



## Pathology & Biology Section – 2008

### G62 Aneurysms and Old Lace: A Ruptured Splenic Artery Mycotic Aneurysm Masquerading as Arsenic Poisoning

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After attending this presentation, attendees will gain a better understanding of the clinical presentations of patients with abdominal mycotic aneurysm and understand the usual clinical findings associated with arsenic poisoning and its differential diagnosis.

This case study discussion will impact the forensic community and the general medical community by highlighting the clinical signs and symptoms of a patient with a fatal ruptured splenic artery mycotic aneurysm, expanding clinicians' and investigators' knowledge bases to heighten pre-mortem suspicion of such cases, thus decreasing the mortality of mycotic aneurysms and decreasing unfounded accusations of poisoning.

The term *mycotic aneurysm* is often used to describe infected aneurysms within the vascular system. These lesions are classically caused

by bacterial endocarditis when multiple downstream vessels are showered with and seeded by bacterial emboli. In recent times, these aneurysms are seldom attributed to fungal organisms, and may also be referred to as infected aneurysms.

A high level of clinical suspicion is often required, augmented by blood cultures, echocardiograms to identify endocardial vegetations, and additional imaging studies such as MRI or CT scans to identify specific emboli, aneurysms, or downstream infarcts. Treatment includes antibiotic therapy, and often surgical removal of the aneurysm. Symptoms vary, depending on the vessels or organs involved by the aneurysm. Mycotic aneurysms in the splenic or mesenteric arteries may present with nonspecific abdominal pain, or no pain at all. Due to the usual concurrent bacteremia, these patients often complain of headaches, and demonstrate confusion or drowsiness.

Similarly, victims of arsenic poisoning can have varying levels of clinical symptoms, depending on the amount of arsenic ingested. The baseline health status of the patient will also affect his or her reaction to the poison. Low levels of arsenic can cause headaches and confusion. Diarrhea, vomiting, and stomach pain are more common with higher levels of poison. Because arsenic is a frequent component of daily household cleaning products and some food items, a low level of arsenic may be detected in many individuals. Individuals who are poisoned, either through accidental exposure/ingestion or due to purposeful poisoning by another person usually exhibit higher levels of detectable arsenic. Arsenic levels are generally detected by chemical analysis of hair or urine. Hair samples may show falsely elevated levels of arsenic, due to environmental accumulation of arsenic on the hair. However, hair follicles retain arsenic for much longer periods than it can be detected in the urine. Nails and skin can also harbor arsenic for long periods of time.

An elderly gentleman lived in a nursing home and was the suspected victim of arsenic poisoning at the hands of one of his children with whom there had been a recent property dispute. The patient initially complained of nondescript but at times severe abdominal pain. Clinical specimens (hair samples) taken shortly before his death revealed no toxic levels of arsenic. Shortly thereafter, he died secondary to a ruptured splenic artery mycotic aneurysm.

At autopsy, the gentleman was found to have a hemoperitoneum and a large retroperitoneal hematoma in the area of the splenic artery, due to an apparent ruptured aneurysm. No endocardial vegetations were identified. There was evidence of pyelonephritis in the kidneys. Pre-mortem arsenic levels were measured clinically via hair analysis, and were found to be within normal limits.

Further discussion will outline the incidence and various clinical presentations of mycotic aneurysms, methods by which these aneurysms have been detected in other cases, and ensuing successful clinical interventions. For the purposes of comparison, the typical findings of arsenic poisoning and their overlap with this case will be discussed.

#### **Aneurysm, Mycotic, Arsenic**