



A Spontaneous Case of Atheroembolic Renal Failure

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Introduction

Atheroembolic renal failure is a relatively common and under recognized occurrence gaining awareness as cases of vascular catheterization and intervention continues to rise. Five to 10% of all cases of acute renal failure are thought to be due to atheroembolism [1]. This phenomenon arises from rupture of aortic plaques causing embolization of cholesterol crystals. We present a unique case of spontaneous atheroembolic disease.

Clinical Image

A 76 year old Asian female with history of hypertension, hyperlipidemia and type 2 diabetes presented to clinic with 2 weeks of generalized weakness, fatigue and poor appetite. On presentation, she was normotensive with a diffuse macular rash on her back and trunk. Routine labs revealed a creatinine of 12 with a prior baseline of 0.9. Urinalysis was bland. She had no history of vascular catheterizations or procedures. Renal biopsy revealed sclerotic glomeruli, intimal fibrosis and cleft spaces surrounded by endothelial cell proliferation. Despite accurate diagnosis of atheroembolic renal failure, she continued to clinically deteriorate and eventually passed away.

Discussion

Atheroembolic renal failure often presents as a triad of known precipitating event, acute or subacute renal failure and skin manifestations. Patients often have vague symptoms of fever, myalgias and weakness and can present with GI or neuro specific symptoms as well.

Aortic plaques in the arterial intima consist of a necrotic core of LDL laden foam cells with a cap of endothelial cells, smooth muscle and connective tissue. The cap can be destabilized by inflammation, hemorrhage; hypertensive shearing or mechanical manipulation. Plaque ulceration releases a shower of insoluble cholesterol crystals causing an inflammatory reaction involving PMNs and eosinophils. Thrombus formation ensues and progressive endothelial proliferation, fibrosis and nephroangiosclerosis leads to arterial obstruction and ischemia [2]. Renal biopsy is performed for definitive diagnosis but skin biopsy can also be high yield. Biconvex needle-shaped empty clefts, also known as “ghost cells”, are pathognomonic for this disease.

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Conclusion

While atheroembolic renal failure most commonly presents after an inciting event, providers should consider this diagnosis in patients presenting with acute or subacute renal failure. There is an 81% mortality rate associated with atheroembolic renal disease; 64% at 1 year [1]. Treatment is primarily supportive and preventative aimed at controlling hypertension, smoking cessation and statin therapy [3]. Dialysis is needed in 30-60% of patients [1]. Experimental therapies could be invaluable in reducing the high mortality burden associated with this phenomenon.

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