

PATHOLOGIC AND CLINICAL FINDINGS WITH TEN-CORE PROSTATE BIOPSY SAMPLING

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Introduction and Objectives:

A ten-core sextant biopsy technique that includes additional lateral cores from the peripheral zone (base and mid-zone) has been reported to increase the prostate cancer (pCa) detection rates. An additional sampling may also better determine clinically indolent cancers (insignificant or minimal tumours).

Methods:

We evaluated pathology, clinical, and demographics data in 1520 sextant ten-core prostate biopsies performed at the Rockyview Hospital utilising "site specific submission" (July 2000 to June 2001). Access database was created and clinical, demographic, and pathology data were recorded for all positive and suspicious cases. Radical prostatectomy data from the same period were recorded and matched with the biopsy data.

Results:

During the first six-month period 697 biopsies (116/month) were performed, and during the second six-month period 823 biopsies (137/month) were performed (18% increase). Prostate cancer was detected in 585 (38.5%) of biopsies. Only one core involvement was detected in 152 patients (10% of all cases and 26% of pCa). Half of these patients (75/152) had one of two (or three) cores sampled from the same location (5% of all cases and 12.3 % of pCa). Minimal pCa on biopsy (one core $\leq 5\%$ involvement and ≤ 1 mm) was found in 65 cases (4.3% of all cases and 11.1% of pCa cases) with Gleason score of 6.1 (mean). Gleason grade 6 or less was found in 49 (88%) of patients with minimal pCa showing no perineural invasion. PSA of 7.8 ng/ml and PSAD of 0.196 (means) characterized this group of patients. Sixteen of these patients that underwent radical prostatectomy showed organ-confined disease with negative seminal vesicles and negative lymph nodes and their Gleason grade did not increase on prostatectomy (total Gleason score 6). Perineural infiltration was identified in 129 (8.5%) and periprostatic fat invasion was detected in 16 (1%) of all biopsies. Prostatic intraepithelial neoplasia, high grade (PIN) was diagnosed in 310 biopsies (20.4 %). PIN was present concomitantly in 407 (69.6%) of pCa cases. The incidence of atypical and suspicious cases was 5.46 % (83 biopsies). During the second 6-month period 26 cases were diagnosed as atypical/suspicious (3.26% 6-month frequency) in comparison with 57 (8.18% 6-month frequency) during the first six months. Mean age of all pCa patients of 65.6 (range 37 to 85) did not show significant difference in comparison to groups with one core involvement and minimal pCa on prostate biopsy. Sensitivity for digital rectal examination was 39.5%, 33.1%, and 31.6%, and sensitivity for transrectal ultrasound examination was 32.1%, 19.9%, 15.8% (all pCa , one core involvement, and minimal pCa, respectively).

Conclusions:

Ten-core sextant biopsies provide similar pCa, PIN and atypical/suspicious findings rates to six-core sextant biopsy sampling as reported in the literature. Up to 12.3% of cases showing only one core involvement (of two or three per specific location) would have been potentially missed with six-core sampling instead of ten. Pathology findings of one core $\leq 5\%$ biopsy involvement in ten-core biopsies, Gleason grade ≤ 6 , and absence of perineural invasion combined with PSA ≤ 8 ng/ml and PSA/D < 0.2 may determine a subgroup of clinically indolent (minimal or insignificant) pCa. Detailed volumetric analysis of pCa in radical prostatectomy specimens is necessary to separate clinically significant from potentially indolent (insignificant or minimal cancers).