SRYAHWA PUBLICATIONS

Archives of Pulmonology and Respiratory Medicine
ISSN: 2639-362X | Volume 8 Issue 1, 2025
https://doi.org/10.22259/2639-362X.0801001

CASE REPORT

# Nonresolving Pneumonia: A Curious Case

**Giannozzi Lucrezia, Ruiz Tarbet Clara Elisa, Pulido Hernández Idalays, Ramos Manzano Carmen, Bedmar Castillo Yolanda, Rodrigo Garzón Manuel**

*Pneumology Service, Insular University Hospital, Las Palmas GC, Spain.*

Received: 24 February 2025 Accepted: 25 March 2025 Published: 28 March 2025

Corresponding Author: Lucrezia Giannozzi, Avenida Marítima s/n, 35016, Las Palmas GC, Spain.

## Abstract

Nonresolving penumonia is a challenge for pulmonologists facing various diagnostic options. The first step is to assess whether is a pneumonia that is evolving well but slowly because of factores dependent on the patient or on the etiological agent; othervise it will be necessary extend the diagnostic spectrum with chest TAC, ecography and bronchoscopy to rule out non-infectious causes or infectious complications. We are presenting a case of post-obstructive recurrent pneumonia complicated with empyema secundary to the aspiration of a foreign body, fact at all not suspected.

**Keywords:** Nonresolving Pneumonia, Foreign Body Aspiration, Post-Obstructive Pneumonia, Empyema.

## 1. Introduction

Pneumonia is defined as the presence of a pulmonary infiltrate seen in a radiography associated with respiratory infectious symptoms that resolves after a correct antibiotic treatment. The respiratory symptoms normally improve in 1-2 weeks and the radiological findings in 1-2 months. When we find an infiltrate that progresses, resolves slowly or fails to resolve completely despite receiving therapy that a priori is considered adequate, we speak of nonresolving pneumonia (5). Several factors are associated with delayed resolution of pneumonia: patient comorbidities that weaken coughing fits, immunodeficiencies, advanced age, severity of pneumonia, specific etiologic agents and their virulence (1). In addition, unusual pathogens or sequestered infectious foci in the lung, endoluminal lesions causing mechanical obstruction of the bronchus resulting in post-obstructive pneumonia, tumor simulating an infiltrative process, inflammatory lung disease, drug toxicity or even pulmonary infarction should be considered (6). To evaluate a nonresolving pneumonia, we must initially assess whether the patient has risk factors for a slowly resolving pneumonia, and if so, we simply have to perform close monitoring and prolong antibiotherapy. If this is not the case, we must deepen in the anamnesis, medical and pharmacological history to rule out unusual infectious agents and non-infectious causes by extending the analysis, completing with chest computed tomography (CT), thoracic ultrasound, bronchoscopy and/or EBUS according to the findings (4).

## 2. Clinical Case

A 71-year-old man was admitted to pneumology hospital unit three times in 6 months for a nonresolving pneumonia. His personal history included: systemic arterial hypertension, type 2 diabetes mellitus and spondyloarthrosis, he was a former smoker with a 50 pack-years, he worked in hotel business until his retirement. Native of Las Palmas de Gran Canaria where he lives with his wife, he has no animals. He started with catarrhal symptoms that were treated with Azithromycin and bronchodilators. After 3 months, he presented fever, asthenia, dry cough and right thoracic pain, ill-defined, exacerbated by coughing. He was referred to the emergency department and was found to be tachycardic at 103 bpm with the rest of the constants in range, the physical examination revealed rhonchi in the right base. Chest x-ray showed an infiltrate in the right lower lobe and he was admitted to pneumology unit with a diagnosis

**Citation:** Giannozzi Lucrezia, Ruiz Tarbet Clara Elisa, Pulido Hernández Idalays, *et al.* Nonresolving Pneumonia, A Curious Case. Archives of Pulmonology and Respiratory Medicine. 2025;8(1):1-4.

of community-acquired pneumonia. Laboratory tests on admission showed: white blood cells (WBC) without alterations, urea * 66 mg/dL, creatinine * 1.24 mg/dL, normal ions, C-reactive protein 169.95 * mg/L; procalcitonin 0.07 ng/mL. He received Amoxicillin/Clavulanic acid with favorable clinical outcome and was discharged early from the ward completing one week of antibiotics, but one month later in the outpatient review he still complained of fatigue, dyspnea, right pleuritic chest pain, dry cough, hyporexia, and weight loss of 8 kilos since the initial cold. Examination revealed hypophonesis in the right base with normal vitals. The blood count was normal, the erythrocyte sedimentation rate was 11 mm/h, and the C-reactive protein has dropped to 6.29 mg/L. Chest X-ray showed a decrease in the infiltrate only in the most peripheral sector, and thoracic ultrasound revealed a minimal anechoic pleural effusion with no complication and a chest CT, which findings are shown in Figure 1.

