9-2022

Acute Pericarditis and Acute Pleuritis/Empyema Following Submandibular Infection in a COVID-19-Postive Patient: An Autopsy Revealing the Danger Space of the Neck

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H&E, original magnification ×40), staining black-green on AFB staining (Figure 3.9, D, H&E, original magnification ×20), consistent with sodium polystyrene sulfonate (Kayexalate). Although crystals in some lobes were associated with foreign body giant cell reactions and acute and chronic inflammation, 1 lobe had only minute crystal-associated acute inflammation, suggestive of recent or terminal aspiration. Reviewing 17 years of hospital records did not reveal any polystyrene sulfonate or sevelamer medication history. We concluded that the patient had been taking Kayexalate at home. Review of the literature reveals a dearth of similar cases described here.

Zymogen Granules in Pancreatic Acinar Cells in an Adult With Shwachman-Diamond Syndrome: An Autopsy Case Study

(Poster No. 10)

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Shwachman-Diamond syndrome (SDS) is a genetic disease caused by a mutation in the SBDS gene that can lead to hematologic abnormalities, skeletal defects, and pancreatic insufficiency. Children with SDS often develop pancreatic insufficiency with steatorrhea, although pancreatic symptoms often improve as they mature into adulthood. There are differences in the results from studies to explain the pathophysiology for SDS-related pancreatic insufficiency, specifically concerning zymogen granules within pancreatic acinar cells. Pancreatic biopsies of children with SDS have shown atypical acinar cells with no zymogen granules. A mouse model demonstrated granules in decreased numbers with normal morphology and function. A study using in vitro human pluripotent stem cells showed large dysfunctional granules. To our knowledge, no histologic findings of adult pancreas with SDS have been published to demonstrate zymogen granularity in acinar cells. In this autopsy case study, we present a 41-year-old man with SDS-related acute myeloid leukemia, who died from myeloid blast crisis. Gross examination revealed an atrophic pancreas with fat replacement. Microscopy further revealed acinar cells with bizarre nuclear atypia and increased zymogen granules, confirmed by positive trypsinogen immunohistochemical staining. Developing acinar pancreatic zymogen granules in adulthood can explain the improved pancreatic function in adults with SDS.

Acute Pericarditis and Acute Pleuritis/Empyema Following Submandibular Infection in a COVID-19–Positive Patient: An Autopsy Revealing the Danger Space of the Neck

(Poster No. 11)

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Acute pericarditis and empyema are life-threatening complications of severe odontogenic infections; reports of these findings from an autopsy perspective are rare. We report an autopsy case demonstrating infection from the mandibular molars to the pericardium and pleura in a patient following COVID-19 infection. A 53-year-old woman with history of COVID-19 (and on repeat testing at admission) presented with submandibular abscess that grew *Streptococcus anginosus*. Despite incision and drainage of the neck abscess and medical treatment, her condition deteriorated, with sudden death a week after admission. An autopsy with histologic analysis was performed. Externally, a surgical incision containing purulent drainage was present in the right submandibular area. Internally, there were large, purulent pleural and pericardial effusions. The lungs had patchy green discoloration, and the epicardial and pericardial surfaces were covered with fibrinous exudates. Histologically, abscess and Gram-positive bacteria were identified in the soft tissue surrounding the thyroid. Gram-positive bacteria and fibrinous, necrotic exudate with acute inflammation were present on the pleural and pericardial surfaces, consistent with acute pleuritis/empyema, and acute pericarditis. This is the first reported autopsy case describing acute pleuritis with empyema and acute pericarditis complicating submandibular infection in a patient with history of COVID-19. The mechanism is consistent with descending infection by deep cervical fascia and spaces such as the "danger space" communicating with the mediastinum. COVID-19 infection may add an important factor compromising her health; this case highlights the importance of recognizing life-threatening complications of oral infections.

Death by Head Lice?

(Poster No. 12)

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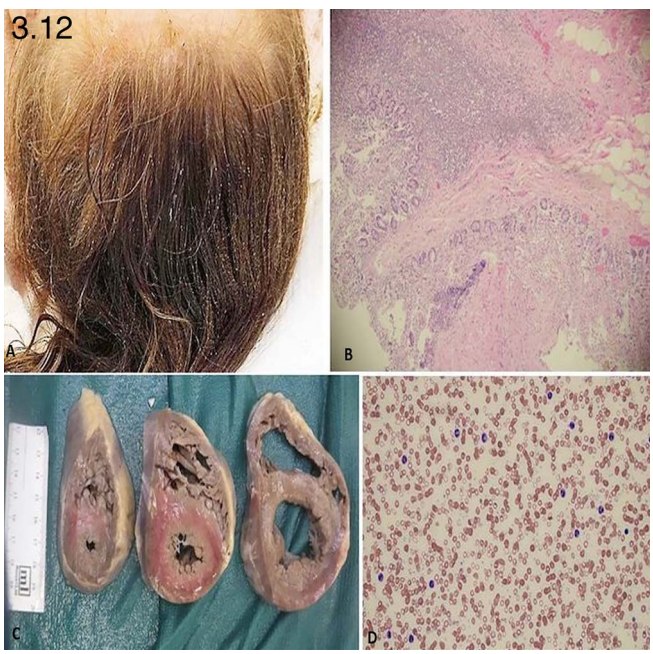
Pediculus humanus capitis, the head louse, is an ectoparasite that feeds on human blood. Research has suggested that heavy infestation could lead to daily blood loss of approximately 1.26, or 37.76 mL per month. Although this is a small amount of blood, a chronic, heavy lice infestation could potentially lead to severe iron deficiency anemia; a few case reports in recent years have documented this phenomenon in children. We report the autopsy findings of a white girl age 8 years and 11 months with a significant history of morbid obesity and severe, longstanding pediculosis capitis (Figure 3.12, A). Immediately prior to presentation, she experienced acute dyspnea and collapsed. Her family reported that she complained of abdominal pain, diarrhea, and lower extremity edema for several days before her acute presentation. She was transferred to our institution and died shortly thereafter. Autopsy revealed significant cardiomegaly (438 g) with acute myocardial necrosis (Figure 3.12, C), pneumonia, anoxic brain injury, pseudomembranous colitis (Figure 3.12, B), severe iron deficiency anemia (hemoglobin 2.0 g/dL; Figure 3.12, D), and severe pediculosis capitis. Testing for heavy metals and other metabolic causes of anemia was unrevealing. The cause of death was determined to be acute myocardial necrosis and pneumonia with multiorgan failure, in the setting of obesity-related cardiomyopathy and severe anemia. We propose that the longstanding heavy lice infestation contributed greatly to the severe anemia in this child with underlying comorbidities. The report of this autopsy adds to the literature by further establishing morbidity and even possible mortality in certain at-risk patient populations with severe longstanding pediculosis capitis.



Liver Injury in COVID-19: Direct Evidence of Hepatic SARS-CoV-2 Infection and Associated Histopathologic Findings

(Poster No. 13)

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Context: COVID-19 is a multiorgan systemic infectious disease. Multiple studies have shown functional and morphologic changes in