Respiratory Medicine Case Reports 19 (2016) 24–26

Contents lists available at ScienceDirect

Respiratory Medicine Case Reports

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

Case report

# Bronchiolitis obliterans organizing pneumonia associated with achalasia: A case report

Farhad Malek [a, *], Hossein Nobakhat [a], Hamidreza Hemmati [b]

[a] Internal Medicine Department, Semnan University of Medical Sciences, Semnan, Iran
[b] Department of Thoracic Surgery, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

*Article history:*
Received 12 May 2016
Received in revised form
14 June 2016
Accepted 16 June 2016

*Keywords:*
BOOP
Achalasia
Pneumonia
Case report

ABSTRACT

There is little mention in the literature about achalasia as an etiologic factor of Bronchiolitis obliterans organizing pneumonia (BOOP). In this study, a case of BOOP, which appeared to be secondary to achalasia is reported. A 35 years old man present with nonproductive cough, chills and fever from two month ago. Due to permanent consolidation in mid zone of right lung and unresponsive to antibiotics, transthoracic needle biopsy was done that showed BOOP. Due to esophageal dilatation in chest computerized tomography (CT) scan, endoscopy and esophagogram was done that showed achalasia. After surgery and a course of corticosteroid the patient condition became well. This report demonstrates that achalasia may be associated with BOOP.



## 1. Introduction

Bronchiolitis obliterans organizing pneumonia (BOOP) is a relatively rare disorder with distinctive clinical, radiological and pathological features. BOOP is characterized by the presence of granulation tissue in the bronchiolar lumen, alveolar ducts and some alveoli, associated with a variable degree of interstitial and airspace infiltration by mononuclear cells and foamy macrophages [2]. BOOP may be idiopathic or secondary being associated with various underlying conditions. Most cases of BOOP reported in larger studies were idiopathic (also called cryptogenic organizing pneumonia (COP) [3,4,7]). BOOP can follow all types of pneumonias, a variety of drugs, all connective tissue disorders, with organ transplantation, especially with bone marrow transplant, radiotherapy, Many industrial toxins and environmental pollutants, and Unrelated miscellaneous Conditions, including: essential mixed ryoglobulinemia, myelodysplastic syndrome, interstitial cystitis, chronic thyroiditis, sarcoidosis, alcoholic cirrhosis and, Lymphoma/leukemia and other neoplastic processes [4].

However, there is little mention in the literature about achalasia as an etiologic factor of BOOP. We report a case of BOOP, which appeared to be secondary to achalasia.

### 1.1. Case report

A 35- years-old man referred due to two month history of nonproductive cough, chills, fever and significant weight loss with no response to several oral antibiotics. He had no history chest pain, dyspnea and dysphagia. He had on examination: oral temperature of 38.5 °C, bilateral inspiratory crackles in mid lung area. Chest X ray (CXR) of six weeks later and new CXR showed right lung mid zone consolidation [Fig. 1]. Also lung CT scan revealed bilateral patchy alveolar consolidation and dilated esophagus through its course with food material in the lumen. Achalasia confirmed by esophagography [Fig. 2]. Full blood count was normal without neutrophilia or eosinophila. Rheumatologic workup was negative. Lab data except anemia [Hg = 11.8] and high ESR [ESR = 50] were normal. Transthoracic fine needle aspiration (FNA) of lung infiltration was compatible with BOOP pathology [Fig. 3]. Upper endoscopy showed dilated esophagus that was full of food materials. Barium esophagography revealed achalasia. Due to failure of esophageal dilatation, surgery was done. (Heller's myotomy with modified belsey mark IV fundoplication of cardia) and also a course of corticosteroid therapy was started. The patient had good hospital course and discharged with good condition. At follow up two weeks later he was asymptomatic and the chest radiograph was normal.

* Corresponding author. Kowsar Hospital, Semnan University of Medical Sciences, Amin Ave., Al-ghadir Square, Basidj Boulevard, 35198–99951, Semnan, Iran.
*E-mail addresses:* farhadmalek42@yahoo.com (F. Malek), hossein.nobakht@gmail.com (H. Nobakhat), dr.hemmati2007@yahoo.com (H. Hemmati).

