

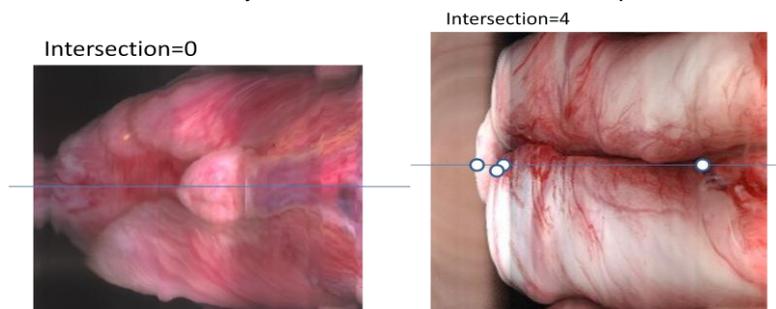
ANGULATION OF THE PROSTATIC URETHRA IS RELATED TO VOIDING SYMPTOMS IN BENIGN PROSTATIC HYPERPLASIA.

Hypothesis / aims of study

BPH is one of common diseases related to LUTS. Though sparse, some papers indicate the energy loss of urinary stream at the prostatic urethral angulation is responsible for voiding symptom of BPH (see references). We developed software which processes an opened, three-dimensional image of the urethra from cystourethroscopic video image automatically. In this study, we estimate the relationship between the angulation of prostatic urethra and voiding symptoms.

Study design, materials and methods

Opened image of the prostatic urethra was created in 16 patients with BPH scheduled for TURP, and 11 patients with bladder cancer who showed no apparent urinary symptom. The video image was recorded during TUR by pulling out the resectoscope slowly through the urethra. On the opened image, a cursor line is put on the verumontanum as midline of the urethra. The number of intersection made by the midline and the outline of the prostate are scored (see figures below).



The images indicate anterior view of the prostatic urethra opened. Left side indicates bladder.

Results

Three of 16 patients (19%) scheduled for TURP and 9 of 11 (64%) scheduled for TURBT showed no intersection ($p=0.0012$). The number of the intersection ranged between 0 and 4 (median 2) for BPH patients, and 0 and 1 (median 0) for BT patients ($p=0.003$).

Interpretation of results

The results seem to be consistent with symptoms. It indicates the processed image reconstructs the channel of the prostatic urethra. Since voiding symptom is related to angulation of the urethral channel caused by enlargement of prostate overhanging beyond the midline of the urethra, this imaging method would be novel tool for measuring local obstructive potential of BPH.

Concluding message

This study reveals relationship between angulation of the prostatic urethra and voiding symptoms of BPH. The results should be estimated further through comparison with other parameters of LUTS and BOO.

References

J Urol 152; 144, 1994
Med Hypothesis 70; 532, 2008

Specify source of funding or grant	Grant from Japanese Ministry of Education, Culture, Sports, Science and Technology.
Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Ethics Committee of Graduate school of Medicine, Chiba University
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes