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The role of prostatic apex shape in voiding symptom and urine flow: A development and validation study

Eur Urol Suppl 2019; 18(1);e112

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Introduction & Objectives: Mechanical obstruction was associated with the driven force loss in voiding process. The aim of the study was to evaluate the relationship prostatic apex shape (PAS) with voiding symptom and urine flow.

Materials & Methods: A total of 806 healthy men who underwent transrectal ultrasonography (TRUS) at our hospital during routine health examinations were included. For our analyses, patients were categorized into four different groups according to the shape of the prostatic apex shown on the midsagittal TRUS scan. For implementation of finding to correlate voiding symptom measured by the International Prostate Symptom Score (IPSS) and PAS, patients with no history of BPH/LUTS treatment and performing by uroflowmetry were collected.

Results: Of 806 patients, group 1 had 105 patients (13.0%), group 2 had 322 (40.0%), group 3 had 23 (2.9%) and group 4 had 356 (44.2%). Group 4 was composed of patients with the prostatic apex not overlapping with membranous urethra either anteriorly or posteriorly on TRUS and had a significantly lower percentage of patients with a moderate and severe of BPH/LUTS compared with the other groups. Multivariate regression analysis revealed significant relationship between PAS and total IPSS score, IPSS questions 3 or 5. For 329 patients performed uroflowmetry, group 3 overlapping with membranous urethra posteriorly had the lowest maximum flow rate. PAS is significantly associated with IPSS and urinary flow rate.

Conclusions: These results provided the first evidence for PAS being an independent risk factor for voiding symptom and low max flow rate severity.