http://dx.doi.org/10.1016/j.rmcr.2016.06.006

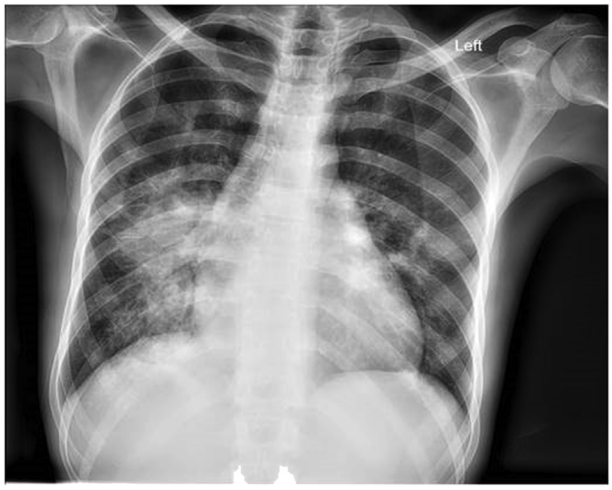


**Fig. 1.** Right lung mid zone consolidation in CXR of patient.

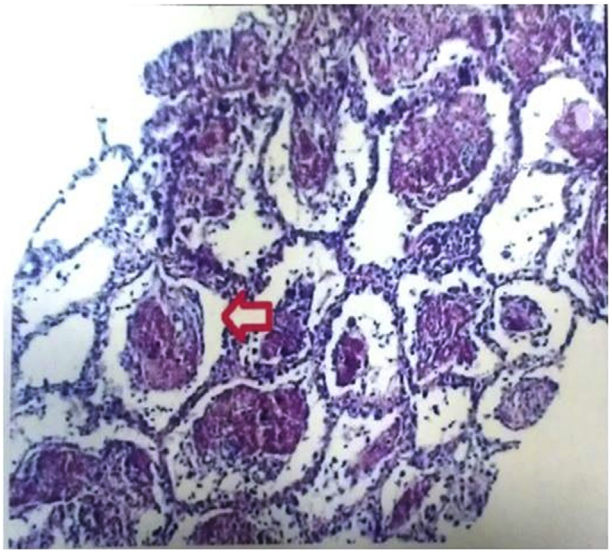

**Fig. 3.** Transthoracic fine needle aspiration (FNA) of lung infiltration was compatible with BOOP pathology.

## 2. Discussion

We report a case of non-productive cough, fever, chills, features that initially lead to diagnosis of pneumonia. However, despite antibiotic therapy, symptoms not relieved and CXR had not improvement. So for definite diagnosis, transthoracic lung biopsy was done that was in favor of BOOP. Other causes of BOOP such as drugs, collagen vascular disease and infection were roll out. In spite of absence of any upper gastrointestinal symptom, due to CT finding of dilated esophagus and esophagogram, achalasia was diagnosed. So we think achalasia and BOOP has correlation. To our knowledge, there is no literature report for this association. There is sporadic report of BOOP secondary to aspiration related to gasteroesophageal reflux [1,5,10].

Sadoun et al. [9] reported a series of five patients with biopsy-proven refractory BOOP who had sustained resolution with therapy solely for GERD. The recognition of Gasteroesophageal Reflux Disease (GERD) as a possible etiological factor in BOOP has important implications, as the usual therapy, corticosteroids, may

