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A Case of Premature ST-Segment Elevation Myocardial Infarction in a Female with Newly Diagnosed Lupus Nephritis

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INTRODUCTION

Systemic lupus Erythematosus is an immune mediated illness with the highest prevalence in the United States in the African American population and ancestry. It is a multi-systemic disease affecting nearly every organ of the body manifesting as joint pain, skin changes which includes presence of malar rash, fatigue, fever, increased photosensitivity. Cardiac manifestation of SLE often involves the pericardium, myocardium, valves conduction system and coronary arteries. Coronary artery involvement is often underestimated especially if occurring in patients below the age of 45 and without significant risk factors. The American College of Cardiology defines Premature CAD as occurring before age 55 years in men or 65 years in women. The protective effect of endogenous estrogen and Progesterone helps mitigate the risk of premature coronary artery disease in females. I hereby present a unique case of ST segment elevation myocardial Infarction affecting the Left Anterior Descending Artery in a 40-year-old female with newly diagnosed Lupus Nephritis.

CASE PRESENTATION

Patient is a 40-year-old female with newly diagnosed Lupus nephritis class II on immunosuppressants prednisone/azathioprine, Sjogren syndrome who presented with complains of retrosternal chest pain of one-day duration. On Presentation she was in painful distress with severity scale of 6/10, described as a dull crushing ache exacerbated on exertion with shortness of breath. Vital signs blood pressure, Heart rate and temperature was normal. She had an urgent ECG which showed Q-waves in lead V1, V2 and V3 in keeping with recent anterior infarct (Figure 1). Initial High Sensitivity Troponin I was 19094, second set of cardiac enzymes Troponin I was 50000. Echocardiogram showed an ejection fraction of 30% to 35 %. Urine dipstick was positive for blood and Proteins. Serum Albumin/Cr ratio was 300. Subsequently, had urgent coronary angiography which showed MID-LAD occlusion of > 70 % with subsequent PCI and revascularization. She had resolution of symptoms, she was placed on high intensity statins, dual antiplatelet therapy and Guideline Directed Medical Therapy to optimize her cardiac function.

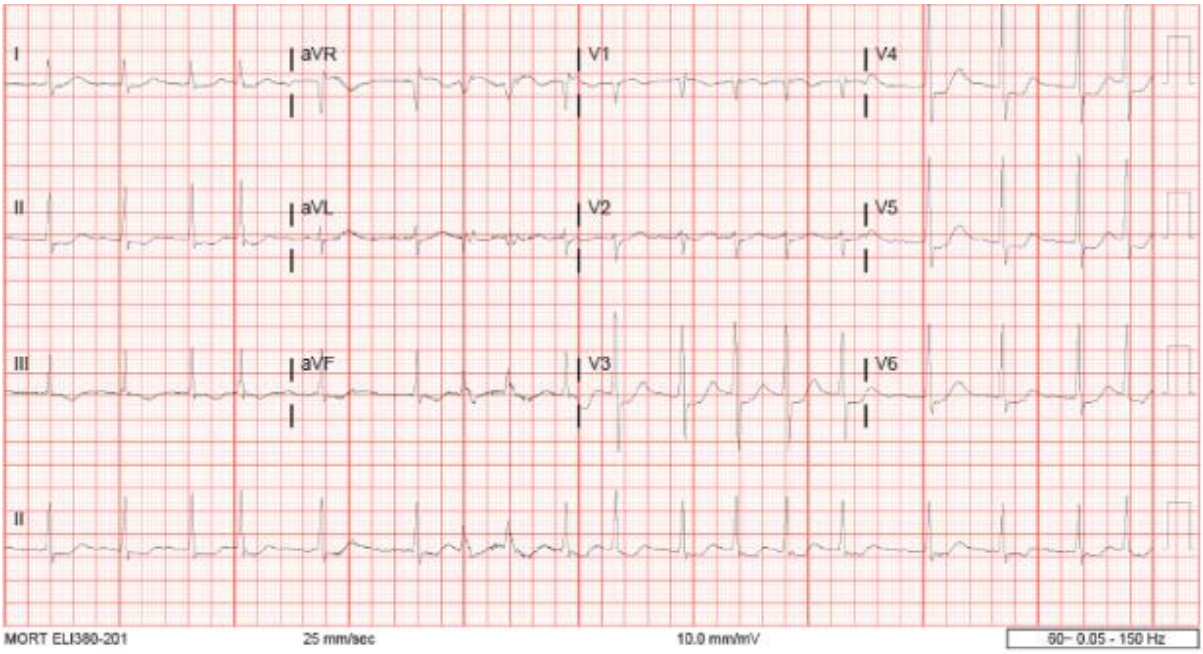

Figure 1: Initial EKG demonstrating atrial fibrillation at a rate of 108 beats per minute within 24 hours of zoledronic acid administration.

