ANSWER TO PHOTO QUIZ (PAGE 94)

OCCUPATIONAL LUNG DISEASE ON A FARM

DIAGNOSIS

Silo-filler's disease presenting as ground glass central-lobular nodules on CT

Silo-filler's disease, an occupational lung disease, is a rare diagnosis in which inhalation of nitrogen dioxide, a red-brown gas, from silage fermentation causes pneumonitis and diffuse pulmonary damage.[1] Indeed, the patient's symptoms began when he was working in a corn silo the previous morning. Shortly after the exposure to an orange cloud of vapour in the corn silo, the patient experienced a burning sensation followed by progressive dyspnoea, cough, and inspiratory chest pain.

Often unrecognised, silo-filler's disease can be confused with farmer's lung, which is a hypersensitivity pneumonitis caused by exposure to mould spores or other agricultural products.[2] Patients with acute hypersensitivity pneumonitis commonly present with similar respiratory symptoms such as cough, chest tightness, and dyspnoea. Similar to silo-filler's disease, radiographic findings are characterised by a variable combination of nodular opacities and widespread ground glass opacities.[3] However, an important distinction is that hypersensitivity pneumonitis is mediated by an immunological response, in which T-cell hyperactivity underlies T-lymphocytic alveolitis.[3] Thus, bronchoalveolar lavage (BAL) with increased lymphocyte counts in the fluid would suggest a hypersensitivity reaction as opposed to silo-filler's disease where lymphocyte counts should be normal. In this patient, a BAL was not performed but both the exposure to orange vapours in a corn silo and the absence of an elevated lymphocyte count suggest the diagnosis to be silo-filler's disease, although a BAL would be necessary to definitely rule out hypersensitivity pneumonitis.

The patient's respiratory symptoms were successfully controlled by tapering of intravenous steroids to oral prednisone. Serial chest radiographs demonstrated radiographic improvement paralleling the patient's clinical improvement. The patient was discharged home with tapering of the oral prednisone and a follow-up by the pulmonary team.

Although a rare diagnosis, silo-filler's disease highlights one of the many hazards agricultural workers are susceptible to and physicians should be aware of. Workers should be encouraged to adhere to operating standards for silo use. This case also emphasises the importance of capturing an accurate and complete occupational history as the description of red-brown colour and chlorine-like odour of nitrous dioxide is vital in leading the physician to the prompt diagnosis of silo-filler's disease. Ultimately, the acute onset and life-threatening symptoms of silo-filler's disease demand increased efforts to alleviate rural health disparities through increasing health literacy in vulnerable populations susceptible to these occupational diseases.

REFERENCES

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2. Gurney JW, Unger JM, Dorby CA, et al. Agricultural disorders of the lung. RadioGraphics. 1991;11:625-34.
3. Spagnolo P, Rossi G, Cavazza A, et al. Hypersensitivity pneumonitis: a comprehensive review. J Investig Allergol Clin Immunol. 2015;25:237-50.