TO REDIRECT PATIENTS FROM THE OVER-DIAGNOSIS OF PROSTATE CANCER TO BENIGN PROSTATIC HYPERTROPHY, BPH, NORMALIZE THEIR 'ELEVATED PSA' WITH FINASTERIDE AND OFFER MICROWAVE IF THEIR SYMPTOMS IMPROVE
Anthony H. Horan, Delano, California

Introduction: After the Preventive Task Force discouraged the use of PSA for screening, the consensus practice has been to shunt insignificant cancers, discovered via PSA directed biopsies, to a ‘surveillance’ track. This ‘track’ perpetuates the over-diagnosis of prostate cancer, the septic deaths caused by the trans-rectal route, and over-treatment in the cultures that privilege radical surgery/radiation, e.g. the U.S.A. The epidemic here could be slowed by a diminished utilization of prostate biopsies.

Methods: 49 patients from June 2009 – April 2010 appearing on the books as “elevated PSA” were culled consecutively from the 265 (June 2009-20015) in the EMR of a solo private practice. In this practice, PSA’s were normalized by a ‘finasteride test’ or a ‘PSA density test’. The finasteride test is to give finasteride 5 mg p.o. q.d. for three months, repeat the PSA, and re-query the symptoms. The ‘elevated PSA’ is required to drop to half its value, preferably below 4.0, as has been published in J. Urol. The symptoms and PSA value should diminish if caused by BPH e.g. less nocturia. The PSA divided by the volume of BPH estimated by digital rectal exam should be <.15, e.g. a PSA of 6 ng/dl if divided by an estimated 60 grams of BPH =.10. The cancer scare is diminished. Only nodules* were biopsied and they only by the trans-perineal route.

Results: The average “elevated PSA” was 8.0. There were 10 perineal needle biopsies in the 49 patients, a 20% biopsy rate, lower than most ‘elevated PSA’ series.
Fig. 1 = % biopsy. Six were positive for Gleason 3+3. One Gleason 9 was discovered by perineal biopsy, another in the chips of a TURP. 9 microwaves were indicated by improvement of BPH symptoms on finasteride. 8 TURPs resulted from the failure of BPH symptoms to improve on finasteride.

Conclusion: the finasteride and PSA density tests are a practical way to redirect a medically illiterate population from a pre-occupation with early cancer detection (and its subsequent, unnerving, ‘surveillance’) to the more necessary early detection and treatment of BPH. If symptoms improve, microwave in the office gives good results. If symptoms don’t improve then the TURP gives excellent relief of symptoms and reveals the occasional Gleason 9.
TARGETED BIOPSY USING MRI-ULTRASOUND FUSION IMPROVES DETECTION OF CLINICALLY SIGNIFICANT PROSTATE CANCER


(Presentation to be made by Dr. Geoffrey Sonn)

Objectives: Targeted biopsy of lesions identified on MRI may enhance prostate cancer detection. Most experts continue to recommend a combination of targeted and systematic biopsy to maximize diagnosis of clinically significant prostate cancer. Yet, until systematic biopsy is eliminated, targeted biopsy will not achieve its potential to reduce overdiagnosis of indolent cancer foci. We evaluate cancer detection in 141 consecutive men using MRI-US fusion targeted prostate biopsy, comparing targeted vs. systematic biopsies.

Materials and Methods: Subjects in this IRB approved study were either in active surveillance (N=49), had prior negative biopsies but persistently elevated PSA (N=48), or were undergoing their first biopsy (N=44). Biopsies occurred from 3/2014 to 5/2015. Prior to biopsy, each man underwent multiparametric MRI at 3.0-Tesla including T2-weighted imaging (T2WI), dynamic contrast enhancement (DCE), and diffusion-weighted imaging (DWI); no endorectal coil was used. Lesions (targets) on MRI were outlined in 3D and assigned a cancer suspicion level from 3 to 5 (PI-RADS version 1) by one of 11 radiologists who read prostate MRI at Stanford. At biopsy, the Artemis device (Eigen, Grass Valley, CA) fused the stored MRI with real-time ultrasound, generating a 3D prostate model on-the-fly. Working from the 3D model, transrectal biopsy of target lesions and 12 systematic biopsies were performed under local anesthesia in the clinic. Cancers with Gleason score ≥7 were deemed clinically significant.

