Hematuria after transrectal prostate biopsy: a warning of future infection?

Alan Quach BS, Colin I. O'Donnell PhD, Mohammed Al-Musawi MD, Simon Kim MD, Tracey MacDermott BA, BS, CRCC, Al Barqawi MD

University of Colorado Anschutz Medical Campus, Aurora, Colorado

Introduction and Objective

- ❖ Rates of infection following transrectal ultrasound-guided prostate (TRUS) biopsy are increasing internationally.

- ❖ Current research is mostly focused on identifying an effective prophylactic antibiotic regimen.

- ❖ We aim to determine the effect of strict adherence to sterile procedural technique, combined with a standard antibiotic regimen, on the infection rate following TRUS biopsy at a single institution and by a single physician over five years.
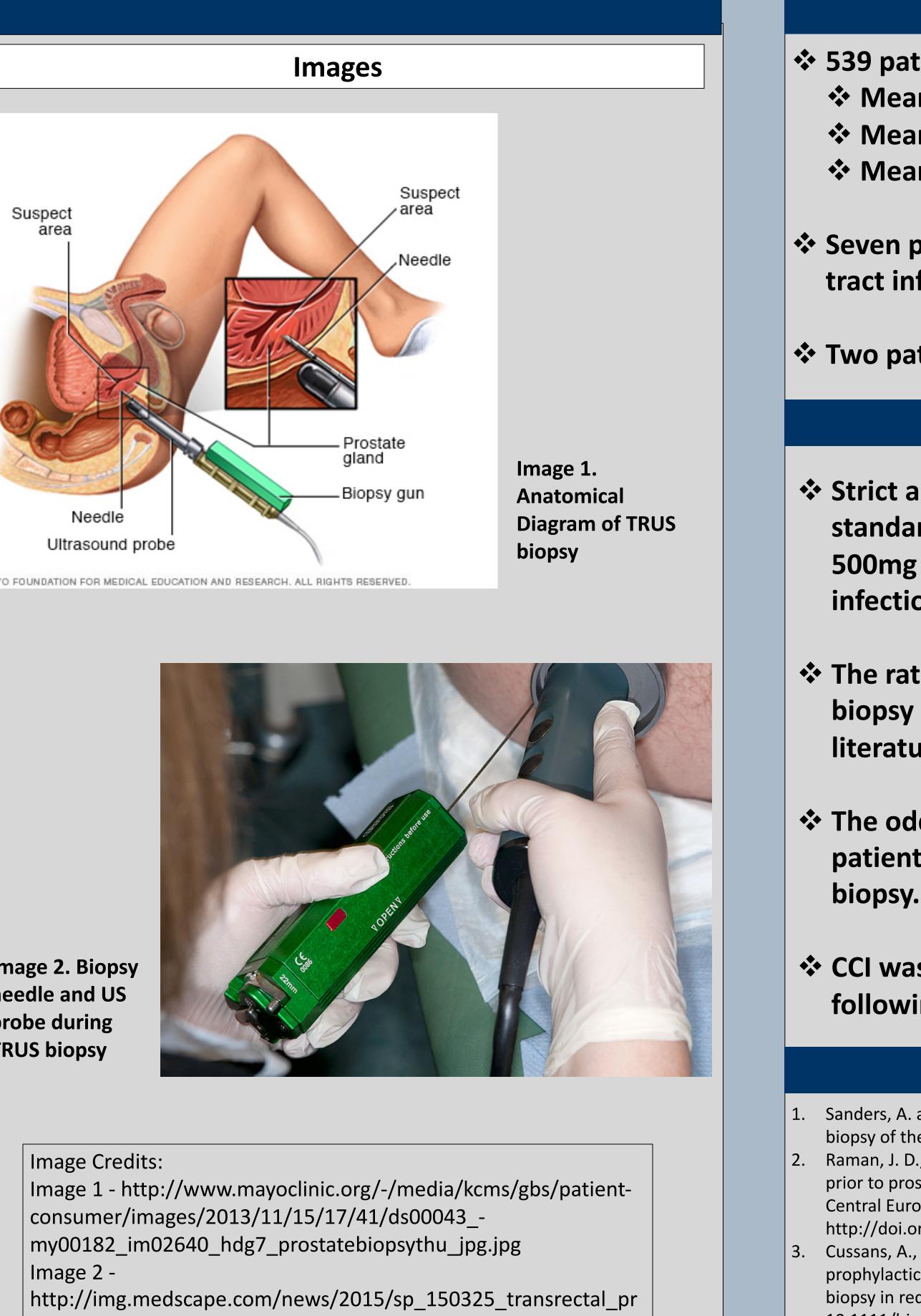
Methods

- ❖ Patients presenting to the urology clinic for TRUS biopsy with Dr. Barqawi between 2010-2015 were identified.

