Stopping the Flow: A Peculiar Case of Enlarged Prostate, Kidney Injury, Cardiac Dysfunction, and Colonic Polyps

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Case Presentation

70-year-old male presented for routine colonoscopy with incidental finding of asymptomatic prostatic enlargement noted on digital rectal exam. Three weeks later, prior to outpatient follow up with urology, patient presented to the emergency room with complaints of weakness, fatigue, suprapubic tenderness, and fever. On exam patient was noted to have acute urinary retention >1400mL and acute kidney injury (2.03). PSA level was noted to be 1.2. Following Foley placement, U/A was significant for proteinuria as well as increased WBC and bacteria. Patient was discharged with indwelling catheter as well as medical management of UTI. Two weeks later patient presented with tachycardia, hypotension, leukocytosis, and acute kidney injury (13.9). Of note, the patient's Foley was no longer draining. CT abdomen and pelvis demonstrated bilateral hydronephrosis and a present Foley catheter obstructed by an enlarged prostate. The patient was admitted for sepsis.

Operative Course

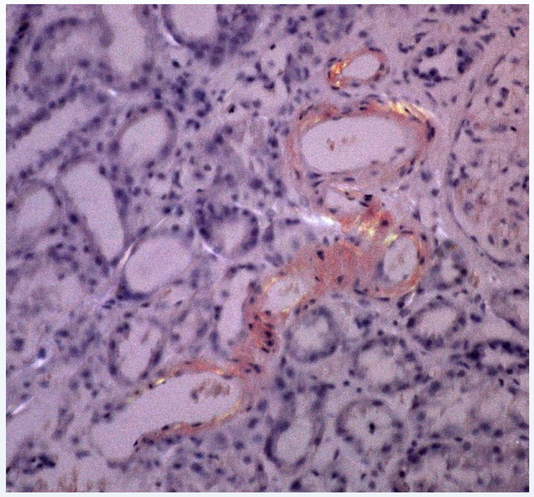
Colonoscopy displayed a small anal polyp and two ascending colon polyps with unremarkable pathology excised using SNARE technique. Prostatic enlargement was noted on DRE.

Following a bout of sepsis, a TURP procedure using the Olympus button was performed in February of 2020. During this time, patient had developed cardiomyopathy of unknown origin, persistent proteinuria, and failure to thrive. Cystoscopy noted an anterior urethra that appeared grossly normal. Investigation of the prostate displayed triblobar hyperplasia with asymmetric growth of the right lateral and right anterior prostate. Trilobar prostatic resection was performed. Following complete resection of prostatic tissue, a 22 French Foley Catheter was placed with continuous bladder irrigation. Our patient was discharged home with a successful voiding trial.

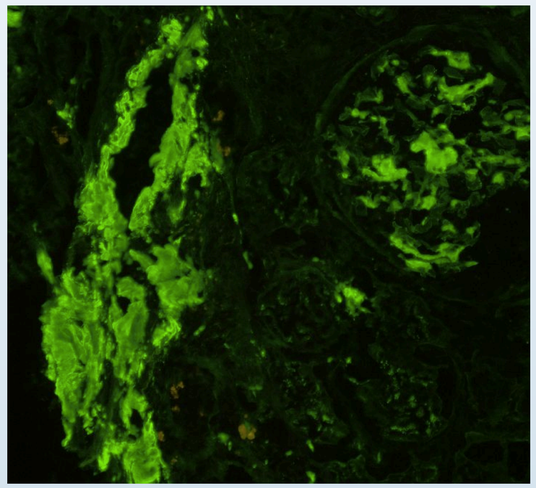
Our patient's course was complicated by multiple admissions secondary to failure to thrive as well as urinary retention. Of note, during May 2020 our patient had lost over 40 lbs since December of 2019. EGD was performed which displayed irregular z-line as well as patchy nonspecific gastritis. Biopsy results were negative for H. pylori as well as Barrett's esophagus which were nonspecific not accounting for the patient's persistent weight loss.

In May 2020, the patient was suffering persistent urinary retention status post TURP in February 2020. A CT abdomen and pelvis was performed due to failure to thrive. CT results displayed a markedly enlarged prostate measuring greater than 7cm with marked bladder enlargement as well as bilateral hydronephrosis, bilateral hydroureter, and splenomegaly.

Renal team performed renal biopsy due to unexplained renal function deterioration in June of 2020; Cardiac team subsequently worked up acute onset cardiac failure which displayed left ventricular hypertrophy and septal hypertrophy secondary to infiltrative process. In August of 2020, PEG tube was placed in order to combat failure to thrive.



Congo red staining with apple green birefringence



Kappa protein immunofluorescence

Discussion

Amyloid light-chain (AL) amyloidosis, otherwise known as primary systemic amyloidosis, results from aggregation of misfolded proteins that deposit in various tissues. Diagnosis of this condition can be challenging due to its low incidence 9.7-14 cases per million per year and its' ability to mimic many other benign and malignant processes. In 37.1% of cases, the diagnosis of AL amyloidosis is made greater than one year after the initial presenting symptoms. The median survival of AL Amyloidosis is 6-12 months. Misdiagnosis and delayed diagnosis continue to be concerns that greatly impact patient lives. Most of these patients die within a few months of diagnosis, despite modern treatment therapies.

Definitive diagnosis of amyloidosis is biopsy. The most common sites biopsied include kidney, when renal manifestations are present, rectal, abdominal fat pad, or gingival biopsies with suspected systemic amyloidosis.

A clinical suspicion of amyloidosis may rise in finding otherwise unexplained phenomena, such as organomegaly (tongue, liver, or spleen), proteinuria, right-sided cardiac failure, orthostatic hypotension, peripheral polyneuropathy, autonomic neuropathy, and malabsorption. AL amyloidosis most frequently affects the heart and the kidneys but can impact any tissue in the body. Amyloidosis of the urogenital system is an uncommon yet incidence is reported to be increased as prostate biopsies increase. Specifically, amyloidosis of the prostate has received little attention. However, several cases have been reported in the literature. These patients present with systemic symptoms such as fatigue, weight loss, poor appetite, shortness of breath secondary to unexplained heart failure along with urinary obstruction. Following biopsy, physicians on these cases specifically requested the prostate specimen be stained with Congo Red.

Treatment for this condition is a TURP procedure with subsequent chemotherapy. This ultimately aids in the diagnosis of systemic amyloidosis versus TTR cardiac amyloidosis. In our case, the patient had a history of weakness, fatigue, early satiety, weight loss, and unexplained hypotension with a rapidly enlarged prostate. While TURP was performed, the patient was followed up with oncology for chemotherapy treatment.

Conclusion

Prostatic amyloidosis is extremely rare with only few cases described in the literature. AL amyloidosis requires a high index of suspicion. This case illustrates an uncommon presentation of light chain amyloidosis. Diligent evaluation of rapidly progressive prostatic enlargement in the setting of systemic symptoms is required.

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