Results: After excluding 22 subjects with a normal MRI who were biopsied using a systematic template alone, 113 subjects (median age 66) underwent both targeted and systematic biopsy. At biopsy, median PSA was 8.9 ng/ml and prostate volume was 54.1 cc. Mean time from nerve block to last biopsy was 21 minutes. Cancer was found in 80 of 113 men (70.8%); Gleason ≥7 cancer was found in 59 (52.2%).

Targeted biopsy findings correlated with MRI suspicion level.

<table>
<thead>
<tr>
<th>PI-RADS</th>
<th># Targets</th>
<th># CaP (%)</th>
<th># Gleason ≥7 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>64</td>
<td>9 (14%)</td>
<td>5 (8%)</td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td>33 (47%)</td>
<td>21 (30%)</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>34 (97%)</td>
<td>30 (86%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>172</td>
<td>78 (45%)</td>
<td>58 (34%)</td>
</tr>
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</table>

On a per patient basis, the detection rate for all cancers was 66% for systematic biopsy and 55% for targeted biopsy. The cancer detection rate for clinically significant cancer was 34% for systematic biopsy and 44% for targeted biopsy (p=0.07). 8 (7%) men with clinically significant cancer would have been missed if systematic biopsy was omitted. 21 (19%) men with clinically significant cancer would have been missed if targeted biopsy was omitted. Inclusion of systematic biopsy resulted in detection of 12 (11%) additional men with Gleason 6 cancer only.

Subset analysis was also performed. In the first time biopsy cohort (n=44), clinically significant cancer was found by systematic biopsy in 35% of subjects and targeted biopsy in 47% (p=0.25). 3 (9%) men with clinically significant cancer would have been missed if systematic biopsy was omitted. 7 (21%) men with clinically significant cancer would have been missed if targeted biopsy was omitted. Inclusion of systematic biopsy resulted in detection of 1 (3%) additional man with Gleason 6 cancer only.

In the active surveillance cohort (n=49), clinically significant cancer was found by systematic biopsy in 46.2% of subjects and targeted biopsy in 51% (p=0.62). 3 (8%) of men with clinically significant cancer would have been missed if systematic biopsy was omitted. 7 (18%) men with clinically significant cancer would have been missed if targeted biopsy was omitted. Inclusion of systematic biopsy resulted in detection of 6 (15%) additional men with Gleason 6 cancer only.

In the prior negative biopsy cohort (n=48), clinically significant cancer was found by systematic biopsy in 22% of subjects and targeted biopsy in 35% (p=0.18). 2 (5%) men with clinically significant cancer would have been missed if systematic biopsy was omitted. 7 (18%) men with clinically significant cancer would have been missed if targeted biopsy was omitted. Inclusion of systematic biopsy resulted in detection of 5 (12%) additional men with Gleason 6 cancer only.

Conclusions: Prostate lesions identified on MRI can be accurately targeted using MRI-US fusion biopsy in clinic. Biopsy findings strongly correlate with suspicion level on MRI. Targeted biopsy identifies more clinically significant prostate cancer than systematic biopsy for all three patient cohorts. While maximizing detection of significant cancer still requires a combination of targeted and systematic biopsy, elimination of systematic biopsy would miss <10% of men with significant cancer.

Source of Funding: None
THE FUNCTIONAL ANALYSIS OF PATIENT OUTCOMES FOLLOWING DIFFERENT SURGICAL INTERVENTIONS FOR BENIGN PROSTATE HYPERPLASIA THROUGH THE ADMINISTRATION OF AN INDEPENDENT SURVEY.
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Phoenix AZ
(Presentation to be made by Haidar M. Abdul-Muhsin)

Objective: The purpose of this study was to assess patient-reported functional and quality of life outcomes associated with various forms of benign prostatic hyperplasia (BPH) surgical treatment over a 5 year period from a single institution and an independent third party survey center.

Materials and Methods: An independent third party survey center was employed to send a comprehensive questionnaire to all patients who underwent any form of surgical treatment for BPH at our institution between January 2007 to January 2013. Patients were identified using Current Procedural Terminology (CPT®) codes and our institutional billing records. Overall satisfaction, urinary and sexual functional outcomes were evaluated as part of this survey. After obtaining IRB approval, the validated instruments were Sexual Health Inventory for Men (SHIM), the International Prostate Symptoms Score (IPSS) and the International Continence Society – Short Form questionnaires (ICSmaleSF). Overall SHIM, IPSS and ICS scores were analyzed as were the individual domains in each questionnaire, comparing them individually and as a function of the specific patient procedure.

