

Spontaneous remission of untreated primary amyloidosis of the bladder after transurethral resection biopsy: a case report and literature review

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Abstract

We herein present a case involving a 23-year-old woman with gross hematuria. Cystoscopy revealed abnormal areas of the mucosa along the anterior and posterior bladder walls. These abnormalities were suspicious for neoplasia; however, a diagnosis was not established by subsequent biopsy. The patient underwent transurethral resection biopsy in which an isolated lesion along the anterior wall was completely resected and the others were left untreated. Pathologic examination and special staining led to a diagnosis of amyloidosis, and the patient elected to undergo transurethral surgery 1 month later. During the operation, the intravesical lesions were found to have significantly improved in both the treated and untreated sites. The operation was cancelled, follow-up was arranged, and no other treatment was administered. Repeat cystoscopy examinations at 3 and 9 months after surgery showed that the lesions had almost completely disappeared.

Keywords

Bladder amyloidosis, transurethral resection biopsy, surgery, bladder cancer, spontaneous remission, hematuria, cystoscopy

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Introduction

Amyloidosis is a metabolic disorder in which proteins are abnormally metabolized, resulting in the deposition of glycoprotein complexes in extracellular spaces or tissues.

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Amyloidosis can occur in the myocardium, liver, and other organs; however, bladder amyloidosis is rare. To date, fewer than 200 cases of bladder amyloidosis have been reported worldwide.

The main manifestations of bladder amyloidosis are bladder lesions and gross hematuria, which can be easily confused with bladder cancer. Diagnosis requires pathologic examination and special staining.¹

Because of the rarity of bladder amyloidosis, no standard management protocol has been established. This lack of standard guidelines makes it difficult for clinicians to administer appropriate treatment. Surgical treatment is associated with certain complications and does not prevent recurrence, while conservative treatment is associated with the risk of progression. We herein present a case of spontaneous remission of untreated primary amyloidosis of the bladder, which may add significant insights into this rare condition.

Case report

A 23-year-old woman was admitted because of a 20-day history of gross hematuria. She had no lower urinary tract symptoms or systemic symptoms such as fever, joint pain, or rash. She had no relevant medical history. Her laboratory test results showed no abnormalities. Serum and urine protein electrophoresis revealed no monoclonal band. Ureteral computed tomography showed thickening of the left anterior and posterior walls of the bladder (Figure 1). Cystoscopic examination revealed multiple lesions and obvious vessel engorgement on the anterior and posterior walls of the bladder. The base was wide and bulging, showing a crater-like appearance. The largest diameter of the base was about 3.0 cm (Figure 3, area B), and the bilateral ureteral orifices were not involved. Tissue biopsy demonstrated urothelial tissue hyperplasia and interstitial degeneration with edema. Transurethral resection of an

isolated lesion (Figures 3 and 4, area A) was performed to achieve a diagnosis. The other lesions were not treated.

Pathologic examination showed amyloid depositions in the subcutaneous interstitium of the urothelium, and Congo red staining was positive (Figure 2). After consideration, the patient decided to undergo transurethral resection of the bladder lesions 1 month later. During the operation, the intravesical lesions were found to have significantly improved. Only a few small bleeding foci and yellow mucosal bulges were observed at the untreated sites (Figure 5, area B). A healing scar was seen in the biopsy site (Figure 6, area A). Therefore, the patient did not

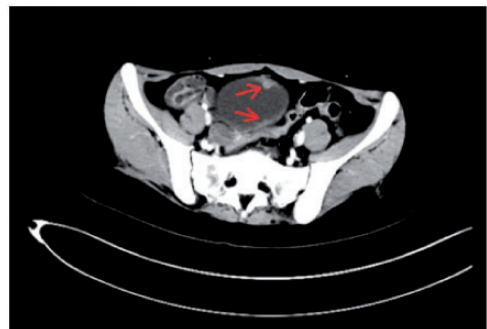


Figure 1. Computed tomography showed thickening of the left anterior and posterior walls of the bladder.

