Editorial

Diagnostic challenge: bilateral interstitial pneumonia with multiple possible etiology

Keigo Saeki, Satoshi Watanabe

Department of Respiratory Medicine, Kanazawa University Graduate School of Medical Sciences, Kanazawa, Ishikawa, Japan

Correspondence to: Satoshi Watanabe, MD, PhD. Department of Respiratory Medicine, Kanazawa University Graduate School of Medical Sciences, 13-1 Takawamachi, Kanazawa, Ishikawa, 920-8641, Japan. Email: swatanabe@staff.kanazawa-u.ac.jp.

Provenance and Peer Review: This article was commissioned by the editorial office, *Journal of Xiangya Medicine*. The article did not undergo external peer review.

Comment on: He Y, Xia Y, Hu Y, *et al.* Multidisciplinary team approach on a case of bilateral interstitial pneumonia. J Xiangya Med 2020:5:1.

Received: 26 February 2020; Accepted: 12 March 2020; Published: 25 June 2020.

doi: 10.21037/jxym.2020.03.05

View this article at: http://dx.doi.org/10.21037/jxym.2020.03.05

Interstitial pneumonia (IP) is a heterogeneous diffuse lung disorder that is characterized by microscopic patterns of inflammation and fibrosis of the lung tissue. The common causes of IP include collagen vascular diseases, drugs, environmental and occupational exposure, inhaled antigens, infection, and radiation (1). However, the causes of IP in most patients are unknown and this is referred to as idiopathic IPs (IIPs) (1). Diagnosis of IP is challenging and several etiologies can overlap in many cases.

He *et al.* reported bilateral IP with multiple possible etiology (*J Xiangya Med* 2020). The patient has had ulcerative colitis since 2013 and has been using sulfasalazine since 2014. During this time, cough and dyspnea appeared concurrently. He was diagnosed with IIP (undifferentiated type) in 2016, however, his cough and dyspnea have gradually gotten worse and visited many hospitals without any improvement. The patient was presented to the Xiangya Hospital of Central South University for further treatment. Expert discussions diagnosed him with chronic IP and infection. Possible causes of IP are chronic hypersensitivity pneumonia due to unspecified inhaled antigen, drug-induced lung injury due to sulfasalazine, and pulmonary complications due to ulcerative colitis. Discontinuation of sulfasalazine, steroid treatment, and long-term follow-up were recommended. Most patients with IP can be given a single diagnosis, but multiple etiologic or coexisting radiologic or pathologic patterns may be found in the same patient.

Chronic hypersensitivity pneumonitis (HP) is a complex disorder caused by exposure to a variety of organic particles such as thermophilic actinomycete species, fungi, and bird proteins (2). It occurs in a variety of occupational and environmental changes. Chest high-resolution computed tomography (HRCT) findings in acute or subacute HP include centrilobular diffuse micronodules, ground-glass opacities and mosaic attenuation. HRCT findings in chronic HP include reticulation and traction bronchiectasis superimposed on findings of acute/subacute HP (3). The clinicians need to collect a detailed patient history of occupational and environmental exposure and assess the relationship between the possible causative antigen and the initial onset of symptoms as well as episodic clinical manifestations. For the diagnosis of chronic hypersensitivity pneumonia, a specific inhalation challenge test may be useful. However, the methods and the criteria are not standardized and it requires experienced techniques and laboratories.

Sulfasalazine is a commonly used medication for the long-term treatment of ulcerative colitis and it can cause lung toxicity. In the review of 50 patients with sulfasalazine-induced lung injury, 72% of the patients had ulcerative colitis and the average duration of exposure to sulphasalazine was 17.8 months (4). Radiological and histological findings varied in the literature. Interestingly, there were several reported cases that acute or chronic HP occur after sulphasalazine treatment (5,6). Thus, sulphasalazine-induced lung injury can represent HP-like patterns. It is also reported that drug withdrawal can resolve symptoms rapidly in most cases (4).

