	None		Slight		Marked	
	No.	Percent	No.	Percent	No.	Percent
Parry[10]	3/15	20	-	-	-	-
Bianchi[11]	6/56	11	-	-	-	-
Spring[12]	1/64	2	1/7	14	25/30	83
Bertelsen[13]	-	-	6/35	17	3/10	30
Catalona[14]	0/24	0	4/36	11	5/11	45
Current series	0/15	0	1/23	4.3	3/12	25

TABLE VI: Correlation of results of needle biopsy.

positive biopsy result for carcinoma, 1 patient (8.4%) had prostatitis (Table II).

A number of variables may influence the incidence of carcinoma found on routine prostatic needle biopsy, of these, the age is one factor as carcinoma is found more frequently in elderly patients. Another factor is the racial composition of the group as the incidence of carcinoma is higher among black patients (Ernester V L)[4]. The accuracy of transrectal needle biopsy for establishing a diagnosis of early carcinoma of prostate was reported to be 95% by Hendry[2] and 96% by Zincke et al[5].

In our study, 12 patients had opened prostatectomy and histological diagnosis confirmed that of needle biopsy, although the number of cases is small, the accuracy rate is 100%.

The confidence in negative transrectal prostatic needle biopsy was studied by Zincke et al[5], where out of 100 patients, 12% had false negative results, and in the study of Emmett[6] 5% of the 200 patients had false negative. In the current series no false negative results were detected and further follow up is still going on.

In this study no special preparation were used, 10 patients had prostatic needle biopsy as outpatients and 40 as inpatients for causes other than biopsy. Emmett[6] hospitalized all the patients and enemas were given until water returned clear and sulfonamide was given orally the day of, and daily for a week following the procedure, transient pyuria or dysuria±fever was observed occasionally, 5/200 (2.5%) had slight gross hematuria and unexplainable unexpected death occurred in one patient. Davis[7] also hospitalized all patients and sulfa was given for 3 days before the day of biopsy, 1/175 (0.5%) patient had gross hematuria for one day, 2 had fever after biopsy.

In a study conducted by Nest et al[8], 7 out of 140 patients(5%) had fever inspite of using tetracycline 1 gm/6hr. before and 3 days after the biopsy.

In another study conducted by Barne and Ninan[9], fever was found in 12 out of 217 patients (6%) and they used antiseptic rectal infusion for 10 min. before taking a biopsy.

In the current study, 6 out of 50 patients (12%) had fever, 5 out of 50 (10%) had hematuria, both subsided spontaneously within 24-48 hours (Table V).

From the forgoing discussion and correlating our results with those conducted by others and keeping in mind the factors influencing the incidence of carcinoma of prostate and personal differences in judgment in borderline cases of induration (slight induration), we can conclude that there is a general correlation between the results of rectal digital examination and the incidence of positive transrectal needle biopsy which, when performed by skilled personal requires no special preparation and/or treatment as the recorded complications subsided spontaneously and we can regard transrectal prostatic needle biopsy to be simple and accurate procedure for the surgeon and safe to the patient (Table 6).

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