Sudden Death From Influenza in a Child Due to Superimposed Bacterial Infection and Secondary Herpetic Changes

Amit Reddy, MBBS,1 Jaswinder Kaur, MD,1 and Anna Mathew, MD2; 1University of Mississippi Medical Center and 2University of Southern California

Background: We report the second documented case of pneumonia caused by influenza virus with superimposed MRSA and herpes virus.

Case Report: A 13-year-old female with no past medical history presented to the hospital with acute cough, fever, and lethargy. Her oxygen saturation and blood pressure declined rapidly. She was given normal saline with dopamine infusion for hypotension related to septic shock along with empiric antibiotics. Chest x-ray revealed diffuse bilateral parenchymal infiltrates and edema. Patient had not received flu vaccine. Labs revealed low WBC, low platelets, and elevated coagulation parameters concerning for DIC. Patient cannulated for extracorporeal membrane oxygenation (ECMO). Vitamin K, packed RBCs, platelets, FFP, and cryoprecipitate administered for worsening DIC. Despite ECMO, patient continued to have poor perfusion, became pulseless, and subsequently died.

Results: Postmortem findings confirmed influenza B virus Yamagata lineage. Blood cultures grew MRSA. Large gram-positive cocal bacteria noted on gram stain. Microscopic sections of lungs showed diffuse alveolar damage with hemorrhage and patchy zones of necrosis reminiscent of herpes-type necrosis although no distinct viral cytopathic effect. Herpes-type 1 and 2 immunostains showed positive staining of granular debris with areas of necrosis. Findings consistent with fatal influenza B infection complicated by severe necrotizing bacterial pneumonia with diffuse alveolar damage and secondary herpetic changes.

Discussion: Herpetic pneumonia is usually limited to immunocompromised patients. In this previously healthy teenager, viral pneumonia with superimposed bacterial infection resulted in diffuse alveolar damage and depressed immunity, making her susceptible to herpetic infection likely leading to her rapid decline and death within 19 hours. When patients present with influenza unresponsive to treatment, it is important to rule out superimposed infections.

Anomalous Origin of Left Coronary Arteries From the Pulmonary Artery (ALCAPA) in an Asymptomatic 28-Year-Old Female

Majd Al Shaarani, Yasir Alzubaidi, MD, and Long Jin, MD; LSU Health Science Center

The anomalous origin of the coronary arteries is a rare finding that requires surgical correction. The most common anomaly in this group is the anomalous left coronary artery from the pulmonary artery (ALCAPA). The incidence of ALCAPA ranges between 1 and 8 in 100,000 live births. This condition is usually discovered in the very first few days to months of life and can be fatal if not corrected surgically, with a mortality rate between 80% and 90%. Only rarely do patients with ALCAPA reach adulthood without symptoms.

We report a case of anomalous origin of left coronary artery (ALCAPA) in a 28-year-old African American female. This very rare case was discovered during forensic autopsy. The deceased was apparently healthy and asymptomatic since she was at work when she suddenly collapsed. At the autopsy, the examination of the cardiovascular system revealed a 370-g heart. Transverse and longitudinal dissection of the coronary artery system revealed an anomalous origin of the left main coronary artery from the pulmonary artery. The lumina of the left anterior descending and left circumflex arteries were significantly smaller than the usual size. A single coronary ostium was present in the aortic root with higher than usual takeoff location (10 mm from the sinotubular junction). The myocardium of the left ventricle was 1.3 cm in thickness with focal fibrosis at the anterolateral free wall measuring 2 cm in the maximal dimension. Microscopically, the sections from the anterolateral wall of the left ventricle revealed patchy myocardial fibrosis more prominent at the papillary muscle and subendocardium corresponding with remote myocardial ischemic injury. The sections also revealed subtle changes consistent with acute ischemic injury, including eosinophilia, few neutrophils, shrunken pyknotic nuclei, and contraction band necrosis. There were areas of hypertrophic myocardopathy with boxcar-shaped nuclei.

Pleomorphic Spindle and Giant Cell Carcinoma of Lung With Widespread Metastases: An Autopsy Case Report

Roshanak Derakhshandeh, Leonel Maldonado, MD, and Kelly Roveda; University of South Alabama

