far. Conscious or unconscious pelvic floor activity might mask a low pressure urethra. The MUCP at rest is used as an important outcome measure and efforts should be made to improve definitions and standardizations.

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AGE-RELATED INCREASE OF THE CONNECTIVE TISSUE IN THE ANTERIOR FIBROMUSCULAR STROMA OF THE PROSTATE

AIMS OF STUDY

Lower urinary tract symptoms (LUTS) commonly ascribed to benign prostatic obstruction are frequently present in elderly men who have no benign prostatic enlargement. Age-related urodynamic changes such as the decrease of peak urinary flow rate have been noted in asymptomatic individuals (1). In addition, age-related smooth muscle dysfunction in the bladder has been also recognized (2). Thus, the pathogenesis of LUTS remains to be elucidated in elderly men.

According to McNeal's zonal anatomy (3), the prostate has an anterior fibromuscular stroma (AFMS) as non-glandular tissue composed of smooth muscle surrounding the urethra. Despite detailed anatomical description of the AFMS, its physiological function and pathogenesis remain unknown. Recently, we reported the possible contribution of the prostate to micturition mainly through the active movement of the AFMS in the opening of the prostatic urethra (4). We hypothesized that histological changes of the AFMS could be one of the causes of LUTS or age-related urodynamic changes in elderly men. The aim of this study is to reveal the possible age-related change of the AFMS in terms of the distribution of the connective tissue.

METHODS

Prostate glands were obtained from 11 men (45±21 years, 18-76 years); 8 at autopsy in subjects with no urinary tract diseases (18-76 years), and 3 at cystoprostatectomy for bladder cancer (58-64 years). The prostate specimens were fixed in 20% formalin and dehydrated in graded alcohol before being embedded in paraffin. The cross-sectioned prostates were processed with Azan stain, which coloed the smooth muscle and the connective tissue in red and blue, respectively. Each section was viewed under a biological microscope with a high resolution color video camera head. Captured video images were displayed on a 12-color monitor and simultaneously digitized using a personal computer. In each section fields were selected to cover almost all the area of the AFMS and the peripheral zone (PZ). Using a computer assisted color image analysis system the surface area of the smooth muscle and the connective tissue was measured. The ratio of connective tissue-to-smooth muscle (the C/S ratio)

was obtained by dividing the sum of the connective tissue area by the sum of the smooth muscle area in the fields examined.

RESULTS

In 11 cases examined, the C/S of the AFMS ranged from 21.7% to 66.1% with a mean of 42.6±16.9 %. There was a significant positive correlation noted between the C/S and age ($r=0.912$, $p<0.0001$). Comparing the 5 elderly men (58-76) to the 6 men who were less than 50 years of age (18-45), the C/S was significantly ($p<0.001$) higher in the former (59.1±6.2 %) than in the latter (28.3±9.7 %).

In contrast, there was no statistically significant correlation between the C/S of PZ and age. The C/S of PZ was 38.8±19.1 % in 5 elderly men, and 65.1±26.8 % in 6 the men less than 50 years old, respectively (n.s.).

CONCLUSIONS

This study is the first to show a significant increase of the connective tissue in the AFMS with age. It is conceivable that the age-related fibrous change of the AFMS could be related with its dysfunction. Age-related changes of AFMS should be further examined to reveal the pathogenesis of age-related urodynamic change in men, especially those without prostate enlargement.

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URODYNAMICS - AN UNRELIABLE WITNESS?

Aim of the study: Urodynamics are regarded as an essential prerequisite in the surgical management of urinary incontinence. The Royal College of Obstetricians and Gynaecologists, the American Urological Association and the AHCPR recommend that urodynamic studies should be performed in all women prior to incontinence surgery (1,2,3). It is therefore crucial that normal values are established from a large asymptomatic population. Unfortunately, only very small series on asymptomatic women have been published to date (4,5).This study aimed to establish normal parameters in 183 asymptomatic women.

METHODS: Urodynamic studies were performed on 273 women who were scheduled to have an abdominal hysterectomy with and without urinary symptoms. The women were said to have urinary symptoms if they had symptoms of frequency, urgency, nocturia and incontinence. They had no prolapse. All tests were performed on a Lectromed urodynamic system under similar conditions (normal saline filling medium at body temperature, in sitting and standing positions and performed by the same person). Normal values were deduced from the studies and compared to published normal parameters of the female bladder.

RESULTS: All women had an underlying benign gynaecological condition necessitating abdominal hysterectomy with no concomitant surgery. The mean age of the study group was 42.5 years (range 29-60 years). Ninety women had urinary symptoms and 183 had no urinary symptoms.

Table 1. Incidence of various urodynamic diagnosis in the two groups of women.

	Normal CMG n (%)	GSI n (%)	DI n (%)	Mixed n (%)	Low compliance n (%)	Sensory urgency n (%)
Asymptomatic n=183	160 (87.4)	7 (3.8)	12 (7)	0	3 (1.6)	1 (0.5)
Symptomatic n=90	59 (65.5)	10 (11)	14 (15.5)	1 (1)	6 (6.6)	0