PULMONARY PUZZLES

Non-resolving pneumonia in patient with obsessive–compulsive disorder

Sami O Simons,1 Evelien A J E Braam,1 Roline C de Boer,1 Monika Looijen-Salamon,2 Yvonne F Heijdra1

CASE REPORT

A 26-year-old woman presented with a history of chronic progressive dyspnoea and a non-productive cough. Her medical history revealed recurrent, unexplained pneumonias and treatment for anorexia nervosa. The patient was a lifelong non-smoker and she denied any use of toxic substances.

On examination, her vital signs were as follows: body mass index, 17.6 kg/m2; temperature, 38.4°C; heart rate, 102 beats/min; BP, 100/60 mm Hg; respiratory rate, 24 breaths/min; and oxygen saturation, 91% on 6 L/min oxygen by nasal cannula. On auscultation, decreased breath sounds were heard at the bases bilaterally.

Blood testing for antinuclear antibodies was negative and immunological analysis demonstrated no immunodeficiency. Pulmonary function tests showed a restrictive pattern (total lung capacity: 3.72 L, 73% of predicted). A CT scan of the chest revealed bilateral consolidations with air bronchograms and a tree-in-bud-pattern (figure 1). A bronchoscopy showed a normal tracheobronchial tree. Bronchoalveolar lavage contained large numbers of neutrophils (99% neutrophils, 1% macrophages), and microbiological tests were negative for (myco) bacteria and fungi. Treatment with multiple antibiotics and steroids was ineffective. Subsequently a surgical lung biopsy was performed.

Answer See page 198

Contributors Management of case: EAJEB, RCdB, ML-S, YFH. Writing the article: SOS, EAJEB, RCdB, ML-S, YFH. Guarantor: YFH.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Figure 1 Images of the patient’s HR-CT scan. (A) Image at the level of the main carina showing diffuse centrilobular nodules and tree-in-bud pattern. (B) Image through the lower lungs showing bilateral consolidation of the lower lung fields with air bronchograms.
PULMONARY PUZZLES

Non-resolving pneumonia in patient with obsessive–compulsive disorder

ANSWER

From the question on page 193

What is the diagnosis?

Pathological analysis of the biopsy revealed birefringent, fibrous material in the bronchioles surrounded by a neutrophilic and plasma cell–rich inflammation, microgranulomas with multinucleated giant cells (figure 2A–C) and foci of organising pneumonia. The differential diagnoses include fungal and mycobacterial infections, sarcoidosis, granulomatosis with polyangiitis, foreign-body granulomatous pneumonia and talc granulomatosis.1 The presence of multinucleated giant cells in the background of organising pneumonia and the particulate matter within the bronchiole are diagnostic for a foreign-body granulomatous pneumonia.2

Further questioning revealed that for more than 10 years, the patient had shown ritualised compulsive behaviour to clean her nose using cotton swabs and paper tissues. The consultant psychiatrist made a diagnosis of obsessive–compulsive disorder. Additional light microscopy of the patient’s cotton swabs and tissues showed an identical morphology to the fibrous material found in the patient’s lung tissue (figure 2D).

Cotton swabs and paper tissues mainly consist of cellulose. Chronic aspiration of cellulose may cause foreign-body granulomatous pneumonitis.2 Besides cellulose, other particulate material, such as talc, crospovidone, kayexalate, psyllium and green tea can also cause granulomatous pneumonitis.1-4 Additionally, cotton itself may cause airway-centered fibrosis, byssinosis and gossypibomas, all of which are distinctive from our case.5 We report a unique case of foreign-body granulomatous pneumonitis caused by aspirating cellulose fibres from cotton swabs and tissues in a patient with comorbid obsessive–compulsive disorder. Nasal deposition of cellulose, instead of gastroesophageal reflux, causing aspiration pneumonitis has been described

Figure 2 Photomicrograph from the patient’s surgical lung biopsy (A) Photomicrograph showing foreign body material within the lumen of the bronchiole surrounded by a neutrophilic and plasma cell–rich inflammation. Outside the lumen a poorly formed granuloma is seen (H&E stain, 100×) (B) Same section under polarised light showing the bronchioles filled with birefringent material. (C) Foci of intraalveolar and intrabronchiolar plugs of collagen consistent with an organising pneumonia (EvM stain, 100×) (D) Histology of the patient’s cottons swabs and paper tissues in light and polarising microscopy, matching the foreign body material found within the bronchiole (H&E stain, 200×).
previously. We hypothesise therefore that the long-lasting period of excessive nasal cleaning led to the nasal deposition of cellulose fibres that were subsequently aspirated leading to a granulomatous pneumonitis.

The patient’s condition improved after treatment for her obsessive–compulsive disorder. Sadly, she died unexpectedly a couple of weeks later. Autopsy revealed cotton fibres in the large airways and widespread granulomatous pneumonitis surrounding fibrous material, morphologically identical to the cotton swabs and paper tissues. No foreign body material was seen in the stomach.

**REFERENCES**

Non-resolving pneumonia in patient with obsessive–compulsive disorder

Sami O Simons, Evelien A J E Braam, Roline C de Boer, Monika Looijen-Salamon and Yvonne F Heijdra

Thorax 2014 69: 193 originally published online November 1, 2013
doi: 10.1136/thoraxjnl-2013-203759

Updated information and services can be found at: http://thorax.bmj.com/content/69/2/193

These include:

References

This article cites 5 articles, 1 of which you can access for free at: http://thorax.bmj.com/content/69/2/193#ref-list-1

Email alerting service

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections

Articles on similar topics can be found in the following collections
- Pneumonia (infectious disease) (579)
- Pneumonia (respiratory medicine) (562)
- TB and other respiratory infections (1273)
- Inflammation (1020)
- Airway biology (1100)
- Cardiothoracic surgery (676)
- Drugs: infectious diseases (968)
- Interstitial lung disease (559)
- Lung function (773)
- Occupational and environmental medicine (128)
- Radiology (diagnostics) (812)

Notes

To request permissions go to: http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to: http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to: http://group.bmj.com/subscribe/