Results: Nine hundred and six patients underwent surgical intervention for BPH at our institution during the study interval. Forty four were deceased at the time of the survey. Of the remaining 862 patients, there were 479 respondents (response rate = 55.6%). Among responders there were 214 Holmium Laser Enucleation of the Prostate (HoLEP), 210 Transurethral Resection of the Prostate (TURP), 21 Holmium Laser Ablation of the Prostate (HoLAP), 18 Photoselective Vaporization (PVP), 9 transurethral Incision of the Prostate (TUIP) and 7 open simple prostatectomy (OSP) patients. Preoperatively, patient reported complete continence rates as 55.3%, 58.2%, 71.4%, 57.1%, 66.7% and 80%, respectively (P= 0.651). Postoperatively, there were no statistically significant differences in SHIM scores. However, total IPSS varied significantly among responders of each surgical technique (p<0.0001). Mean (±SD) IPSS was lowest for OSP 4.0 (±2.6) followed by HoLEP 5.8 (±5.4). When Individual IPSS domains of urinary function were analyzed, there were significant differences in intermittency (p=0.0004), weak stream (p=0.0029), straining (p<0.0001) and quality of life QoL (p=0.001) among the groups. In all of these domains HoLEP patients had the lowest scores. Regarding ICSmaleSF, there was a statistically significant difference in favor of TURP in the incontinence domain (ICSmaleIS) (p<0.0001) and in favor of HoLEP in the voiding (ICSmaleVS) (p=0.0192) and QoL domains (p=0.0344). The majority of the patients were satisfied with their surgical intervention independent of the type of procedure. Regret was assessed by asking the patients if they would choose the same procedure if they had the opportunity to do it all over again. There was a statistically significant difference in favor of HoLEP where 64.1% strongly agreed with desire to undergo the same procedure (p=0.0175).

Conclusion: Patients generally expressed satisfaction with surgical intervention for their BPH. However, those who underwent a HoLEP tended to have the best functional outcomes and highest quality of life scores when independently assessed on a third party survey.

Source of Funding: None
ROBOT ASSISTED SIMPLE PROSTATECTOMY: HOW DOES IT COMPARE TO HOLMIUM LASER ENUCLEATION OF THE PROSTATE AND OPEN SIMPLE PROSTATECTOMY PROCEDURES?

Patrik Luzny M.D., Richard V. Matern M.D., Blake D. Hamilton M.D., Andrew W. Southwick M.D.: Salt Lake City, UT.
(Presentation to be made by Dr. Luzny)

Objectives: The robot assisted simple prostatectomy (RASP) was first performed by Dr. Sotelo in 2007 as a novel method for surgical management of severe benign prostatic hyperplasia. Several papers describing mostly small series of RASP have been published since 2008. However, to our knowledge, no direct comparison between RASP, holmium laser enucleation of the prostate (HoLEP), and open simple prostatectomy (OSP) has been published.

Materials and Methods: We retrospectively identified 7 RASP procedures performed by a single surgeon between 2012 and 2015. Twenty-one HoLEP procedures performed by a single surgeon and matched to RASP procedures preoperative transrectal ultrasound (TRUS) prostate volume and 20 unmatched OSP procedures performed by two surgeons in a single institution between 2005 and 2012 were used for comparison with respect to the following variables: patient age, operating room time, procedure time, preoperative prostate size, mass of tissue removed, perioperative change in hematocrit (Hct), length of catheterization (LOC), length of hospital stay (LOS), and number of complications.

Results: All data are listed in the following order: RASP, HoLEP, and OSP. Mean patient age was 68.3, 69.5, and 72.1. Mean operating room time (min) was 212, 214, and 199. Mean procedure time (min) was 173, 175, and 154. Mean preoperative TRUS prostate size (cc) was 123, 123, and 178. Mean mass of removed tissue (gram) was 85.6, 86.1, and 137.0. Mean perioperative change in Hct (%) was 8.58, 7.26, and 9.88. Mean LOC (day) was 5.43, 4.14, and 3.30. Mean LOS (day) was 1.43, 1.52, and 4.80. Complications were reported in 14.3, 9.5, and 25%. Compared to RASP, HoLEP did not statistically differ in any of the variables. OSP was associated with statistically significant longer LOS.

