

**제 227회 대한 결핵 및 호흡기학회 심포지엄  
증례 보고**

2013년 6월 17일  
한양대학교병원 전임의 이성자

## Chief complaint

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- Dyspnea, MRC grade III o/s) 2 days ago
- Associated symptoms
  - Fever, chills
  - Dry cough

## Present illness

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- Underlying disease 없는 자
- 10일전 지하철 지하 창고 대청소
- 2일전 호흡곤란 발생 점차 심해져 응급실 내원

- **Past medical history**

- Admission & Operation history (-/-)
- DM/HTN/Hepatitis/Pul.Tbc (-/-/-/-)
- Allergy history (-)
- Medication history (-)

- **Social history**

- 지하철 공익근무 요원 (선릉역)
- Ex-smoker (고등학생)
- 주거지: 서울시 압구정동, 아파트

## Review of systems

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- Fever(+) Chilling(+) Sorethroat(-) Headache(-)
- Dyspnea(+) Cough(+) Sputum(-) Pleuritic chest pain(-)
- Abdominal pain(-) Nausea(-) Vomitting(-)
- Otherwise normal

# Physical examination

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- Vital sign
  - 38.1 °C - 126 회/min - 22 회/min 117/76 mmHg
- General appearance
  - Acute ill looking, Alert, Oriented
- Thorax
  - Symmetric expansion without retraction
  - Coarse breathing sound with inspiratory crackle, Right lower lung field
  - Regular heart beat without murmur

# Physical examination

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- HEENT
  - Palpable lymph node (-)
- Skin
  - Turgor: normal, Abnormal rash and pigmentation (-)
- Abdomen
  - Soft & flat
  - Normoactive bowel sound, tenderness (-)
- Back & extremity
  - Pitting edema (-/-)