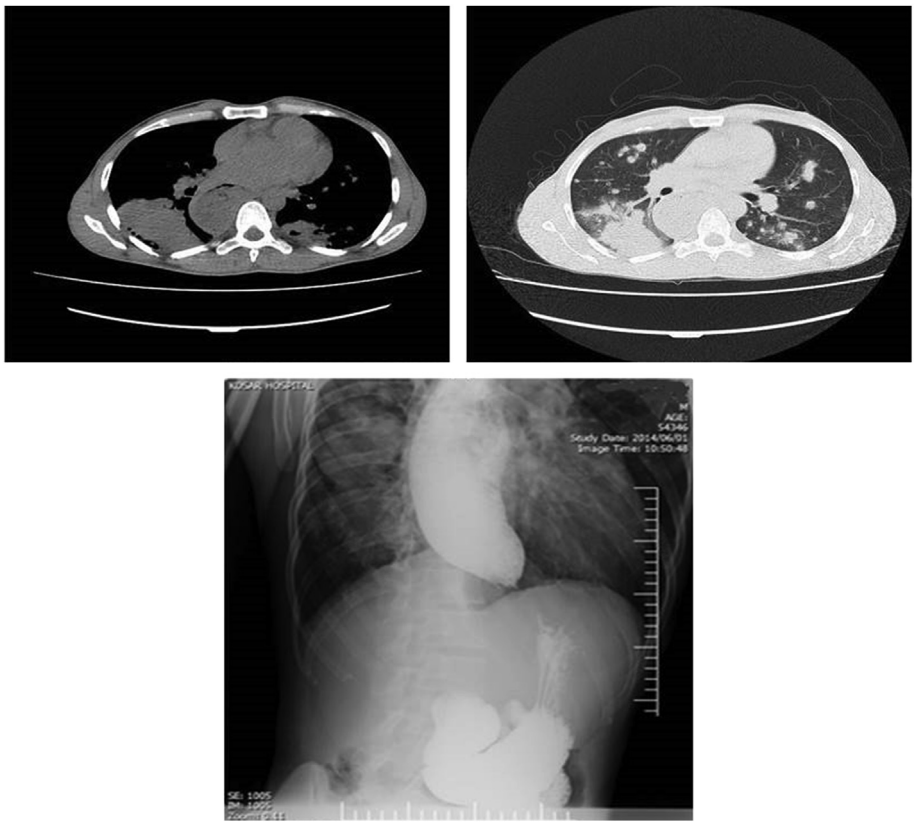

**Fig. 2.** CT scan revealed bilateral patchy alveolar consolidation and dilated esophagus through its course with food material in the lumen.

increase reflux [9]. The patient had good response to corticosteroid treatment without relapse after correction of achalasia whereas relapse on reducing or stopping corticosteroids is very common in idiopathic BOOP, which classically requires a more prolonged treatment (sometimes more than one year) [6]. If BOOP were due to aspiration or GERD, an anatomic preference for dependent lung segments has anticipated [8], but in our case lung involvement were in mid and upper lung zone. It seems achalasia may cause BOOP independent of aspiration or GERD.

## 3. Conclusion

In conclusion we reported a case of BOOP in association with achalasia. It is very important to consider achalasia in the differential diagnosis of BOOP, especially in the cases of resistant to steroid therapy.

## Informed consent

Informed consent was obtained from the person who is the subject of this case report.

## Competing interests

Not declare.

## Authors' contributions

All authors participated in all aspects of the work.

## Acknowledgment

We thank Mr Mehrdad Zahmatkesh for helping in preparing of this article.

## References

[1] R.C. Cabot, N.L. Harris, W.F. McNeely, J.-A.O. Shepard, S.H. Ebeling, S.M. Ellender, C.C. Peters, C.M. Fleming, J.-A.O. Shepard, E.J. Mark, Case 15-2003: a 47-year-old man with waxing and waning pulmonary nodules five years after treatment for testicular seminoma, N. Engl. J. Med. 348 (20) (2003) 2019–2027.
[2] J.-F. Cordier, Cryptogenic organizing pneumonia, Clin. Chest Med. 25 (4) (2004) 727–738.
[3] U. Costabel, J. Guzman, H. Teschler, Bronchiolitis obliterans with organising pneumonia: outcome, Thorax 50 (Suppl. 1) (1995) S59–S64.
[4] G.R. Epler, Heterogeneity of bronchiolitis obliterans organizing pneumonia, Curr. Opin. Pulm. Med. 4 (2) (1998) 93–97.
[5] A.L. Friedlander, M.B. Fessler, A 70-year-old man with migratory pulmonary infiltrates, CHEST J. 130 (4) (2006) 1269–1274.
[6] J.P. Lazenby, M.R. Guzzo, S.M. Harding, P.E. Patterson, L.F. Johnson, L.A. Bradley, Oral corticosteroids increase esophageal acid contact times in patients with stable asthma, CHEST J. 121 (2) (2002) 625–634.
[7] A.C. Macedo, I.L. Silva, Analysis of occupational accidents in portugal between 1992 and 2001, Saf. Sci. 43 (5) (2005) 269–286.
[8] D. Piperno, C. Donne, R. Loire, J. Cordier, Bronchiolitis obliterans organizing pneumonia associated with minocycline therapy: a possible cause, Eur. Respir. J. 8 (6) (1995) 1018–1020.
[9] D. Sadoun, D. Valeyre, J. Cargill, F. Volter, J. Amouroux, J. Battesti, Bronchiolitis obliterans with cryptogenetic-like organizing pneumonia. Demonstration of gastro-esophageal reflux in 5 cases, Presse Medicale Paris. Fr. 1983) 17 (45) (1988) 2383–2385.
[10] A.-G. Sara, A.-J. Hamdan, B. Hanaa, K.A. Nawaz, Bronchiolitis obliterans organizing pneumonia: pathogenesis, clinical features, imaging and therapy review, Ann. Thorac. Med. 3 (2) (2008) 67.