- ❖ All patients received a standard prophylactic antibiotic regimen consisting of oral Bactrim 500mg twice daily for two days peri-operatively and oral Levaquin 500mg fifteen minutes prior to biopsy.

- ❖ During the biopsy, strict adherence to sterile technique was practiced, such that the biopsy needle was handled methodically and only contacted sterile surfaces.

- ❖ Retrospective chart review was performed to assess the rate of infectious complications following TRUS biopsy.

Results

Table 1. Patient Demographics

Characteristic	Overall Patients (N=539)	Patients who did not develop infection (N=532)	Patients who developed infection (N=7)	P-Value
Age, years, mean ± SD	64.5 ± 7.4	64.4 ± 7.4	66.1 ± 5.9	0.54
Prostate volume, cc, mean ± SD	41.0 ± 22.7	41.0 ± 22.8	35.6 ± 10.8	0.53
PSA, ng/mL, mean ± SD	17.4 ± 153.2	17.6 ± 154.2	8.8 ± 6.3	0.88
Charlson Comorbidity Index, mean ± SD	3.0 ± 1.8	3.0 ± 1.8	3.3 ± 2.3	0.67
Biopsy cores, mean ± SD	11.7 ± 1.9	11.7 ± 1.9	12 ± 0.0	0.64

Table 2. Procedural Complications as Predictors of Infection

	Cohort (n=539)	Factor present, patients with infection (n=7)	Factor present, patients without infection (n=532)	Odds Ratio	95% CI	P-Value
Rectal Bleeding	7 (1.3%)	0	7	0	0-47231	1.00
Hematuria	45 (8.3%)	3	42	8.75	1.230-53.138	0.02
Urethral Meatal Stricture	0 (0.0%)	0	0	-	-	-
Urinary Urgency	5 (0.9%)	0	5	0	0-71.292	1.00
New Onset Erectile Dysfunction	3 (0.6%)	0	3	0	0-173.304	1.00
Charlson-Comorbidity Index Score >1	453 (84.04)	6	447	1.1409	0.1357-53.09	1.00

Images

Image 1. Anatomical Diagram of TRUS biopsy

© MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH. ALL RIGHTS RESERVED.

Image 2. Biopsy needle and US probe during TRUS biopsy

Image Credits:
Image 1 - http://www.mayoclinic.org/-/media/kcms/gbs/patient-consumer/images/2013/11/15/17/41/ds00043_-my00182_im02640_hdg7_prostatebiopsythu_jpg.jpg
Image 2 - http://img.medscape.com/news/2015/sp_150325_transrectal_prostate_biopsy_800x600.jpg

Discussion

- ❖ 539 patients
  - ❖ Mean age – 64 years
  - ❖ Mean prostate volume – 41 cc
  - ❖ Mean PSA – 17.0

- ❖ Seven patients (1.3%) required treatment for a urinary tract infection.

- ❖ Two patients (0.4%) required hospitalization for sepsis

Conclusions

- ❖ Strict adherence to sterile technique, combined with a standard prophylactic antibiotic regimen of Bactrim 500mg and Levaquin 500mg, resulted in a low rate of infectious complications following TRUS biopsy.

- ❖ The rate of hospitalization for sepsis following TRUS biopsy was lower than what is reported in the literature.

- ❖ The odds of developing infection were higher if patients experienced hematuria following the TRUS biopsy.

- ❖ CCI was poorly predictive of infectious complications following TRUS-Bx.

References

1. Sanders, A. and Buchan, N (2013), Infection-related hospital admissions after transrectal biopsy of the prostate. ANZ Journal of Surgery. 83, 246–248. doi: 10.1111/ans.12073
2. Raman, J. D., Rjepaj, C., & Otteni, C. (2015). A single 80 mg intravenous gentamicin dose prior to prostate needle biopsy does not reduce procedural infectious complications. Central European Journal of Urology, 68(2), 229–231. http://doi.org/10.5173/ceju.2015.531
3. Cussans, A., Somani, B. K., Basarab, A. and Dudderidge, T. J. (2016), The role of targeted prophylactic antimicrobial therapy before transrectal ultrasonography-guided prostate biopsy in reducing infection rates: a systematic review. BJU International. doi: 10.1111/bju.13402