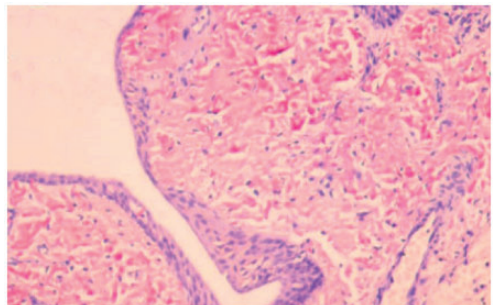


Figure 2. Amyloid depositions were seen in the subcutaneous interstitium of the urothelium, and Congo red staining was positive.

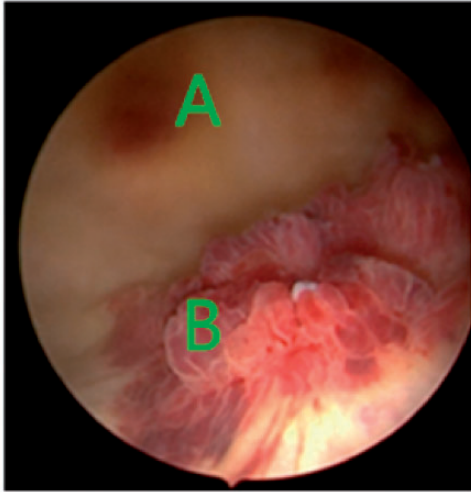


Figure 3. Crater-like bulges were seen on the anterior wall of the bladder before surgery (areas A and B).

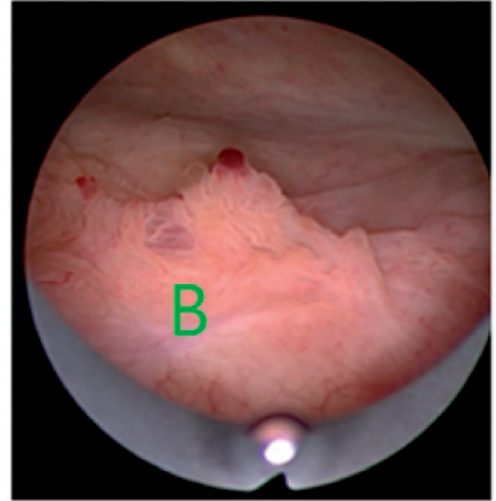


Figure 5. Great improvement was seen in the untreated site (area B) 1 month postoperatively.



Figure 4. The lesion that underwent resection biopsy (area A).

undergo a further operation and was planned to return for follow-up in 2 months. Repeat cystoscopy 3 months after the resection biopsy showed that the lesions had nearly disappeared (Figure 7). No blood vessel

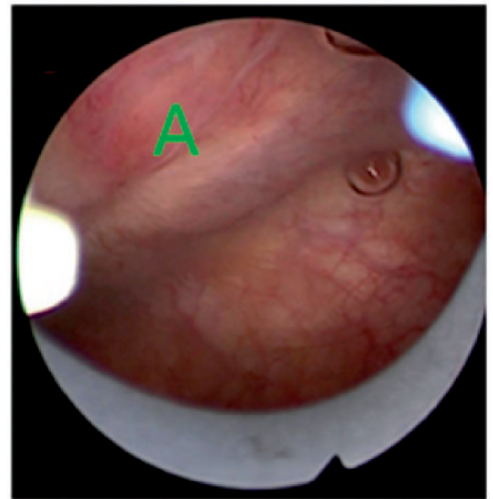


Figure 6. Wound healing was seen at the resected site (area A).

dilation or bleeding foci were seen. Nine months later, no lesion recurrence or new lesions were found (Figure 8). The patient did not take any medication during this period. At the time of this writing, she was still undergoing follow-up and had no hematuria.

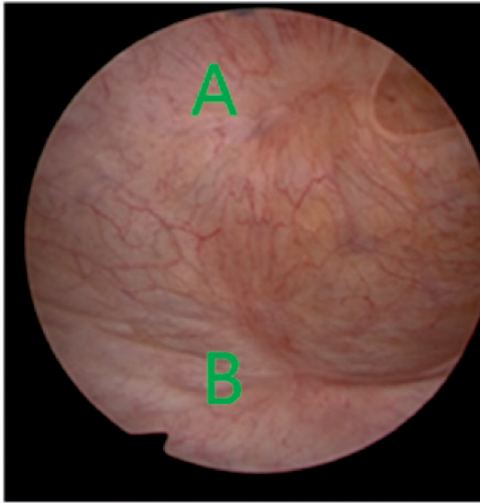


Figure 7. The lesions had almost disappeared 3 months later (areas A and B).