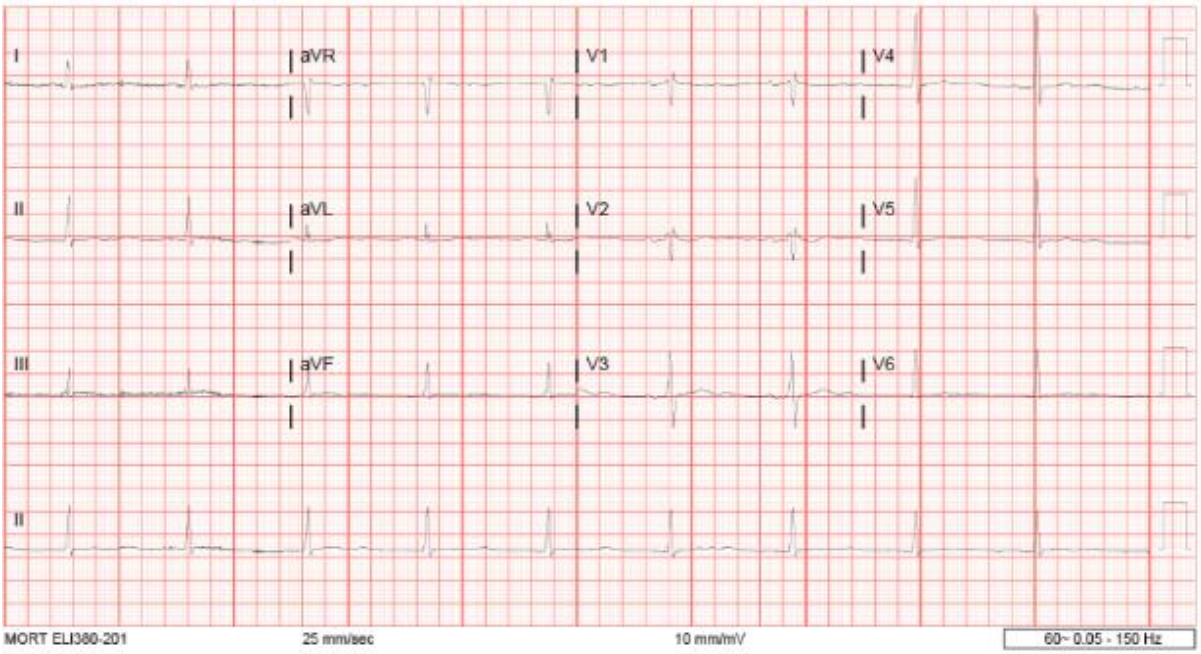

Figure 2: Follow up EKG demonstrating spontaneous conversion to normal sinus rhythm.

DISCUSSION

The impact of systemic lupus erythematosus on the cardiovascular system is underreported. The risk increases further in patients with lupus nephritis. The burden of accelerated atherosclerosis in patients with SLE increases the risk of coronary artery disease and acute coronary syndrome. Several mechanisms have been Implicated in premature coronary artery disease in patients with SLE. First, is the high rate of oxidative stress which enhances

inflammation promoting apoptosis and leading to the release of reactive species and free radicals. These free radicals are involved in the dysregulation of cholesterol metabolism leading to dyslipidemia the bedrock for the formation of atherogenic plaques. Furthermore, the renal and cardiovascular system share a close relationship with each other such that a failure of one organ negatively affects the other. Kidney involvement manifesting as lupus nephritis increases the risk of myocardial infarction through mechanisms previously explained. Damage to renal blood vessels via inflammation, increases resistance in renal vascular beds leading to increased mechanical work load on the heart and oxygen demand/supply mismatch.

CONCLUSION

There are no guidelines recommending early cardiovascular screening in patients with lupus nephritis which is different from that of the general population. However, recognizing the increased risk of coronary artery disease in patients with Lupus nephritis is a sine qua non. Early screening for other associated risk factors might help abate cardiovascular events, nevertheless kidney involvement as in lupus nephritis may independently heighten the risk.