Pleomorphic spindle and giant cell carcinoma (PC) is a rare, poorly differentiated non–small cell lung carcinoma that contains at least 10% spindle and/or giant cells and currently grouped among sarcomatoid carcinomas of the lung by the 2015 World Health Organization classification of lung tumors. Here we report the autopsy findings in a 97-year-old female with a history of left lung and bilateral adrenal masses. Her social history was...
negative for tobacco or alcohol usage. Autopsy examination revealed a 9.0 × 8.0 × 5.0-cm well-circumscribed, friable left lower lobe mass and extensive mediastinal lymphadenopathy. Moreover, bilateral adrenal glands were replaced by well-circumscribed and friable masses (right, 9.0 × 8.0 × 6.5 cm; left, 8.0 × 5.0 × 5.0 cm). Microscopically, the lung neoplasm was composed of epithelioid spindle-shaped cells with marked nuclear pleomorphism and prominent nucleoli set in an inflammatory background with areas of necrosis. The neoplastic cells were intimately associated with osteoclast-type giant cells consistent with pleomorphic spindle and giant cell carcinoma. Vascular invasion, bronchopneumonia adjacent to the tumor, and alveolar congestion were also present. Two metastatic deposits were identified within the mucosal surfaces of the stomach and small intestine, showing the same histologic features seen in the lung and adrenal tumors. By immunohistochemistry, tumor cells were strongly positive for CAM5.2 and cytokeratin AE1/AE3, weakly positive for CK7 and TTF-1, and negative for WT-1, CK20, p63, S-100, and CDX-2, supporting the diagnosis of an aggressive tumor with a worse prognosis than conventional non–small cell carcinomas and a 5-year survival of only 20%.

Intravascular Lymphoma—A “Deadly Mimic”

Mehri Mollaee and Lawrence Kenyon, MD, PhD: Thomas Jefferson University Hospital

Objectives: Intravascular large B-cell lymphoma (IVL) is a variant of extranodal diffuse large B-cell lymphoma with the malignant cells essentially confined to medium and small vessel lumina. Clinical signs and symptoms are variable and the histology can be subtle, leading to a delayed diagnosis with increased mortality. We review the clinical course and diagnostic workup of one patient with IVL presenting with dyspnea and weight loss.

Methods: Patient history, clinical data, laboratory results, imaging, lung and skin surgical biopsy specimens, peripheral blood smear (PBS), and flow cytometry were reviewed.

Results: A 50-year-old African American female with no prior medical history presented with a 3-month history of diffuse dry skin, nonproductive cough, dyspnea, and weight loss. Laboratory tests showed anemia, thrombocytopenia, and elevated serum lactate dehydrogenase. Imaging of the chest showed features resembling interstitial lung disease. Lung wedge biopsy revealed features suggestive of vasculitis as well as a cellular nonspecific interstitial pneumonitis pattern of injury. The cytologic specimen of the lung demonstrated few atypical cells with acute inflammation while skin biopsies of the left forearm revealed leukocytoclastic vasculitis. A PBS identified few atypical lymphocytes, and flow cytometry of the peripheral blood was unremarkable. The patient developed nonspecific neurological symptoms and deteriorated rapidly. The patient died from severe respiratory and multiorgan failure within 3 weeks of admission. An autopsy revealed diffuse IVL in nearly all examined organs.

Conclusion: IVL is a rare variant of non-Hodgkin lymphoma characterized by neoplastic lymphoid cells growing inside the vessel lumina. The diagnosis is often delayed due to a variable clinical presentation mimicking other diseases such as ILD, vasculitis, etc. Histopathology remains the gold standard for diagnosis, showing the classic appearance of large malignant lymphocytes occluding vascular lumina. Although rare, IVL should be considered a potential cause of multiorgan failure when no other cause has been identified.

Pulmonary Tumor Thrombotic Microangiopathy: A Rare Sequela of End-Stage Colon Cancer

Ami Mon; Hawaii Residency Program

Objectives: This report aims to raise awareness of pulmonary tumor thrombotic microangiopathy (PTTM), a diagnosis made almost exclusively postmortem. The etiology of colon cancer has only been documented in a small number of articles. Furthermore, the distinctive morphological and behavioral features in this particular adenocarcinoma are compared and contrasted to those of other primary malignancies that have been previously described.

Methods: A full autopsy including brain performed on a middle-aged man after sudden death revealed an undiagnosed colon cancer. Gross and microscopic findings demonstrated pulmonary tumor embolism with associated PTTM as the cause of death.

Results: During a hospital admission for neurological symptoms, a 60-year-old male became progressively hypotensive and developed acute shortness of breath. He subsequently developed cardiac arrest and expired shortly after. The major autopsy discovery was a moderate to poorly differentiated rectosigmoid colon adenocarcinoma with widespread metastasis. Extensive tumor emboli occluding small peripheral pulmonary blood vessels bilaterally were presumed to be the immediate cause of death. Cardiomegaly with pulmonary and hepatic congestion suggested cor pulmonale.

Conclusion: Similar in presentation as venous thromboembolism, pulmonary tumor embolism should be included in the clinical differential diagnosis for cause of sudden death after progressive dyspnea especially in patients with malignancies. PTTM refers to the wall...