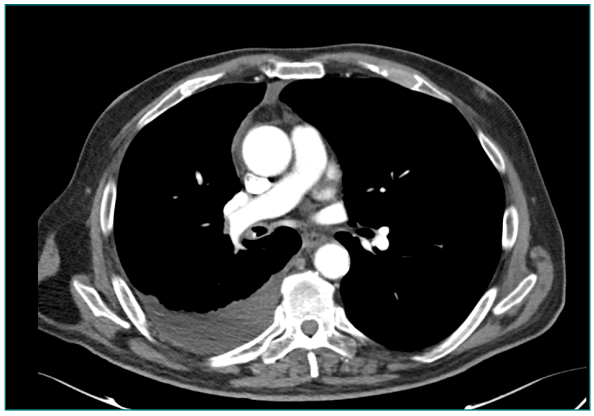

**Figure 1.** *Thoracic CT image showing a condensation at the level of the right lower lobe with lobar volume loss, free right basal right pleural effusion, in addition to an endobronchial occupation at the level of the bronchus intermedius by an lesion of bony density.*

After these findings, a bronchoscopy was performed, extracting the object described in Figure 2. Microbiological and pathological samples were taken.

**Figure 2.** *Endoscopic image of the bronchus intermedius showing a white formation partially occluding its lumen, inflammation at the level of the walls of the bronchus intermedius and distal purulent and malodorous secretions.*

Suspecting foreign body aspiration and repeated post-obstructive anaerobic pneumonia, the patient was admitted to pneumology unit to start intravenous antibiotherapy with Amoxicillin/Clavulanic acid, monitor the pleural effusion and repeat the bronchoscopy. In the analysis of this second hospitalization, hemogram, renal function and ions were normal and C-reactive protein * 253.84 mg / L. In the control thoracic ultrasound a week later, a moderate pleural effusion with numerous septa in its interior was observed. Therefore, a diagnostic thoracentesis was performed and a clear fluid with undetectable pH was extracted. Prevotella ori, sensitive to Amoxicillin/Clavulanic acid, was isolated in the pleural fluid and a small-caliber thoracostomy tube was placed. The biopsy was compatible with bronchial wall fragments with inflammation, with presence of bacterial colonies and a partially degenerated bone fragment without evidence of malignancy. It was decided to discharge him home after ten days, prolonging Amoxicillin-Clavulanic acid and respiratory physiotherapy until medical review, finding him asymptomatic from the respiratory point of view and with a chest X-ray at discharge observed in Figure 3.

**Figure 3.** *Lateral chest X-ray projection showing a residual pleural loculated in the right postero-basal region with an air-fluid level.*

The patient came for a 30-day check-up without fever or cough, but asthenia and atypical chest pain persisted. The bronchoscopy was repeated and showed persistent inflammation of the bronchial mucosa of the right basal pyramid, with stenosis of the middle lobe bronchus and the apical segment of the lower lobe. The control X-ray still showed a large posterior consolidation with air-fluid level, so a thoracic ultrasound was performed again and confirmed the presence of an abundant pleural effusion, extracting purulent liquid with undetectable pH.

A large-caliber catheter was inserted and the patient was admitted for the third time to pneumology hospital unit. Complete blood count, renal funcion, normal ionogram show normal values, C-reactive protein * 35 mg/dL, erythrocyte sedimentation rate 25 mm/h. Microbiological samples obtained by bronchoscopy were negative and the bronchial biopsy was compatible with chronic inflammation. The patient evolved favorably with intravenous Amoxicillin/Clavulanic acid, respiratory physiotherapy and thoracostomy tube. In the control X-ray at one week, a small right postero-inferior pleural effusion persisted. Given the torpid evolution of the post-obstructive pneumonia complicated with empyema, it was decided to prolong the antibiotic treatment with Amoxicillin/Clavulanic acid up to two months. In the outpatient follow-up, the patient remained asymptomatic from the respiratory point of view. In the control X-rays at one month and at nine months, there was no residual pleural effusion, just a small area of fibrothorax. A new control bronchoscopy was performed at one year with great improvement of the inflammation described in the previous examinations.

## 3. Discussion

In slowly progressing pneumonia it is crucial to differentiate whether it is indeed a pneumonia that is progressing well but slowly because the patient has risk factors for this condition or whether it is necessary to investigate underlying complication or other process that behave as a pneumonia (4). The fundamental test in this diagnostic procedure is undoubtedly the thoracic CT and according to the findings complete with bronchoscopy to check the airway and take biopsies of the lesions observed and microbiological samples (3). In the anamnesis it is very important to ask directly about the possibility of aspirations, the fact of not knowing or not remembering does not exclude this possibility either (2). We also recommend that having this suspicion, it is necessary to check the airway in detail in all CT slices because it can go unnoticed, in our case it happened and we realized it by carefully reviewing the CT images after visualizing the foreign body during the bronchoscopy.

Flexible bronchoscopy is the first technique indicated to diagnose by directly observing a foreign body in the airway and to remove it, if it wasn't possible, the next step is rigid bronchoscopy and in case of failure, surgery (3).

## 4. References

1. Rosón B, Carralá J, Causes and factors associated with early failure in hospitalized patients with community-acquired pneumonia, In: Arch Intern Med 2004, 164 (5): 502-8.

2. Abers MS, Sandvall BP, Postobstructive Pneumonia: An Underdescribed Syndrome, In: Clin Infect Dis, 2016, 15; 62 (8): 957-61.

3. Chaudhuri AD, Mukherjee S, A study on non-resolving pneumonia with special reference to role of fiberoptic bronchoscopy, In: Lung India, 2013; 30 (1): 27-32.

4. Tünay Kuru MD, Nonresolving or slow resolving pneumonia, In: Clinics in Chest Medicine 1999, Pages 623-651

5. UpTodate

6. Fein AM, Feinsilver SH, When the pneumonia doesn't get better, In: Clin Chest Med 1987; 8 (3): 529-41.