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PRIMARY LOCALIZED AA TYPE AMYLOIDOSIS OF URINARY BLADDER: CASE REPORT OF RARE CAUSE OF EPISODIC PAINLESS HEMATURIA

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ABSTRACT

A 45-year-old diabetic man presented with an episodic history of painless gross hematuria. He had had no previous urinary symptoms or any other medical problems. His physical examination, urine cytology, and computed tomography scan findings were normal. Cystoscopy demonstrated two nodular masses in the urinary bladder with a hemorrhagic mucosal surface. Biopsies revealed amyloidosis, and immunohistochemical staining of the specimens defined the process as amyloid AA (mostly seen in secondary amyloidosis). The workup for systemic conditions associated with amyloid AA was negative. This represents an unusual case of primary localized AA-type amyloidosis of the bladder. UROLOGY **68:** 1343.e15–1343.e17, 2006. © 2006 Elsevier Inc.

Amyloid (starch-like from the Greek amylon) is the name given to a group of proteins that, when deposited in tissues, share the following properties: beta-pleated sheet molecular configuration with affinity to Congo red dye, fibrillar ultrastructure, and an extracellular location that hardens the affected tissues.[1]

Amyloidosis is classified as systemic or localized disease. In the systemic type, the material is deposited in a wide variety of organs. In contrast, in the localized type, the amyloid material is confined to an organ, commonly the skin, lungs, or urinary tract system. Amyloidosis can also be classified as primary or secondary disease. In the primary type (AL amyloidosis), the amyloid deposit contains immunoglobulin light chains, usually with no underlying cause. In the secondary type (AA amyloidosis), the amyloid comprises serum protein A produced by the liver in response to cytokines from chronically inflamed tissues, which may result from diseases such as rheumatoid arthritis or tuberculosis.[1]

CASE REPORT

A 45-year-old diabetic man attended the urology clinic for evaluation of two episodes of painless frank hematuria. He had no history of urinary tract infections, urolithiasis, obstructive or irritative urinary symptoms, or any chronic, infective, or inflammatory disease. Clinical examination revealed no abnormality. Urinalysis showed numerous red blood cells per high power field; urine cytology did not reveal any atypical cells. His blood investigations, including full blood count and blood chemistry for renal function, liver function, and glucose, were within normal limits. Excretory urography showed normal upper tracts. The cystogram phase showed two irregular filling defects on the right side of the bladder. Diagnostic flexible cystoscopy under local anesthesia revealed two 1 to 2-cm nodular masses with a hemorrhagic mucosal surface on the right lateral wall of the bladder. A provisional diagnosis of bladder bilharziasis or invasive bladder tumor was contemplated. However, later investigations using computed tomography of abdomen and pelvis and urine samples for Schistosoma were negative.

The patient underwent transurethral resection of the bladder lesions. Histologic examination showed

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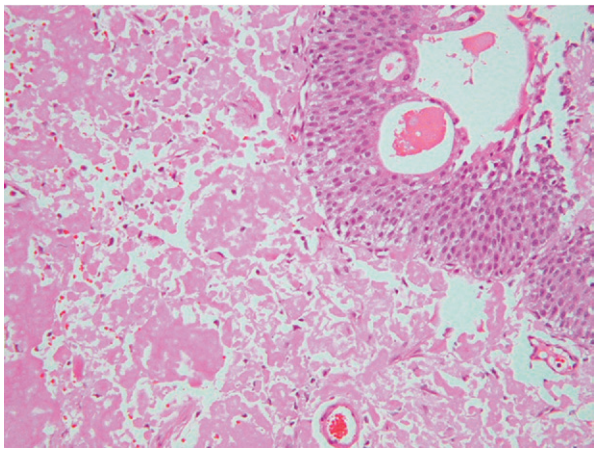

FIGURE 1. *Normal transitional cell lining with homogenous pink material in cavity—amyloid.*

