Primary amyloidosis of the bladder mimicking probable malignancy: A case report

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A 75 year old male with a past medical history of urge incontinence and hypertension, presented with a one week history of painless gross hematuria, urinary urgency, and urinary frequency. He denied fevers, chills, or flank pain. The results of a urinalysis were positive for occult blood. Cytology analysis using fluorescence in situ hybridization (FISH) of cells recovered from a urine sample indicated a positive result for chromosomal abnormalities associated with bladder cancer. A computerized tomography urogram showed bladder wall thickening and irregular polypoid contours, however it could not differentiate between an inflammatory process or mucosal changes associated with transitional cell carcinoma. With probable concern for malignancy, it was recommended the patient undergo cystoscopy with transurethral resection. Cystoscopy findings included a bullous, erythematous, and edematous mucosa, extending into the vicinity of the ureteral orifices. Biopsy specimens revealed an apple-green birefringence upon polarization, consistent with the diagnosis of amyloidosis (Fig. 3). Furthermore, there was no evidence of malignancy.

Discussion

Amyloidosis refers to a group of conditions manifested by the abnormal deposition of amyloid protein in tissues and organs. Primary amyloidosis can occur in those with disordered immune cell function such as multiple myeloma, while secondary amyloidosis can occur as a complication of a chronic inflammatory or tissue destructive disease. Deposition of amyloid within the urinary tract can occur in many different locations, however the kidney is almost always involved sec-
Secondary amyloidosis and in about 50% of the cases of primary amyloidosis. This highlights the paucity of primary and localized bladder amyloidosis as a urological disease. According to Tolofari et al. study, there have only been approximately 160 cases of primary and localized amyloidosis of the urinary tract documented in literature thus far.

The presentation of bladder amyloidosis is very similar to that of bladder malignancy in regards to its symptomatology. Painless gross hematuria and irritative lower urinary tract symptoms are symptoms that are commonly implicated in malignancies such as transitional cell carcinoma. This often makes the diagnosis of bladder amyloidosis elusive. More than 50% of bladder amyloidosis cases are initially diagnosed as bladder tumors, as CT findings show bladder wall thickening, mass lesion, or filling defects, making it hard to differentiate from an invasive bladder tumor. Furthermore, it can be difficult to diagnose this condition as its radiological appearance may mimic an inflammatory or neoplastic lesion, and its appearance on cystoscopy may show nodular to polypoidal masses.

Histologic diagnosis of this condition is essential. Bladder biopsies by transurethral resection can offer a definitive way to rule out malignancy. The presence of amyloid is confirmed by the appearance of apple-green birefringence upon polarized light with Congo-red immunostaining. Transurethral resection is typically the treatment of choice for primary bladder amyloidosis, with the post-resection recurrence rates estimating around 50%. A study by Kobayashi et al., reports a case of primary bladder amyloidosis recurring at the initial site, nine months after undergoing primary resection. Although there is no consensus for follow-up surveillance post-resection, cystoscopies can often be utilized to monitor for reoccurrence.
Conclusion

Primary amyloidosis of the bladder is a rare clinical occurrence, and its presentation can often mimic that of bladder malignancy. It is imperative to include bladder amyloidosis as a differential diagnosis when considering painless gross hematuria and irritative urinary symptoms to be signs of bladder cancer. Often times, results of laboratory and imaging modalities can be misleading, warranting a high degree of clinical suspicion. Its definitive diagnosis is dependent on biopsy and immunostaining with Congo-red, which reveals the presence of amyloid protein.

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Fig. 3. Bladder biopsy specimen showing apple-green birefringence upon polarized light with Congo-red immunostaining.

Conflicts of interest
None.

Declarations of interest
None.

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