The pulmonary manifestation of ulcerative colitis includes small and large airway inflammation, IP, serositis, and pulmonary embolism (7). The prevalence

of IP in ulcerative colitis remains unknown and the most common radiological feature is organizing pneumonia. One case series of inflammatory bowel disease including ulcerative colitis show that the most common pulmonary manifestations are drug-induced lung disease (8). The progression of lung complications is not paralleled with the progression of intestinal lesions (9,10).

How do we do management and treatment of the case that has multiple possible causes? When coexisting causes occur, we need to determine the clinical significance of individual etiologies (1). Additionally, we would like to check the medical records including laboratory and radiological data from the other hospitals that the patient previously visited. A long-term clinical history and medical records may provide clues for a better understanding of triggering factors and aggravating conditions of IP. As some experts have suggested, the withdrawal of a suspected drug should be considered for the diagnosis and treatment. Improved clinical parameters using antigen avoidance tests (e.g., hospitalization) may support the diagnosis of hypersensitivity pneumonia (11). Administration of glucocorticoids is also an option for treatment. However, we need to decide the dosage, duration, and tapering schedule, as well as carefully monitor the side effects and underlying disease condition. If IP develops a progressive and fibrosing phenotype, an antifibrotic drug, called nintedanib may be effective. Lung transplantation might be considered if the patient has a risk of death due to lung fibrosis and respiratory failure.

Diagnosis and management of IP with multiple possible etiology are challenging. In the present case, He *et al.* made a diagnosis appropriately based on the radiological and pathological findings as well as a multidisciplinary team approach. Although surgical lung biopsy was helpful for diagnosis, it can induce post-operative acute exacerbation. Predicting the risk for acute exacerbation of IP is difficult and controversial in this case. However, before undergoing surgical lung biopsy, we recommend evaluating more about the clinical findings and disease course, including the withdrawal of suspected drugs and avoidance of possible antigens. Multidisciplinary team approach can provide better diagnostic and therapeutic decisions. In addition, it may improve management and care for the IP patient.

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at http://dx.doi.org/10.21037/jxym.2020.03.05). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Travis WD, Costabel U, Hansell DM, et al. An official American Thoracic Society/European Respiratory Society statement: Update of the international multidisciplinary classification of the idiopathic interstitial pneumonias. Am J Respir Crit Care Med 2013;188:733-48.
2. Vasakova M, Morell F, Walsh S, et al. Hypersensitivity Pneumonitis: Perspectives in Diagnosis and Management. Am J Respir Crit Care Med 2017;196:680-9.
3. Silva CI, Churg A, Muller NL. Hypersensitivity pneumonitis: spectrum of high-resolution CT and pathologic findings. AJR Am J Roentgenol 2007;188:334-44.
4. Parry SD, Barbatzas C, Peel ET, et al. Sulphasalazine and lung toxicity. Eur Respir J 2002;19:756-64.
5. Valcke Y, Pauwels R, Van der Straeten M. Bronchoalveolar lavage in acute hypersensitivity pneumonitis caused by sulfasalazine. Chest 1987;92:572-3.
6. Leino R, Liippo K, Ekfors T. Sulphasalazine-induced reversible hypersensitivity pneumonitis and fatal fibrosing alveolitis: report of two cases. J Intern Med 1991;229:553-6.
7. Ji XQ, Wang LX, Lu DG. Pulmonary manifestations of inflammatory bowel disease. World J Gastroenterol 2014;20:13501-11.

8. Basseri B, Enayati P, Marchevsky A, et al. Pulmonary manifestations of inflammatory bowel disease: case presentations and review. J Crohns Colitis 2010;4:390-7.
9. Camus P, Colby TV. The lung in inflammatory bowel disease. Eur Respir J 2000;15:5-10.
10. Betancourt SL, Palacio D, Jimenez CA, et al. Thoracic manifestations of inflammatory bowel disease. AJR Am J Roentgenol 2011;197:W452-6.
11. Tsutsui T, Miyazaki Y, Okamoto T, et al. Antigen avoidance tests for diagnosis of chronic hypersensitivity pneumonitis. Respir Investig 2015;53:217-24.

doi: 10.21037/jxym.2020.03.05
Cite this article as: Saeki K, Watanabe S. Diagnostic challenge: bilateral interstitial pneumonia with multiple possible etiology. J Xiangya Med 2020;5:12.