G31 Extrapulmonary Tuberculosis — Rare Autopsy Findings

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The goal of this presentation is to show how the involvement of heart and pancreas although rare, can be seen at autopsy in multi-organ tuberculosis in developing countries. Tubercular myocarditis can remain clinically asymptomatic, or can present with sudden death, ventricular arrhythmia, heart block, or congestive heart failure. Tubercular necrotizing pancreatitis is an atypical form of the disease, and can result in shock.

This presentation will impact the forensic science community by showing how cardiac and pancreatic tuberculosis is associated with increased fatality rate in systemic tuberculosis affecting both immunocompromised and immunocompetent individuals.

Autopsy study of the heart and pancreas is important in suspected cases of multiorgan tuberculosis although the disease is generally believed to spare these organs as well as skeletal muscle and thyroid. Many times, diagnosis of tuberculosis is made only at autopsy, especially in developing countries. Multi-organ tuberculosis, historically a disease of infants and young children, currently predominates among the elderly and immunocompromised individuals especially those infected with both HIV and Mycobacterium tuberculosis. The involvement of myocardium and pancreas could be considered as potentially lethal especially in multiorgan tuberculosis.

Tuberculous pericarditis with tamponade, myocarditis, and necrotizing tuberculous pancreatitis can be fatal. Systemic tuberculosis with multi-organ failure should be considered as a possible cause of septic shock especially in patients with typical high risk factors such as advanced age, diabetes, alcoholism, and immunosuppression. Extrapulmonary tuberculosis was seen in three males who were not hospitalized and aged twenty to fifty years in the present study.

Cardiac tuberculosis most commonly affects the pericardium, while endocardial, myocardial, valvular, or coronary artery involvement is exceedingly rare. It is estimated that 1% of all cases of tuberculosis have cardiac involvement. Before the introduction of chemotherapy, the overall incidence of cardiac tuberculosis, as detected by autopsy was less than 3%. Tuberculous caseating myocarditis usually results from direct hematogenous seeding from pericardium or mediastinal lymph nodes via lymphatics. The three distinct forms of myocardial tuberculosis are nodular tuberculomas, miliary tubercles, and an uncommon diffuse infiltrative type. In the present study, multifocal areas of caseous myocardial necrosis were seen in three cases. The pericardium showed tuberculoid granulomas in all the three cases.

Pancreatic tuberculosis was seen in 4.7 to 14% of deaths from miliary tuberculosis. Higher incidence of this entity is related to increased frequency of abdominal tuberculosis in immunocompromised patients. Pancreas is biologically protected from infection by Mycobacterium tuberculosis because of the presence of pancreatic enzymes. Hematogenous dissemination from the pulmonary focus or direct spread from adjacent peri-pancreatic lymph nodes causes tuberculous pancreatic abscess, though large lesions are not so common. In the present study, tuberculous pancreatic abscess with necrosis of the large vessels was seen in one case. In all the three cases, there was concurrent infection in the lungs, kidneys, liver, and spleen, with the presence of caseating granulomas. Ziehl Neelsen stain showed tubercle bacilli in these organs.

Mortality from systemic tuberculosis is high and death due to multi-organ failure and septic shock has been reported in both immunocompetent as well as immunocompromised individuals. In conclusion, although myocardial and pancreatic involvement by tuberculosis is rare, it should be suspected as a cause of congestive heart failure and shock, respectively.

Tuberculosis, Heart, Pancreas

 ** Presenting Author*