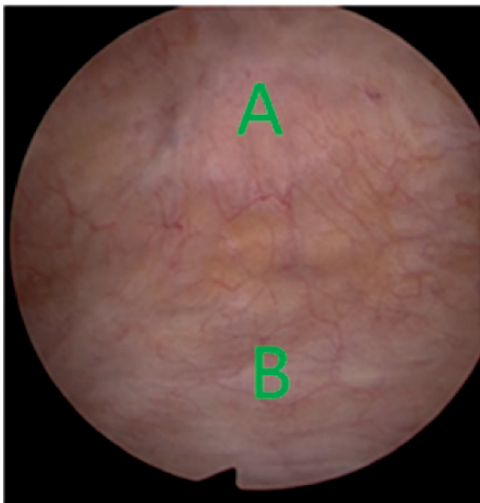


Figure 8. No recurrence was seen 9 months later (areas A and B).

Discussion

Amyloidosis is mainly classified as either primary (amyloid light chain) amyloidosis, when no causative agent can be implicated and the lesion is localized, or secondary

(amyloid A) amyloidosis, which is often associated with a chronic inflammatory disease such as inflammatory bowel disease, leprosy, tuberculosis, syphilis, rheumatoid arthritis, osteomyelitis, or multiple myeloma.² Before a diagnosis of primary localized amyloidosis is made, it is necessary to rule out secondary amyloidosis (in other words, systemic amyloidosis). The presence of abnormal proteins in the serum and urine indicate systemic amyloidosis. In the present case, the patient had no history of chronic inflammatory diseases or related symptoms. Furthermore, no abnormal findings were obtained by routine laboratory tests or protein electrophoresis. Therefore, the patient was considered to have primary amyloidosis.

The pathogenesis of bladder amyloidosis is still unclear. Chronic bladder inflammation leads to lymphocyte proliferation in the submucosal layer of the bladder, followed by secretion of abnormal types of light chain immunoglobulins and their deposition in the bladder wall.³ The clinical manifestations include gross hematuria, bladder irritation, low back pain, and dysuria. Computed tomography shows single or multiple bulging lesions on the bladder wall, which can be easily confused with bladder malignancies.⁸

The most common treatment of bladder amyloidosis is surgical intervention. Transurethral resection is used for small and limited lesions. If the operation is difficult because of the lesion location, such as the top of the bladder, partial cystectomy can be performed. Laser treatment is another choice for localized lesions.⁴ If the lesions are massive and invasive, cystectomy and urinary diversion are suitable.⁵ Low-dose external radiation therapy has been suggested when it is difficult to perform surgery to resolve the disease.⁶ Although many treatment methods are available the recurrence rate of this disease is as high as 54%,⁷ Delayed recurrence may occur 14 years

after the first diagnosis.⁸ Dimethyl sulfoxide (DMSO) bladder perfusion can be used to treat or prevent recurrence, and one treatment course lasts for 6 to 12 months.⁹ There are also reports of satisfactory outcomes by administration of cephalexin together with bladder infusion of DMSO.¹⁰ However, whether to use DMSO perfusion to prevent recurrence remains controversial. Although intravesical DMSO can be an alternative to surgical procedures in cases of diffuse or locally extensive bladder involvement, the outcomes are unsatisfactory. In one study, two of six patients underwent failed treatment and three of the remaining four patients required repeat DMSO or laser therapy.⁹ In another series, four patients with bladder amyloidosis treated with transurethral resection alone achieved a satisfactory outcome.¹¹ Thus, DMSO perfusion is not as important as once thought.

Although benign, bladder amyloidosis can progressively lead to upper urinary tract obstruction¹² and can even affect both ureterovesical junctions, causing anuria.¹³ Therefore, in patients with upper urinary tract obstruction, surgical intervention is appropriate and necessary. In the absence of significant obstruction, however, early surgical intervention may not be necessary. Localized amyloidosis can be stable in the long term without clinical or radiographic signs of progression. Follow-up with serial imaging is sufficient to monitor for disease progression.¹⁴

In this case, the patient had massive multiple lesions that were suspicious for malignant tumors, and the bilateral ureteral orifices had not been invaded. Transurethral resection biopsy was performed for diagnosis, and the remaining lesions were not treated. After establishment of the diagnosis, we provided two surgical options: partial cystectomy and transurethral resection. Because of the patient's hesitation about these treatment options, we had the opportunity to observe the lesions 1 month later.