Conclusions: While the long term functional outcomes of RASP are yet to be determined, in the immediate perioperative period it performs similarly to HoLEP. With respect to OSP, RASP has a significantly shorter LOS which may offset the expenses associated with slightly longer operating room time and the use of disposable instruments.

Source of Funding: none
LARGE TURPs: STILL THE GOLD STANDARD?
John Banerji M.D., Thomas R. Hefty M.D.: Seattle, WA
Presentation to be made by Dr. Thomas Hefty

Objectives: TURP has been performed for over 80 years and represents the first minimally invasive surgery. In recent decades, TURP has benefited from many technical improvements. At the same time, numerous competing approaches including, pharmacology, balloon dilation, stenting, microwave thermotherapy, TUNA, laser vaporization and HOLEP have been developed. Some of these have come and gone and many patients undergoing TURP have had one or more of these approaches prior to surgery. As patients receive medical and other treatments, there may be a trend toward larger resection weights and a higher rate of catheter dependence prior to TURP. This study was undertaken to examine contemporary prostate resection weights of TURP as well as results and complications.

Materials and Methods: Men undergoing TURP by the senior author from 2008-2015, whose resected weight was 45 grams or greater, had their medical records reviewed for weight of the prostate specimen and histology via the pathology report, estimated blood loss, pre and post op hematocrit, pre and post op serum sodium, length of stay, complications, subjective results or ongoing need for catheterization. A weight of 45 grams or greater was deemed a large TURP as it is double the national average.

Results: Fifty one men had large TURPs with mean resected weights of 69 grams (45-132). The median age and LOS were 72 years (52-90), 1 day (1-5). The mean EBL was 350 ml (+/- 150). The median HCT drop was 4% (4-18) and the median [Na] decrease was 2mg/dl (3-10). No patient had TUR Syndrome (symptomatic hyponatremia or [Na] less than 125). Five patients received blood transfusions. Three of these were admitted for vigorous hemorrhage and Foley catheter obstruction pre-TURP, and were anemic at the time of urgent surgery. One patient was transfused when taken back for an arterial bleeder on POD 2 and the last patient had transfusion at his CABG that occurred in the same admission. The transfusion rate for operative blood loss was 2-4%. Seventy one percent of these men were catheter dependent pre op but all were free of catheters in follow up. 7 patients had CAP (13.7%) in their pathology report (5 had Gleason 6 CAP <5% and 2 had Gleason 7 disease). Ninety eight percent of these men strongly affirmed satisfaction with the procedure. One didn’t speak English. Mortality was zero.

Conclusions: Large prostates can be safely approached with TURP with excellent results. On one occasion in this series, only one lobe was resected with plans to return for a second procedure. The other cases were single resections. The alternative of open prostatectomy seems anachronistic, unless the prostate is over 200 grams since it is probable that two TURPs are less morbid and less expensive than one suprapubic prostatectomy.

Source of Funding: None
PANEL DISCUSSION

Expert Panel on BPH.

Harcharan Gill, MD
Stanford University Medical Center

Mitchell R. Humphreys, MD
Mayo Clinic

Maurice Garcia, MD
University of California, San Francisco

Andrew W. Southwick, MD
University of Utah Hospital and Clinics
Objectives: The role of serum cholesterol levels on symptomatic BPH progression remains unclear. Our aim was to evaluate the association between serum cholesterol levels and BPH progression using the REDUCE study.

Materials and Methods: REDUCE was a 4-year, multicenter, randomized, double-blind, placebo-controlled study that followed biopsy-negative men with protocol-dictated biopsies at 2- and 4-years testing dutasteride for prostate cancer risk reduction. Total serum cholesterol, LDL, and HDL levels were measured at baseline. During the 4 year study period, participants completed the International Prostate Symptom Score (IPSS) every 6 months. Exclusion criteria included men on BPH medical therapy or baseline IPSS $\geq$ PH Incident symptomatic BPH was defined as the first report of medical treatment, surgery, or sustained clinically significant BPH symptoms defined as two reports of IPSS$>$14. Men who progressed within 30 days of study enrollment were also excluded. Cox proportional hazards analysis was used to test whether cholesterol, HDL, and LDL levels independently predicted time to BPH progression. Secondary analyses were conducted to test for interactions between cholesterol and BMI, smoking, and diabetes.

