

IDENTIFICATION OF OCCULT PROSTATE MALIGNANCY USING A STEREOTACTIC TRANSPERINEAL PROSTATE BIOPSY TECHNIQUE

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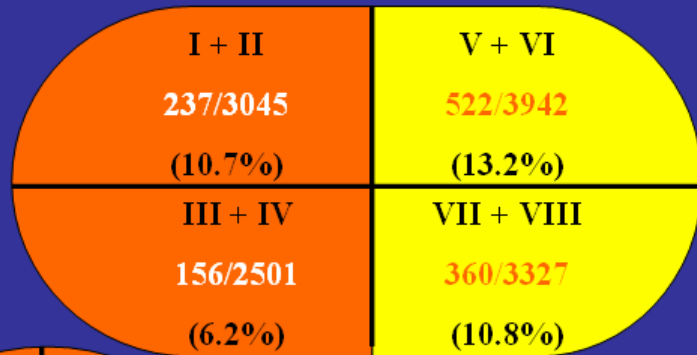
Purpose: This study investigates the detection rate of non-palpable, isoechoic occult prostate malignancy using a stereotactic transperineal prostate biopsy (STPB) technique in patients with previously negative transrectal ultrasound-guided prostate biopsy.

Materials and Methods: 430 consecutive patients with continued rising total prostate specific antigen (PSA) with a minimum of 1 prior benign transrectal prostate biopsy (range 1-8), underwent STPB at a single out-patient institution between 04/2004 and 03/2007. Median patient age, total PSA and prostate volume and number of specimens obtained were 62 years, 8.3 ng/ml, 46.1 cm³ and 40 specimens, respectively. Similar to a prostate brachytherapy procedure, the prostate was positioned on the implant grid. Specimens were obtained according to x, y, and z coordinates from eight equal octants with pathology reported accordingly. A greater number of specimens were obtained from the apical half than the basilar half of the prostate; this was attributed to smaller glands in which the apical specimens sufficiently sampled the anterior curvature of the gland.

Results: STPB yielded adenocarcinoma in 164/430 (38%) patients. The number of biopsy cores obtained per patient approximated the prostate gland volume in cm³. Multivariate analysis (paired samples t-tests) demonstrated there was a significant difference in detection rates with the apex having a higher incidence of malignancy than the base of the prostate gland (p=.000). Furthermore, the anterior apex harbored significantly more adenocarcinoma when compared to the posterior apex (p=.026) (Figure 1).

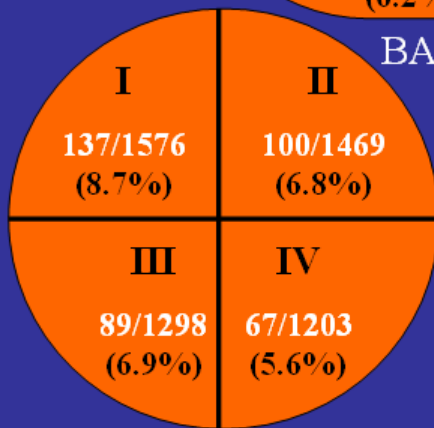
Conclusions: STPB is efficacious for diagnosis of non-palpable, isoechoic occult prostate malignancy. A possible explanation for the significant finding in this study that occult malignancies occupy a higher percentage of apical biopsies using STPB may be related to difficulty and limitations of apical sampling using a standard transrectal biopsy approach.

SAGITTAL VIEW

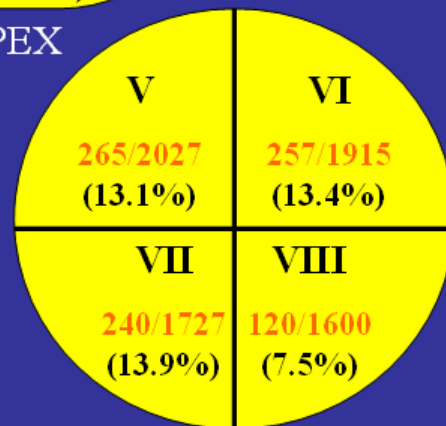


BASE

APEX



AXIAL VIEW OF BASE



AXIAL VIEW OF APEX