G103 Exogenous Lipoid Pneumonia: An Uncommon Incidental Autopsy Finding

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After attending this presentation, attendees will learn about lipoid pneumonia, a rare condition that may be incidentally found during postmortem investigation. Knowledge of the characteristics of this condition may allow revealing various risk factors that are helpful in the determination of cause of death.

This presentation will impact the forensic science community by highlighting an uncommon finding during autopsy. Basic knowledge of the characteristics of lipoid pneumonia may be helpful in the determination of cause of death.

Postmortem investigation often leads to incidentally revealing various conditions, which may or may not have played a part in the death of an individual. Lipoid pneumonia is a rare disease that is not necessarily involved in the occurrence of death, even as a contributory factor, but knowledge of the predisposing factors may be helpful in the determination of the cause of death of an individual.

Reported was a case of a 32-year-old woman who was found dead in her bed by her husband. According to him, she had taken methadone and cannabis the day before. She had a long history of drug abuse and was treated with buprenorphine in a drug addiction treatment center for six months. She also suffered from anorexia during her teen years, and had a history of suicide attempts.

External examination showed no traumatic injuries and no signs of intraveinous injection. At autopsy, a diffuse pulmonary edema (left lung: 816g; right lung: 998g) and congestion of lungs, brain, liver, and spleen were noted. The autopsy was otherwise unremarkable.

Toxicology revealed the presence of methadone (0.77µg/mL) and EDDP, its major metabolite (0.17µg/mL), buprenorphine (1.4ng/mL), amitriptyline (0.24µg/mL), olanzapine (0.20µg/mL), tropatepine (0.01µg/mL), nitrazepam (<0.01µg/mL), clonazepam (<0.01µg/mL) and 7-aminoclonazepam (0.06µg/mL), and zopiclone and tetrahydrocannabinolic acid (3.6ng/mL).

Miscroscopic examination of the lungs showed a diffuse interstitial fibrosis, with multiple intra-alveolar and interstitial foamy macrophages, and extracellular fat droplets with multiple polynuclear giant cells. Areas of subpleural emphysema were also seen. The brain, heart, and other organs were unremarkable. A diagnosis of lipoid pneumonia was made.

The medical record of this woman was studied and it was learned that, one year before she died, she had been hospitalized in a pneumology department. She was complaining of a moderate dyspnea and weight loss. A chest X-ray showed an opacity of the right lung. A thoracic CT scan revealed multiple ground-glass opacities and pulmonary emphysema. A bronchoalveolar lavage was performed, showing the presence of multiple macrophages and lipidosis. A diagnosis of exogenous lipoid pneumonia was made. The main risk factor was found to be a chronic intranasal use of various susbtances.

Lipoid pneumonia is an uncommon entity with the characteristic radiograph features and histologic findings of alveoli filled with vacuolated, lipid-laden histiocytes. It can be either exogenous or endogenous in cause based on the source of the lipid. Exogenous lipoid pneumonia usually results from aspiration or inhalation of fat-like material, such as mineral oil or petroleum-based lubricants and decongestants, resulting in pulmonary inflammatory reactions. The clinical findings may vary from the absence of symptoms to chronic cough, fever, hemoptysis, and dyspnea. Abnormalities are usually seen on chest X-rays, as an area of homogenous dense consolidation, or presence of nodules. CT scan can reveal areas of fat attenuation and ground-glass opacities. Endogenous lipoid pneumonia is an obstructive pneumonitis. It can be associated with non-small lung cancers but also can occur as a manifestation of infection and other diseases. It can also appear with fat emboli, pulmonary alveolar proteinosis, and lipid storage disorders. Polarized light microscopy after staining with sulfuric acid and acetic acid usually reveals cholesterol crystals, a finding diagnostic of endogenous lipoid pneumonia.

In this case, death was attributed to acute poly drug intoxication. As microscopic examination had revealed severe pulmonary lesions, lipoid pneumonia and pulmonary emphysema were considered as conditions contributing to the cause of death.

Forensic Pathology, Lipoid Pneumonia, Drug Intoxication

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