Results: Of the 2,348 men who met study enrollment criteria, 256 progressed to symptomatic BPH. On crude analysis, higher HDL was associated with a decreased risk of BPH progression (HR 0.88, p=0.018) while total cholesterol and LDL showed no association. After adjusting for race, diabetes, smoking, BMI, IPSS, region, PSA, prostate volume, age, testosterone level, and treatment group (dutasteride vs. placebo), the association between HDL and BPH progression remained significant (HR 0.89, p=0.030) while LDL had no association. However, higher total cholesterol was associated with an increased risk of BPH progression (HR 1.04, p=0.035). The cholesterol ratio defined by total cholesterol/HDL was associated with increased risk of BPH progression on crude (HR 1.11, p=0.013) and adjusted models (HR 1.12, p=0.016). Furthermore, there were no significant interactions between cholesterol levels and BMI, smoking, and diabetes (p>0.327).

Conclusions: Among men in REDUCE, the cholesterol to HDL ratio was significantly associated with BPH progression. Further research is needed to confirm these findings and understand the potential role of dyslipidemia may play in BPH progression.

Funding: This study was supported by GlaxoSmithKline (GSK).
MAGNETIC RESONANCE IMAGING SPECTROSCOPY IMPROVES PREDICTION OF HIGH GRADE PROSTATE CANCER COMPARED WITH PI-RADS 2.0

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Purpose: Magnetic Resonance Imaging (MRI) has demonstrated considerable clinical value in the detection of clinically significant prostate cancer (PCa), but the optimal sequences and reporting rubric remains to be defined. The American College of Radiology, the AdMeTech Foundation, and the European Society of Urogenital Radiology have partnered and recently presented a new version of the Prostate Imaging Reporting and Data System (PI-RADS 2.0), which integrates results of T2-weighted, high B-value diffusion-weighted (DWI), and dynamic contrast enhanced (DCE) MR imaging. MR spectroscopic imaging (MRSI) is an optional tool, as it is a difficult and time-consuming technique. The goal of this study was to compare the predictive performance of the PI-RADS 2.0 system with or without the addition of MRSI.

Methods: We studied the association between mpMRI sequences and pathologic outcomes in patients treated with radical prostatectomy (RP) with whole-mount pathological analysis in the setting of clinically localized prostate cancer (PCa) at a single institution. All studies included 3-Tesla endorectal T2-weighted, high B-value diffusion-weighted (DWI), dynamic contrast enhanced (DCE), MR spectroscopic (MRSI) sequences. A single, experienced radiologist calculated the PI-RADS 2.0 score. Logistic regression was used to evaluate the probability of high grade PCa defined by the presence of dominant Gleason pattern 4 as well as non-organ confined disease (≥pT3a) at RP by imaging parameters. Receiver operator characteristic curves (ROC) were used to compare the predictive performance of the PI-RADS 2.0 system with or without the addition of MRSI.

Results: We identified 40 patients who underwent four-sequence mpMRI within six months of RP. The median age was 65 years, median PSA 6.7 ng/mL (IQR 4.7-9.6). The area under the ROC curve for prediction of high grade PCa was 0.62 (95% CI 0.47-0.78) for PI-RADS 2.0 alone compared with 0.78 (95% CI 0.64-0.93) for PI-RADS 2.0 combined with MRSI (p=0.02). For the prediction of non-organ confined disease the area under the ROC curve was 0.57 (95% CI 0.42-0.73) for PI-RADS 2.0 compared with 0.64 (95% CI 0.45-0.82) for the combined approach (p=0.43).

Conclusion: MRSI appears to improve the discrimination of pathological high grade PCa when added to the PI-RADS v2 scoring system.

Objectives: The local growth potential of untreated, favorable-risk prostate cancers (PCa) is unknown, yet potentially impactful for the practice of active surveillance (AS). We evaluated the incidence, growth rates and clinical significance of ultrasound-evident intraprostatic lesions on serial examination among a large cohort of men with favorable PCa managed with AS at a single institution.

