Respiratory Medicine Case Reports 31 (2020) 101141

Contents lists available at ScienceDirect

Respiratory Medicine Case Reports

journal homepage: http://www.elsevier.com/locate/rmcr

Case report

Secondary organizing pneumonia associated with sertraline: A case report

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ARTICLE INFO

Keywords:
Cryptogenic organizing pneumonia
Sertraline
Drug-induced lung disease
Interstitial lung disease

ABSTRACT

Cryptogenic organizing pneumonia is a rare idiopathic interstitial lung disease, with a well-defined clinical-radiological and pathological entity. It may also be secondary to several causes. Rapid clinical and imaging improvement is usually obtained with corticosteroid therapy. We report here, to the best of our knowledge, a unique case of organizing pneumonia associated with Sertraline, a selective serotonin reuptake inhibitor, commonly used in antidepressant therapy.

1. Introduction

Cryptogenic organizing pneumonia (COP), formerly known as bronchiolitis obliterans organizing pneumonia, is a rare idiopathic interstitial lung disease (ILD), with a well-defined clinical-radiological and pathological entity [1–4]. It may be cryptogenic or secondary to several causes, such as infections, drugs, malignancy, radiotherapy or connective tissue disorder [1–4]. We describe here what is, to the best of our knowledge, the first reported case of organizing pneumonia (OP) associated with Sertraline, a selective serotonin reuptake inhibitor (SSRI), commonly used in antidepressant therapy

2. Case report

A 63- year-old, non-smoking male presented in February 2019 with daily fever, progressive dyspnea (mMRC 2) and productive cough for ten days. His medical history was unremarkable except for depression (being treated by Sertraline 50mg, one per day since several years). His chest auscultation revealed crackles at the upper right.

Laboratory investigations revealed severe leukocytosis (22480/μL) and elevated serum C-reactive protein (168 mg/L). Rapid Influenza and RSV PCR tests were negative. Chest X-ray showed a condensation in the upper right chest.

High resolution computed tomography (HRCT) scan of the chest revealed multiple bilateral consolidations, mainly on the right side, with subpleural and peribronchial distribution, associated with diffuse patchy bilateral areas of ground glass opacity (see Fig. 1).

All bacterial analyses were negative. Bronchoscopy was normal. Differential cell count of broncho-alveolar lavage (BAL) demonstrated a mixed pattern (40% lymphocytes, 20% neutrophils, 20% monocytes and 20% éosinophils, CD4 84.4% - CD8 7%). Cardiac echography was normal.

In spite of the use of broad spectrum antibiotics, the clinical condition of the patient deteriorated significantly to the point he required mechanical ventilation. Further CT scans showed new consolidations on the left lung as well as new diffuse ground glass opacities (see Fig. 2).

A surgical lung biopsy in several lobes confirmed the diagnosis of OP (see Fig. 3).

Intravenous corticosteroid (methylprednisolone) treatment was initiated at a dose of 1 mg/kg/day (120 mg) with favorable evolution. However, when the dose was decreased to 0.5 mg/kg/day (60mg), after four weeks, the clinical situation worsened appreciably requiring an increase to the original dose to stabilize the patient. After six weeks, a second attempt to decrease the dose to 0.75 mg/kg/day (80mg) also failed, and lead to respiratory failure.

Given the very early relapses at high dose of corticosteroid, we

Abbreviations: AEP, acute eosinophilic pneumonia; BAL, broncho-alveolar lavage; COP, cryptogenic organizing pneumonia; HRCT, high resolution computed tomography; ILD, interstitial lung disease; mMRC, modified Medical Research Council dyspnea scale; OP, organizing pneumonia; SSRI, selective serotonin reuptake inhibitor.

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https://doi.org/10.1016/j.rmcr.2020.101141
Received 19 May 2020; Received in revised form 23 June 2020; Accepted 26 June 2020
Available online 2 July 2020
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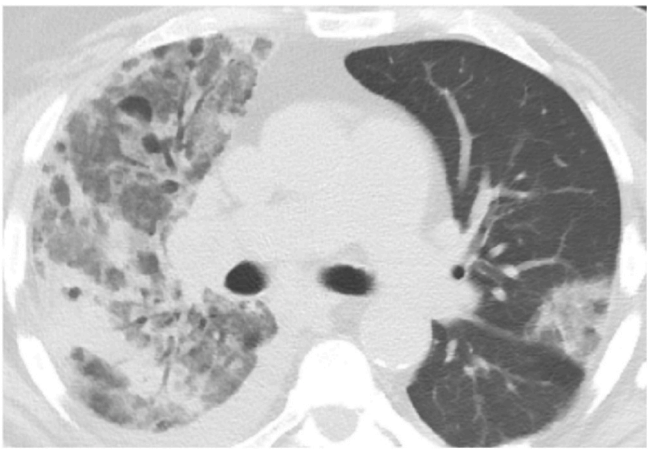

Fig. 1. A chest HRCT scan showing multiple bilateral consolidations, mainly on the right side, with subpleural and peribronchial distribution, associated with diffuse patchy bilateral areas of ground glass opacity and right pleural effusion.

