G127 Fulminant Myocarditis in Disseminated Mucormycosis: A Rare Cause of Death From a Snake Bite

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After attending this presentation, attendees will be able to identify an uncommon case of death due to mucormycosis myocarditis as a complication of viperine snake bite in an adult man. A complete forensic approach was performed through autopsy, and histological examination, and correlation with the clinical findings revealed that the cause of death was due to complication arising from disseminated mucormycosis, a rare complication seen in snake bite victims.

This presentation will impact the forensic science community by showing that disseminated systemic mucormycosis is a dreaded complication which can arise in many conditions, and can cause mortality, if left untreated.

Fungal infections are an important cause of morbidity and mortality. Mucormycosis is a ubiquitous filamentous saprophyte found in farms, gardens, forests, etc. and, unlike Candida and Aspergillus, it is generally not found in a hospital environment. The common portals of entry are respiratory, gastrointestinal tracts and skin. The outcome of mucormycosis is poor with 95% – 100% mortality in disseminated mucormycosis. Diabetes mellitus, especially diabetic ketoacidosis, high dose steroid exposure, neutropenia, degree of immunosuppression, renal failure, and poor hygienic conditions are some of the causative factors. Rarely, the disease has been reported in healthy people. Disseminated mucormycosis can produce fatal complications if it involves the cardiovascular system. Acute fulminant myocarditis is a critical clinical condition with sudden onset of severe congestive heart failure followed by severe hemodynamic deterioration. The case of a patient who developed acute fulminant myocarditis in the setting of disseminated mucormycosis secondary to snake bite envenomation is presented.

A 45-year-old male was bitten by a Russell's viper snake near the ankle of right leg while working in corn fields. He was transported to the hospital for treatment. In the hospital, he developed gangrene and compartmental syndrome in the region of snake bite, and wound debridement and fasciotomy was done as a part of management. He was treated with antibiotics as per the culture and sensitivity test reports. He developed acute arrhythmias and ST segment elevation was observed on continuous ECG monitoring. A 12-lead ECG showed concave ST elevation in almost all leads. The echocardiogram showed a normal left ventricular cavity without hypertrophy and preserved systolic function, no valvar vegetations, no pulmonary hypertension, and no significant pericardial effusion. He succumbed due to irreversible cardiac arrest 19 days after admission, while under treatment at the hospital.

Postmortem examination revealed infected fasciotomy and debridement wounds with foul-smelling exudates. Multiple reddish circular haemorrhagic skin lesions of varying sizes from 5 – 11cm in diameter were present over the front and back of the trunk limbs. Epicardial and sub-endocardial hemorrhage was present involving the entire heart. Coronaries were patent. Hemorrhagic lesions were present in the greater omentum. An eroded necrotic area measuring 9cm x 8cm was present in the greater curvature of stomach. Hemorrhagic areas were present over the small and large intestines, kidneys, liver, and pancreas. Histopathological examination of the heart, kidneys, liver, and lungs showed irregularly shaped, non-septate hyphae with right angle branching with evidence of arterial invasion.

The cause of death was concluded as complications secondary to disseminated mucormycosis in a case of snake bite. Fatal fungal infections like disseminated mucormycosis can occur following snake bite envenomation. The physician should always keep this as a differential diagnosis and anticipate the fatal complications. Instituting early left ventricular support may improve outcome and result in better long-term survival. The forensic pathologist should differentiate the hemorrhagic cutaneous lesions from contusions and see evidence of fungal infections and their fatal affects during autopsies.

Myocarditis, Mucormycosis, Snake Bite

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