Materials and Methods: We identified men with low and intermediate clinical risk PCa managed with AS at the University of California, San Francisco who received a minimum of two TRUS studies by a highly experienced sonographer. Participants were selected on the basis of PSA ≤20, biopsy Gleason ≤3+4, clinical stage ≤T2 and receipt of first TRUS within six months of diagnosis. We described the presence and dimensions of hypoechoic or hypervascular lesions at diagnosis, the number of patients experiencing new or multiple lesions, as well as those with progression of clinical stage. To account for inter-examination variation, a volumetric threshold of ≥ 50% was utilized to define interval growth. The relationship between imaging progression and adverse pathologic findings (Gleason ≥ 4+3, ≥ pT3a, N1, or margin positive) among men ultimately treated with radical prostatectomy was assessed using univariate and multivariate logistic regression models.

Results: Among 713 identified patients the median number of TRUS studies was 5 (IQR 3-8), median follow up was 54 months (IQR 30-87). 181 (25%) patients had TRUS-evidence lesions at baseline; in 20 (6%) >1 lesion was identified. 167 (23%) patients progressed on serial TRUS imaging, including 55 (8%) by size, 39 (5%) by number of lesion and 119 (17%) by stage. Among T1c and T2a/b, 104 (20%) and 15 (10%) progressed to a higher stage respectively. The mean volume of the dominant lesion at diagnosis was 0.45cm$^3$ (IQR: 0.22-0.6) and 0.61 cm$^3$ (IQR: 0.29-0.73) at progression. The median time to progression was 12 months (IQR: 6-28). Among 157 ultimately treated with RP, progression on TRUS imaging prior to surgery was not associated with adverse pathological findings.

Conclusions: Prostate tumors, assessed by high resolution anatomic ultrasound are non-static during prostate cancer active surveillance. Imaging progression alone does not appear to be significantly associated with the occurrence of high grade or non-organ confined disease.
THE ROLE OF TRANSPERINEAL PROSTATE BIOPSY IN PATIENTS WITH PERSISTENT CLINICAL SUSPICION OF PROSTATE CANCER

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(Presentation to be made by Dr. John M. Corman)

Objectives: With the advent of targeted MRI-guided transrectal prostate needle biopsy (PNB), the future role of transperineal 24-core template-guided (TP-24) prostate biopsy is unclear. TP-24 is currently an accepted alternative to transrectal ultrasound-guided (TRUS) PNB for enhanced tumor staging as well as for patients with a negative TRUS PNB but persistent clinical suspicion for the presence of disease. The transperineal approach offers comprehensive tissue sampling and, importantly, access to the anterior aspect of the gland. The purpose of this study was to determine the efficacy of a standardized TP-24 biopsy for detecting PCa in patients who previously have undergone a TRUS PNB that was negative for malignancy. In addition to PCa detection rate, tumor characteristics, including Gleason score, clinical stage, and location of disease (anterior vs. posterior), were assessed.

Methods: A retrospective review was performed on a prospective IRB-approved database of patients undergoing prostate biopsy at Virginia Mason from 2005 to 2015. Patients who underwent a TP-24 biopsy and had previously undergone at least one 10 to 12-core TRUS PNB were included. Patients previously diagnosed with PCa were excluded.

Results: A total of 154 men had undergone a TP-24 biopsy, had undergone at least one previous 10 to 12-core TRUS PNB, and had never been previously diagnosed with PCa. Mean age was 67 (range 44-82) and median PSA at time of TP-24 was 8.30 ng/ml (IQR 5.63-12.01). PCa detection rate was 45% (70/154) and PCa was identified in the anterior lobe only in 22% (34/154) of cases. Gleason 6 was identified in 22% of cases (34/153), Gleason 3+4 in 12% (18/153), Gleason 4+3 in 5% (7/153), and Gleason 8-10 in 7% (10/153). Finally, clinical stage T1c was identified in 18% (27/154) of cases and stage T2 in 27% (41/154).

Conclusions: In our cohort, transperineal biopsy detected PCa in almost half of patients with previously unconfirmed PCa. Importantly, nearly half of the patients diagnosed with PCa were found to have anterior disease only, which is often not accessible to TRUS PNB. Given that transperineal biopsy is associated with a low risk of post-biopsy sepsis, even in the MRI fusion biopsy era, this technique should be strongly considered in those patients who maintain an elevated PSA or otherwise high index of suspicion for PCa despite a previous negative biopsy.

Source of Funding: None