

# Rare Case of Cytomegalovirus Associated Splenic Infarction in a Healthy Young Male

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## Introduction

Cytomegalovirus can infect hosts with both intact and compromised immune systems. The spectrum of disease can range from mild fever and myalgias to devastating complications in immunocompromised hosts. Hematologic complications including thrombus formation, especially within the spleen, have been rarely reported. The pathophysiology remains to be described, however, an emerging association between CMV and production of antiphospholipid antibodies is under investigation.



Figure 1. CT angiogram of the abdomen showing splenic infarct (red arrow)

## Case Presentation

A 47-year-old male with no significant past medical history presented with acutely worsening left upper quadrant abdominal pain. The pain had started spontaneously two months ago and has been progressively worsening. A week prior to presentation, the patient was evaluated at another hospital with similar complaints and was found to have poorly defined splenic lesions on abdominal computed tomography (CT) scan. Laboratory studies were consistent with hemolytic anemia and repeat abdominal CT scan showed splenomegaly and multiple splenic infarcts. These findings were later confirmed on abdominal CT angiography. A complete infectious, cardiogenic with use of echocardiography, and hypercoagulable work-up was performed and was remarkable only for positive CMV antibodies, anticardiolipin antibodies, and Beta-2 glycoprotein antibodies. Treatment was initiated with intravenous heparin and transitioned to rivaroxaban prior to discharge. The patient was counseled to avoid contact sports for four weeks and provided a follow-up appointment at our family health clinic.

## Discussion

Splenic thrombosis, in the absence of an underlying cause, is a rarely encountered phenomenon. It has been previously reported in hospitalized patients with several comorbidities. Our case stands in stark contrast as our patient had no chronic medical issues and was not on any long-term medications. More importantly, CMV associated thrombosis is most commonly reported in immunocompromised patients. In immunocompetent hosts, deep venous thrombosis and pulmonary embolism are more common.

The pathophysiology of thrombus formation in patients with CMV remains to be confirmed, however, recent theories have contributed to our understanding. A meta-analysis of thrombosis in patients with CMV revealed that over two-thirds were immunocompromised and one-fifth had developed antiphospholipid antibodies. CMV has been described to cause thrombophilia by promoting production of factor VIII while delaying the production of heparin sulfate. Furthermore, CMV-associated inflammation can cause vascular damage that inappropriately activates coagulation factors and promotes platelet adhesion. Recent investigation has also associated CMV with production of antiphospholipid antibodies likely through molecular mimicry.

The most common causes of splenic infarct include hemoglobinopathies, particularly sickle cell disease. Dangerous complications involving splenic infarction include pseudocyst formation, abscess formation, hemorrhage and hematoma, aneurysm, and rarely splenic rupture. Hemorrhagic conversion warrants emergent surgical evaluation. Most cases resolve spontaneously with supportive care and do not warrant use of anticoagulation.

## References

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