Unexpectedly, the lesions in all the sites were significantly alleviated, so no further treatment was performed. Follow-up examinations 3 and 9 months later showed remarkable remission and no sign of recurrence, and the patient was asymptomatic. This case illustrates that localized bladder amyloidosis can spontaneously resolve without treatment, and surgical intervention may not be necessary unless obstruction or uncontrollable symptoms are present.

Conclusion

This case demonstrates that bladder amyloidosis is easily confused with bladder tumors and that transurethral resection biopsy is an effective method for a definite diagnosis. Localized bladder amyloidosis can improve without treatment; therefore, conservative treatment should be initiated without invasion of the ureteral orifice or hydronephrosis to avoid an unnecessary operation and possible complications. Because of the high recurrence rate and possibility of progression, close follow-up and regular cystoscopy are needed in patients with bladder amyloidosis.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

Ethics and consent statements

The patient agreed to the use of her medical records and images and provided written informed consent. Because this was a case report, ethical permission was not required.

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References

1. Fitzpatrick R, Paterson NR, Belanger EC, et al. Primary amyloidosis of the bladder; a mimicker of bladder cancer. *Can J Urol* 2017; 24: 8868–8870.
2. Javed A, Canales BK and MacLennan GT. Bladder amyloidosis. *J Urol* 2010; 183: 2388–2389.
3. Caldamone AA, Elbadawi A, Moshtagi A, et al. Primary localized amyloidosis of urinary bladder. *Urology* 1980; 15: 174–180.
4. Boorjan S, Choi BB, Loo MH, et al. A rare case of painless gross hematuria: primary localized AA type amyloidosis of the urinary bladder. *Urology* 2002; 59: 137.
5. Merrimen JL, Alkhudair WK and Gupta R. Localized amyloidosis of the urinary tract: case series of nine patients. *Urology* 2006; 67: 904–909.
6. Cooper CT, Greene BD, Fegan JE, et al. External beam radiation therapy for amyloidosis of the urinary bladder. *Pract Radiat Oncol* 2018; 8: 25–27.
7. Tirzaman O, Wahner-Roedler DL, Malek RS, et al. Primary localized amyloidosis of the urinary bladder: a case series of 31 patients. *Mayo Clin Proc* 2000; 75: 1264–1268.
8. Ruffion A, Valignat C, Champetier D, et al. Long-term recurrence of primary amyloidosis of the bladder. *Urology* 2002; 59: 444.
9. Malek RS, Wahner-Roedler DL, Gertz MA, et al. Primary localized amyloidosis of the bladder: experience with dimethylsulfoxide therapy. *J Urol* 2002; 168: 1018–1020.
10. Nishiyama T, Gejyo F, Katayama Y, et al. Primary localized amyloidosis of the bladder: a case of AL (λ) amyloid protein and combination therapy using dimethyl sulfoxide and cepharanthin. *Urol Int* 1992; 48: 228–231.
11. Zaman W, Singh V, Kumar B, et al. Localized primary amyloidosis of the genitourinary tract: does conservatism help? *Urol Int* 2004; 73: 280–282.
12. Chan ES, Ng CF, Chui KL, et al. Primary bladder amyloidosis—case report of a patient with delayed upper urinary tract obstruction 3 years after the diagnosis. *Amyloid* 2010; 17: 36–38.
13. Paraskevas KI, Anagnostou D and Bouris C. Anurea caused by primary amyloidosis of the lower third of the ureters, the ureterovesical junction and the urinary bladder: a case report and review of the literature. *Int Urol Nephrol* 2004; 36: 339–342.
14. Borza T, Shah RB, Faerber GJ, et al. Localized amyloidosis of the upper urinary tract: a case series of three patients managed with reconstructive surgery or surveillance. *J Endourol* 2010; 24: 641–644.