

CASE REPORT

OCCUPATIONAL DISEASE DUE TO ENVIRONMENTAL POLLUTION

FERENC KUDÁSZ

National Public Health Center, Budapest, Hungary

INTRODUCTION

The quality of outdoor air has been a growing concern since the industrial revolution. News on smog alerts are common and certain rapidly developing industrial economies are affected the most. Reports confirm that many life years are lost due to polluted air (WHO). However, besides these chronic effects the pollution can affect sensitive persons acutely. If such a person is bound to the polluted area due to his/her work the issue will stretch beyond environmental and epidemiological concerns, and it becomes a work-related case.

THE CASE

The young man studied economics in Hungary. He was project manager and economist; he attended a master course in Western Europe and worked at multinational companies. He was teaching at a university and became chief executive officer of a financial association. He started learning Mandarin and in 2011 he took a master's degree in China. After returning and leading a private company he became a government officer. In the autumn of 2015 he was sent on mission to southwest China, Chongqing. His duties ranged from office work in downtown to meetings at industrial plants within the region.

Early 2016 he developed continuous dry cough that he considered as a mild infection. However, the symptoms ceased only after a break spent in Australia and returning to Hungary for vacations. He went to Hungarian outpatient clinics: the skin prick test for common allergens were negative, thus the pulmonologist diagnosed no disease. The otolaryngologist diagnosed "cough", "deviation of the nasal septum" and "allergic rhinitis". During this break the occupational health service found him fit for his job. One month after resuming his work in China, in September 2017, the respiratory symptoms reappeared and became even more pronounced with shortness of breath. Early October he felt he got a cold, developed fever and yellow sputum. He was treated in an outpatient clinic receiving intravenous medication. This cured the fever and the sputum cleared up. However, two days after this intermittent improvement, severe shortness of breath woke him up. Finally, he was admitted to a hospital and was treated on the pulmonary ward for five days. Computed tomography, nasal sinus endoscopy, lung function tests and bacterial cultures were taken. The diagnoses were: "cough variation asthma?" and "acute bronchitis". The document given at discharge recommended leaving the city immediately in order to

prevent further progress in the course of the diseases, the use of respiratory protection outdoors, avoiding sudden temperature changes and overwork. He had to continue montelukast and dextromethorphan medication. He returned to Hungary in mid-October and initiated a fitness-for-job examination where the occupational health service found him temporarily unfit. His condition gradually improved during his stay in Hungary receiving outpatient treatment. Initially, he was given levofloxacin and expectorant (dg: acute bronchitis). As his symptoms have not resolved completely within a week, the pulmonologist started inhalatory steroid (ciclesonide) for asthma. The specialist could not decide whether cough variant asthma or post-infectious urge-to-cough was behind his complaints. Serological samples for Chlamydia and Mycoplasma were taken but gave negative results. Based on a single laboratory result a private clinic suspected “Nonpneumonic Legionnaires disease” and prescribed antibiotics. This was rejected by another pulmonologist, diagnosing “asthma in remission” because no symptoms of infections were present. His symptoms ceased by December receiving the above medication. Meanwhile, the occupational health service sent the patient to our department to assess whether his respiratory disease was of occupational origin.

The patient’s medical history was not related to the case. He never smoked. During examination in our department he still had some dry cough attacks. The physical examination and the plethysmography were normal (under medication). We have not found any medical document confirming infectious or allergic origin behind his symptoms. Our diagnosis was: Reactive airways dysfunction syndrome (Other acute and subacute respiratory conditions due to chemicals, gases, fumes and vapours).

The patient presented on-line pollution reports that indicated deteriorated air quality in the time period concerned. The literature confirms that Chongqing municipality went through heavy industrialisation as many company transferred from the coastal areas. The area is susceptible to air stagnation and can develop severe haze in the winter time. Air pollution is being reported in publications: for example, PM_{10} exceeded the EU Directive and WHO recommendations. (Peng et al., 2019)

We recommended the occupational health service to report the diseases as suspected occupational origin according to the Hungarian legislation. The subsequent labour inspection took place at the Hungarian headquarters of the delegating government body mid-December. Finally, the expert committee examining national occupational disease reports concluded that the temporal and spatial correlation of the symptoms confirm the occupational origin of the disease and registered it.

AFTERMATH

At the end of November he was sent to return-to-work examination. The occupational health service found him unfit (to work in Chongqing, permanently). Although it was noted that he would be fit for a mission in a less polluted area. The employer offered homeland duties, which meant decreased salary, but the patient did not agree, claiming that it was the employer’s duty

to provide appropriate working environment. The stressful period brought about acid regurgitation and endoscopy revealed gastro-oesophageal reflux disease, which was treated by proton pump inhibitor. At the turn of 2017-2018 he had normal lung function tests without his asthma medication. At the end of January the pulmonologist advised him to return to China to test whether symptoms reappear. However, his fixed-term contractual employment was terminated by 31 January being unfit. In February the patient initiated second degree fitness-for-job examination claiming that he was not informed in due time and could be fit if occupational safety and health measures were introduced. The second degree medical examination terminated without result because the employment relationship ended, thus it lost its legal reason. Finally, the patient filed a case against the employer for compensation.

This case draws attention to the interrelation of environmental and occupational exposures. Similar features arise in situations concerning endocrine disruptors (cumulative background levels plus additional occupational exposures), or telework (the employer has little or no means to control the working environment). Furthermore, the case emphasises that return-to-work processes need better management and more compliance from both sides.

KEY WORDS: ambient air pollution, respiratory disease, China

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Corresponding author: Ferenc Kudász, MD

National Public Health Center

Occupational Health Department

POB 777, Budapest, Hungary, H-1437

E-mail: kudasz.ferenc@nkh.gov.hu

Phone: +3614593086

Received: 26th May 2019

Accepted: 17th June 2019