

DISTRIBUTION OF ELASTIN FIBER IN PROSTATE

Hypothesis / aims of study

Working in partnership with collagen, elastin allows the body organs to stretch and relax. Collagen and elastin fibers, the major components of the connective tissue, are present throughout the wall of the urinary bladder and are intimately related to bladder compliance. Previous investigators have demonstrated the structural and quantitative changes of the connective tissue fibers of the muscular layer as in aging, neuropathy, bladder outlet obstruction and detrusor overactivity. However, the distribution and function of elastin in the prostate is clearly uncertain. Thus, this present study preliminary aims for clarifying the distribution of elastin fiber in human prostate.

Study design, materials and methods

To determine the arrangements of elastin fibers in the prostate, we examined the prostate specimens from 5 patients (median; 71.8 year-old, mean prostate volume; 88.6ml) with benign prostatic hyperplasia (BPH) operated by surgery, 4 autopsies (median; 68.75 years-old) had either obstructive or neurogenic voiding dysfunction. The prostate specimens were cut anatomical into base, middle, and apex of the prostate. They presented comparative study of the distribution of elastic fibers by for pathological examination using the Elastica Van Gieson (EV) staining. It was measured the pixel elastic fibers by analyzing using Adobe Photoshop Ver.2.0. We compared the distribution of elastin in the prostate, according to age and prostate volume.

Results

The distribution of elastin in the prostate showed at the prostate urethra and the base of prostate. In BPH patients, the distribution of elastin in the base of prostate significantly increased compared in autopsy's prostate, but the distribution of elastin did not correlated age. It tended to the correlation with prostate volume and the distribution of elastin.

	Autopsy	BPH	p value
Apex	3.30 (2.47-4.49)	4.88 (4.02 - 5.44)	0.019
Middle	4.68 (4.06-5.05)	4.85 (4.47 - 5.91)	0.657
Base	4.19 (2.76-5.13)	8.57 (7.04-11.01)	0.002

Interpretation of results

There was an only report that elastin mRNA decreased in the transitional zone in patient of BPH compared normal control. Furthermore, elastin was observed in BPH patient's in the base of prostate in this study.

Concluding message

The role of collagen and elastin in the bladder has been studied intensively. However, the role of these materials in the lower urinary tract, in particular their role in the prostate, is not known. In this study, we found elastin in the prostate is largely distributed at the base of the bladder, which may indicate that it has a contributory role in urinary incontinence. We believe that the elasticity of the material found at the base of the prostate is crucial to urinary continence

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HUMAN SUBJECTS: This study was approved by the Kinki University School of Medicine and followed the Declaration of Helsinki. Informed consent was obtained from the patients.