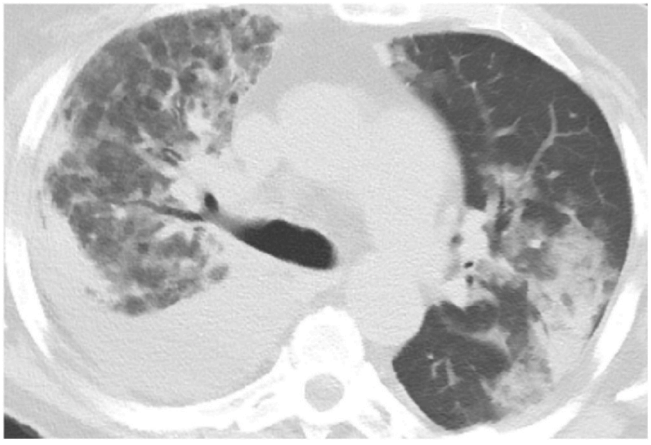

Fig. 2. A chest HRCT scan showing new consolidations on the left lung as well as new diffuse ground glass opacities and increased right pleural effusion.

examined in more detail all medication taken by the patient. We discovered some rare case reports describing an association of ILD with Sertraline [5,6]. It was then decided to gradually taper off the sertraline, initially at half dose over two weeks before complete withdrawal [7,8].

After the withdrawal of the Sertraline, there was a spectacular clinical improvement (oxygen supplementation at 6L/min was stopped in 5 days after the removal) and the corticosteroid treatment (methylprednisolone) was rapidly reduced from 1mg/kg/day (120mg) to 0.5mg/kg/day (64 mg) after one week, then to 0.25mg/kg/day (32mg) after four weeks from the removal of the Sertraline. We decided then to tapper of the cortisone more slowly by safety, reducing to 24mg after six weeks, 16mg after eight weeks, 8mg after ten weeks, 4mg after twelve weeks, finally we stopped the corticosteroids after four month, with no further long-term deterioration. In addition there was a gradual improvement of the radiological features at 1, 3 and 6 months of follow up (see Fig. 4).

3. Discussion

COP is histologically characterized by intra-alveolar buds of granulation tissue, consisting of fibroblasts and myofibroblasts intermixed with collagen tissue [1–4]. The clinical characteristics are flu-like symptoms and the main radiological presentation is multiple patchy alveolar ground-glass opacities with consolidation, usually bilateral, peripheral, peribronchial and often migratory [1–4].

Rapid improvement can usually be achieved with corticosteroid therapy, especially in COP, which is the current standard treatment and by withdrawal of the causative agent in OP. There is no consensus on the optimal dose and duration of the treatment. Relapses are frequent [1–4].

Sertraline is a drug of the SSRI class, commonly used in antidepressant therapy [7,8]. Some case reports have described an association of Sertraline with some ILD such as pulmonary fibrosis [5] or acute eosinophilic pneumonia (AEP) [6,9].

The causal relationship with OP in our case is the timing of the spectacular improvement just after the withdrawal of the Sertraline. Despite two months of very high dose of cortisone therapy before the removal, there was not a significant improvement and two relapses occurred at high dose of cortisone. Only after the withdrawal, a successful tapering of the cortisone was achieved without any relapse. The very rapid reduction after one month, more rapid than usual guidelines in COP [1–4], seemed a real strong argument for the causal relationship.

Further investigation is needed to identify the mechanism of sertraline toxicity inducing ILD.

Our patient presented all the typical clinical signs of OP and showed all the main histological and radiological imaging features. Furthermore, the BAL analysis presented a mixed pattern which has been well documented in COP or OP. Multiple negative bacterial analyses excluded the possibility of infectious diseases. The patient did not have any extrathoracic symptoms of connective tissue disease, sarcoidosis or vasculitis. Finally, the lung surgical biopsy confirmed the diagnosis of OP with intraalveolar organization as the predominant pattern, without any fibrosis pattern. The absence of tissue and peripheral eosinophilia excluded the diagnosis of AEP [9].

We carried out a search in Pubmed, Cochrane, Pneumotox [10] and several review articles and our case appears to be the first reported case of OP associated with Sertraline.

