An unusual cause of myocardial infarction: Cardiac Vasculitis

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Abstract
We present the case of a 60 years old male with ANCA positive vasculitis (Granulomatosis with polyangiitis, formerly Wegener’s) who had a myocardial infarction due to small vessel vasculitis. He developed acute heart failure and was treated aggressively with immunosuppression and plasmapheresis. He improved and his echocardiogram one month later showed normal left ventricular systolic function.

Case
A 60 years old male presented to hospital due to lethargy, headaches and intermittent chest pain.

His blood tests revealed an acute kidney injury with urea of 18.4 and creatinine 466. At this point he had a diagnosis of ANCA PR3 positive vasculitis in the nasal cavity and prostate but there was no evidence of active disease in his kidneys.

A kidney biopsy was done and this showed crescentic glomerulonephritis consistent with ANCA positive small vessel vasculitis.

He was started on immunosuppressive therapy but despite this, his kidney functions continued to deteriorate and he was commenced on haemodialysis.

Whilst inpatient, he developed sudden onset breathlessness and further chest pain. His ECG showed new T wave inversion in leads V2 to V4.

Serial troponins were consistent with myocardial infarction. He had a coronary angiogram which showed clear coronary vessels.

Figure1: Patient’s angiogram showing normal coronary arteries

However, his echocardiogram showed severe left ventricular systolic dysfunction and global hypokinesia.

He gradually improved with a three pronged approach of intravenous methylprednisolone, plasmapheresis and rituximab. A repeat echocardiogram one month later showed a complete improvement, with normal left ventricular systolic function.

Discussion
ANCA positive vasculitides are characterised by small vessel involvement in multiple organs, including lung, kidney, skin and peripheral nervous system.

Granulomatosis with polyangiitis usually affects the upper respiratory tract, lower respiratory tract and kidneys.

Cardiac involvement in Granulomatosis with polyangiitis affects 6-30% of cases and can involve any cardiac tissue resulting in pericarditis, myocardial ischaemia, endocarditis, myocarditis or conduction defects. This can be fatal (1).

There is often a time-lapse before the onset of symptoms so it is important that patients with small vessel vasculitis are monitored regularly with ECG and echocardiogram.

Cardiac MRI is the investigation of choice to reveal myocardial inflammation. (2)

Treatment is with a combination of immunosuppression and cardiac treatments including ACE inhibitors, beta blockers, diuretics, antiplatelets, antiarrhythmic drugs and pacemaker insertion as indicated.

Learning points
This case highlights the complexity of vasculitis and its multisystem involvement.

We emphasize the importance of seeking specialist advice as the disease may not respond to conventional treatment such as antiplatelet drugs in this case of myocardial infarction.

Patients may be asymptomatic for a long time. Therefore, close surveillance of patients with vasculitis with regular ECG and echocardiogram is important.

There should be a high index of suspicion when patients with established vasculitis develop cardiac symptoms. Early treatment under specialist care is crucial to prevent life threatening complications.

This is of particular relevance to Acute Medicine Physicians as we are the ones assessing the patient first and it is paramount that we involve the appropriate Specialists to ensure timely diagnosis and hence management of patients.

References