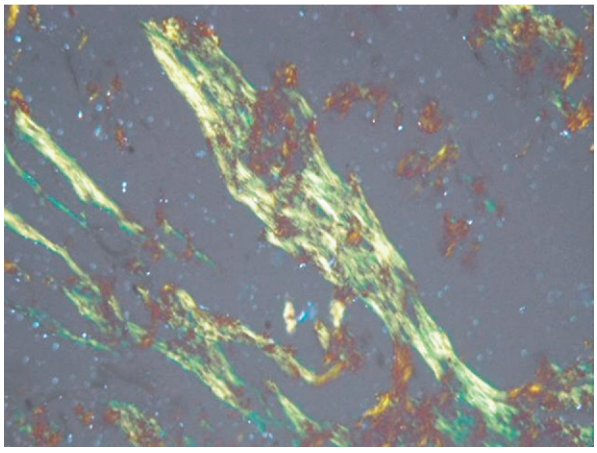

FIGURE 2. *Congo red stain showing apple-green birefringence under polarized light.*

massive deposits of homogenous pale pink and acellular material in relation to normal bladder epithelium (Fig. 1). Inflammation was conspicuously absent and staining with Congo red showed strong apple-green birefringence under polarized light (Fig. 2). The deposits were convincingly positive for antihuman amyloid A antibody. Electron microscopy confirmed deposits of amyloid (Fig. 3).

Subsequently, additional investigations were performed for evidence of systemic amyloidosis. These included urine for Bence Jones proteins, serum proteins, liver function tests, Venereal Disease Research Laboratory test, creatinine clearance, nerve conduction studies, echocardiography, anterior abdominal fat biopsy, and rectal biopsy. All findings were negative for amyloidosis.

A 6-month follow-up cystoscopy revealed recurrence of a small nodular growth on the right lateral wall of the bladder that was resected transurethrally and confirmed by histologic examination as bladder amyloidosis. Postoperatively, the patient began taking oral colchicine 500 μg daily. Follow-up examinations for 2 years with cystoscopy

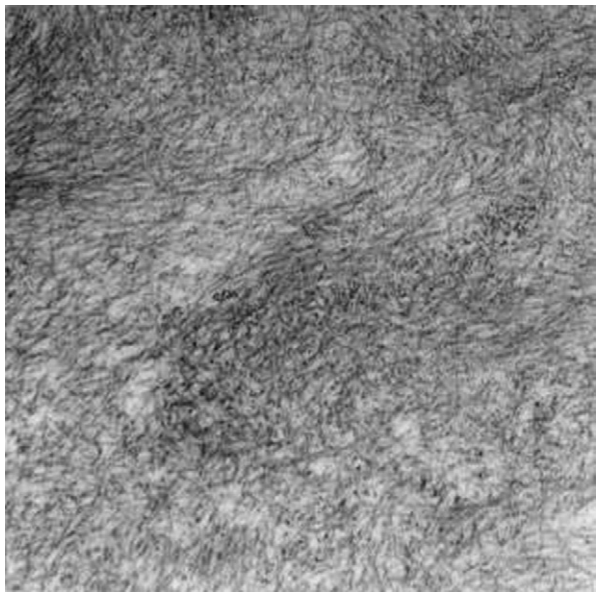

FIGURE 3. *Electron microscopic picture (×30,000) showing thin interlacing nonbranching fibrils—amyloid.*

every 6 months and urine cytology were normal. He has had no evidence of systemic disease.

COMMENT

Primary localized bladder amyloidosis of the AA type is a rare disease of the urinary bladder. Only 2 cases have been previously reported.[2,3] The presentation is mainly intermittent gross hematuria. A few patients may present solely with irritative bladder symptoms. Because the clinical, radiologic, and cystoscopic findings closely simulate bladder malignancy, the diagnosis of bladder cancer should be considered until proved otherwise. Therefore, to establish a correct diagnosis of amyloidosis, histopathologic study of a bladder biopsy is a prerequisite. Cystoscopy will show an irregular exophytic lesion that bleeds readily and may be ulcerated. Radiologically, calcification may be present. Intravenous urography will show nonspecific filling defects projecting into the bladder lumen and distorting the bladder outline. Various treatments have been used for primary localized amyloidosis, including fulguration or laser for small localized lesions and transurethral resection or partial cystectomy for larger lesions. Medical treatment such as intravesical dimethyl sulfoxide installation[4] and oral colchicine[5] have also been tried.

The present patient had no evidence of systemic amyloidosis in the history or investigations. In addition, the localized bladder amyloidosis was of the AA type and not the usual AL type reported in previous studies.[6] AA-type amyloidosis usually occurs secondary to chronic inflammations; however, our patient had no evidence of urolithiasis, tuberculosis, or bilharziasis. Thus, it was primary AA-type amyloid-

osis. Nevertheless, the contribution of his diabetic state to the formation of the AA, rather than the AL, type of amyloidosis is a point of argument.

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