Localization of Beta-2-Microglobulin in Prostatic Corpora amylacea of Prostatic Hypertrophy Patients

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Dear Sir,

Prostatic corpora amylacea, also known as prostatic concretions, corpora colloidea, or amyloid bodies, were noted in the earliest studies of the prostatic gland [1,2]. The few reports specifically on prostatic amyloid, demonstrated by Congo red staining [3, 4], variously state that corpora amylacea, which often stain spectacularly, were not considered significant or they were ignored altogether. We therefore attempted to characterize the nature of prostatic corpora amylacea in patients with prostatic hypertrophy using immunohistochemical and immunoblot methods. Surgical prostatic resection specimens in which typical corpora amylacea lay within the prostatic glandular lumina were used in the present study. There were 12 transurethral resection and 2 open prostatectomy specimens. Most of the corpora amylacea were Congo-red positive, and gave birefringence with crossed polarising filters. Indirect immunofluorescence of frozen sections (2 μ m) demonstrated positive staining for β 2-microglobulin (β 2-MG, Dakopatts, Denmark) in the corpora amylacea (fig. 1). The corpora were also consistently immunohisto-chemically positive for amyloid P component and lysozymes, but negative for amyloid A and B, prealbumin, κ and λ light chains and cytokeratin. We further examined the biochemical nature of the prostatic corpora amylacea in the prostatectomy specimens of 2 prostatic hypertrophy patients (patients 1 and 2) using immunoblot analysis.

Fig. 1. Prostatic corpora amylacea staining positive for β 2-MG in frozen sections from a prostatic hypertrophy patient by indirect immunofluorescence. $\times$ 150.

Fig. 2. Immunoblot analysis of water-soluble proteins extracted from the prostatectomy specimens of 2 prostatic hypertrophy patients. Proteins fractionated by 12.5% SDS-PAGE were transferred to nitrocellulose filters and immunodetection was performed using antihuman β 2-MG antibody. Lane 1 = Patient 1; lane 2 = patient 2.

The specimens were homogenized in distilled water and sedimented at 15,000 rpm for 20 min at 4 °C in a microcentrifuge. Proteins in the supernatant were fractionated by 12.5% sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE),

transferred to nitrocellulose filters and analyzed by immunoblot as previously described [5]. Immunoblotting of water-soluble proteins after SDS-PAGE showed positive reactions with the antiserum against β 2-MG (fig. 2, arrow).

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Cross et al. [6] recently reported that prostatic corpora amylacea in paraffin-embedded sections of prostatic tissues stained with antibodies against amyloid A, β 2-MG, κ and λ light chains, prealbumin, prostatic specific antigen and amyloid P component, suggesting that the prostatic corpora amylacea universally exhibit the presence of amyloid. We were unable to demonstrate positive staining of the prostatic corpora amylacea in frozen sections with antibodies against amyloid A and B, κ and λ light chains or prealbumin, but they were positive for amyloid P component and lysozymes. This difference may be due to the use of paraffin and digestion by trypsin of paraffin wax, resulting in antigenic changes in the proteins recognized by the antibodies. Since prostatic epithelial cells also showed positive staining reactions for β 2-MG [6], amyloid, including β 2-MG, probably originates in the prostatic epithelium and may be related to the pathophysiology of prostatic hypertrophy.

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