FINE NEEDLE ASPIRATION BIOPSY IN THE DIAGNOSIS OF PROSTATIC CARCINOMA

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SUMMARY

Transrectal fine needle aspiration (FNA) and core biopsies were simultaneously taken from 68 patients with clinically suspected prostatic carcinoma (PCa) in a twenty two-month period. In nine FNA and two core biopsies, histopathologically 26 patients were diagnosed as PCa and the remaining 42 as benign prostatic hyperplasia (BPH). FNA alone revealed PCa in 24/26 (92,3%) patients, whereas core biopsy in 25/26 (96,2%) patients. There was one false-negative result for each method. The data from this study suggests that FNA is reliable in diagnosing PCa accurately.

Key Words: Prostatic carcinoma, prostate biopsy, fine needle aspiration.

INTRODUCTION

Prostatic biopsy is indicated in all of the clinically suspected cases of PCa. The biopsies can be obtained via transrectal and transperineal routes. The diagnosis of prostatic carcinoma (PCa) traditionally has been established histologically either by open perineal biopsy or by core needle biopsy. FNA biopsy first began to be used in Europe to confirm the diagnosis of PCa (1). Recently there has been increasingly greater acceptance of this technique worldwide.

In this prospective study, data from FNA and core needle biopsy specimens of 68 patients were compared to determine the efficacy of FNA.

MATERIALS AND METHODS

From April 1988 to January 1990, 68 consecutive patients were biopsied with both transrectal FNA and core needle biopsy. A 23 gauge 210 mm. Franzen aspiration needle was used for FNA and 21 gauge Tru-cut needle for core biopsy.

The biopsies were performed under general anesthesia and in standard Lithotomy position. Gentamicin prophylaxis and appropriate aseptic technique were used in all patients. The metal steering ring of the Franzen needle was secured on a gloved index finger and inserted into the rectum with the finger. After the palpation of the suspicious area of the prostate, fine needle was introduced through the ring to this site. Then the stylet was removed back and suction was applied by a syringe attached to the end of the aspiration needle. During the maintenance of negative pressure by the syringe, the needle was moved back and forth within the nodule. The suction was released before withdrawal of the needle. Aspirate in the needle was blown onto two slides by the aid of an air-filled syringe and smeared. The slides were immediately immersed into 95 per cent ethanol for fixation. The Papanicolaou method was used to stain the slides. The slides were evaluated irrespective of the histological results of the core biopsies.

The core needle biopsies were obtained after FNA. The index finger was inserted into the rectum placing the Tru-cut needle on the volar part of the finger. After the palpation of the nodule, the biopsy was performed as it was described in the instruction manual. The specimen obtained by the procedure was put into formalin. After completion of the necessary processes, the pathologist examined the specimen without being aware of the result of the aspiration material. A

sponge with vaseline and antibiotic pomade was left in the rectum and removed within 12-24 hours. The patients were usually hospitalized for one night.

In two patients, core biopsies were repeated for the second time since FNA revealed PCa in one of them and the material obtained was inadequate in the other.

RESULTS

The biopsy material was inadequate in nine of the FNA and in two of the core biopsies. After the completion of histopathological and cytological studies, 26 of 68 patients were diagnosed as PCa, and the remaining 42 as BPH. Of the 26 PCa, 25 were adenocarcinoma and one was primary transitional cell carcinoma of the prostate. The accuracy rates were 92,3 % (24/26) for FNA and 96,2 % (25/26) for core biopsies in the PCa group (table).

One of the repeat core biopsies was due to PCa cytology detected in FNA which later confirmed the diagnosis and the other was due to inadequate material in the first one which revealed BPH later. The nine FNA biopsies with inadequate material were not repeated since the tissue obtained by core biopsies were enough to confirm the diagnosis.

There was only one complication in the study group and this was the fever of 39°C encountered in a patient with no other significant source.

DISCUSSION

In the diagnosis of PCa, FNA and core needle biopsy have comparable rates of accuracy (2) and sensitivity (3). The accuracy rates for FNA and core biopsy were 92,3% and 96,2% respectively in this study. The cytohistological correlation between these two methods has been reported to be between 90.4 and 96.4 % (4). The figure was slightly lower for our study (88,5 %) and this was due to technical failures encountered in early phases of the trial.

FNA is a cost effective method with lower complication rates and less bleeding (5) that can easily be performed in an out-patient basis. The results can be obtained in a shorter period. Absence of a tissue sample and the need of an experienced cytopathologist can be considered as the drawbacks of the method. The technique and processing need further experience and skills because minor deviations may result with higher false-negative rates. For FNA, 1 to 25% of false-negative rates have been reported (4). The false-negative rate was 3,8% for both FNA and core biopsy in our study. Inadequate sampling rates of FNA are higher than core biopsy and reported to be between 2-16 % (4). The rates were 13,2 % for FNA and 2,9 % for core biopsy in our series.

As a conclusion, transrectal FNA biopsy is a reliable method in detecting PCa.

Table: ACCURACY OF THE BIOPSY METHODS

		Accuracy (%)	
	No. of cases	FNA	Core
PCa	26	24 (92.3)	25 (96.2)
BPH	42	34 (80.9)	40 (95.2)
TOTAL	68	58 (85.3)	65 (95.6)

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