4. Conclusion

This case reinforces the importance of identifying, and subsequently

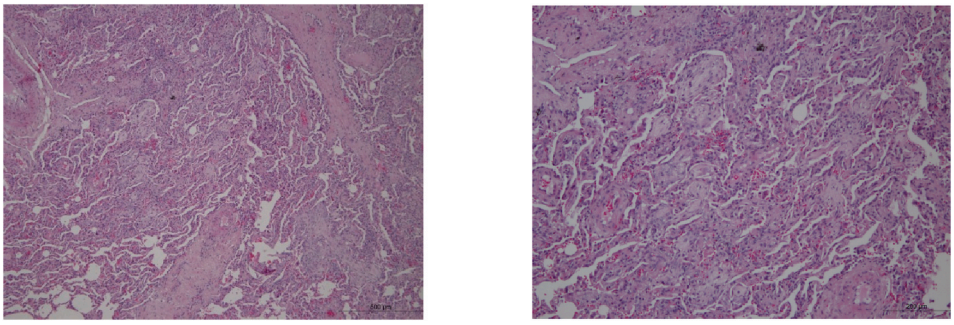

Fig. 3. Lung biopsy specimen showing intra-alveolar buds of granulation tissue, consisting of fibroblasts (arrows). Left: hematoxylin-eosin staining (original x5). Right: hematoxylineosin staining (original x10).

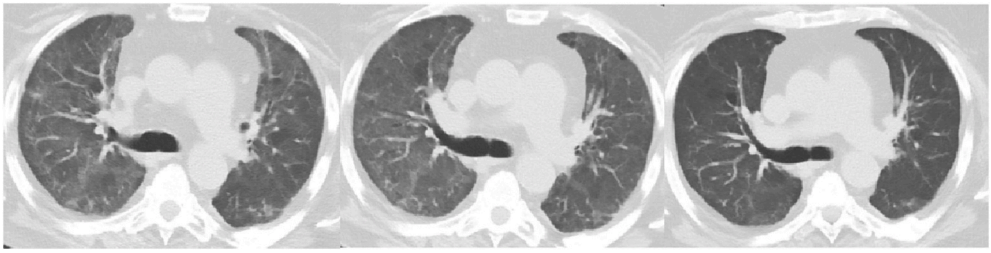

Fig. 4. Follow up chest HRCT scan showing a progressive improvement, with a gradual attenuation of the diffuse ground glass opacities and the condensations. (From left to right, after 1, 3 and 6 months of follow up).

excluding, secondary causes of suspected COP. The progression can sometimes be dramatic and life-threatening, so it is particularly important to identify any drug-induced OP. Successful management can often be achieved rapidly by the withdrawal of the drug involved and may allow shorter corticosteroid treatment. For clinicians, it is important to thoroughly review home medication and to not hesitate to interrupt even longstanding drug regimens especially if there is the possibility of secondary pulmonary effects, particularly with early relapsing forms of OP.

Acknowledgments

All the authors (Trungu J, MD; Pirard L, MD; Vandenhove T, MD; Stanciu Pop C, MD; Dahlqvist C, MD; Sohy C, MD) have participated to the manuscript, take public responsibility for its content, and agree being listed as an author on the paper.

We confirm that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

Financial/non-financial disclosures: The authors have reported that there are no known conflicts of interest associated with this publication and there has been no financial support for this work that could have influenced its outcome.

References

[1] W.D. Travis, U. Costabel, D.M. Hansell, 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. 188 (6) (2013) 733–748.

[2] V. Cottin, J.F. Cordier, Cryptogenic organizing pneumonia, Semin. Respir. Crit. Care Med. 33 (5) (2012) 462–475.

[3] J.F. Cordier, Cryptogenic organising pneumonia, Eur. Respir. J. 28 (2006) 422–446.

[4] F. Drakopanagiotakis, K. Paschalaki, M. Abu-Hijleh, et al., Cryptogenic and secondary organizing pneumonia: clinical presentation, radiographic findings, treatment response, and prognosis, Chest 139 (4) (2011) 893–900.

[5] C. Thornton, T.M. Maher, D. Hansell, A.G. Nicholson, A.U. Wells, Pulmonary fibrosis associated with psychotropic drug therapy: a case report, J. Med. Case Rep. 16 (3) (2009) 126.

[6] M.T. Barnes, J. Bascunana, B. Garcia, J.L. Varez-Sala, Acute eosinophilic pneumonia associated with antidepressant agents, Pharm. World Sci. 21 (5) (1999) 241–242.

[7] N.R. Ogle, S.R. Akkerman, Guidance for the discontinuation or switching of antidepressant therapies in adults, J. Pharm. Pract. 26 (4) (2013) 389–396.

[8] N. Keks, J. Hope, S. Keogh, Switching and stopping antidepressants, Aust. Prescr. 39 (3) (2016) 76–83.

[9] F. De Giacomi, R. Vassallo, E.S. Yi, J.H. Ryu, Acute eosinophilic pneumonia. Causes, diagnosis, and management, Am. J. Respir. Crit. Care Med. 197 (6) (2018) 728–736.

[10] P. Camus, The drug-induced respiratory disease website, Updated Mars 09, Accessed Mars 24, 2020, www.pneumotox.com, 2020.