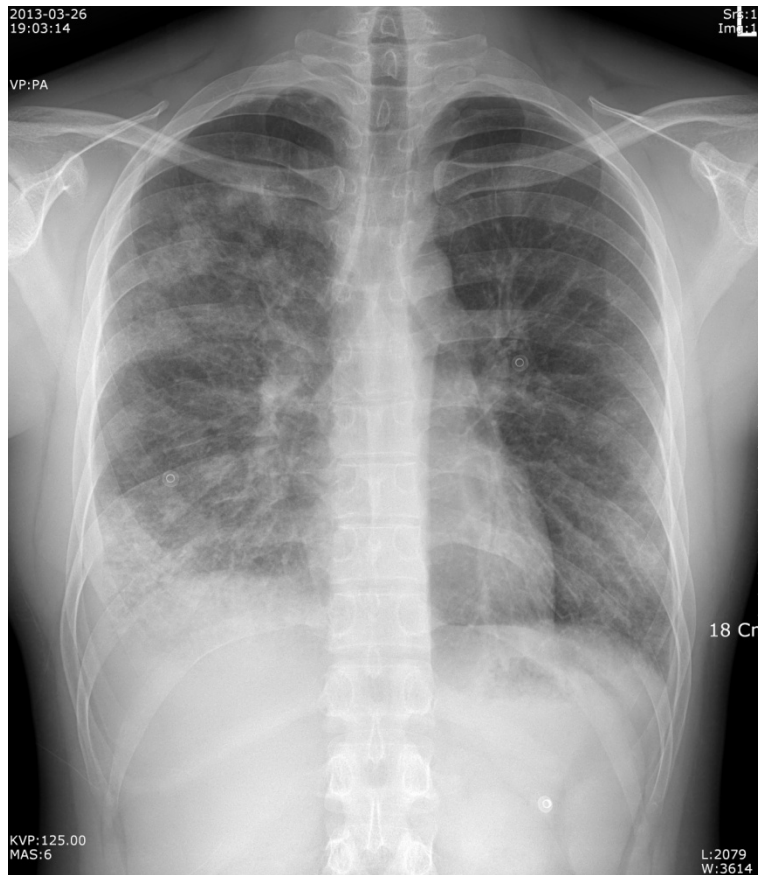
## Initial laboratory data

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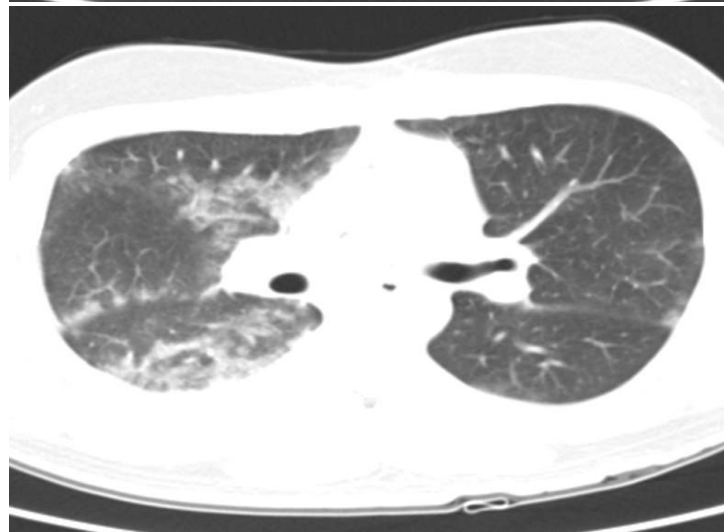
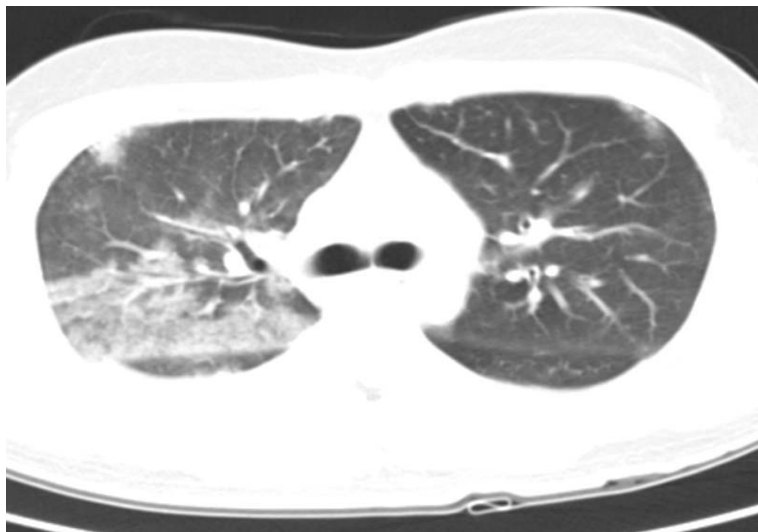
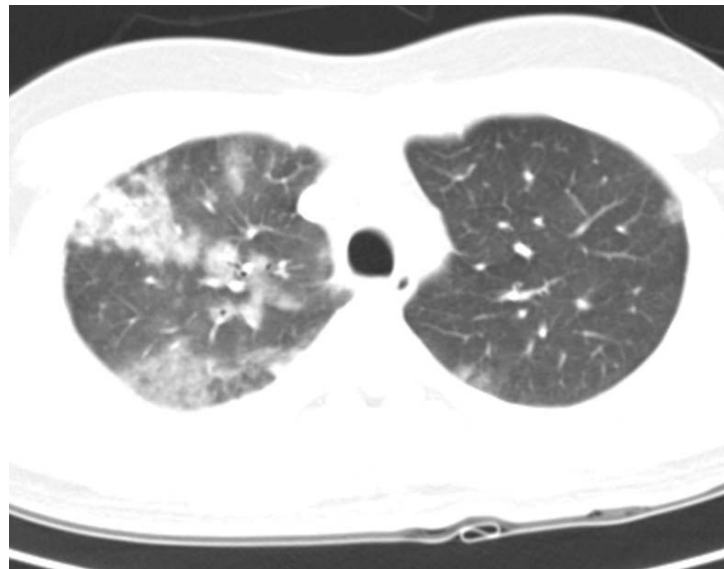
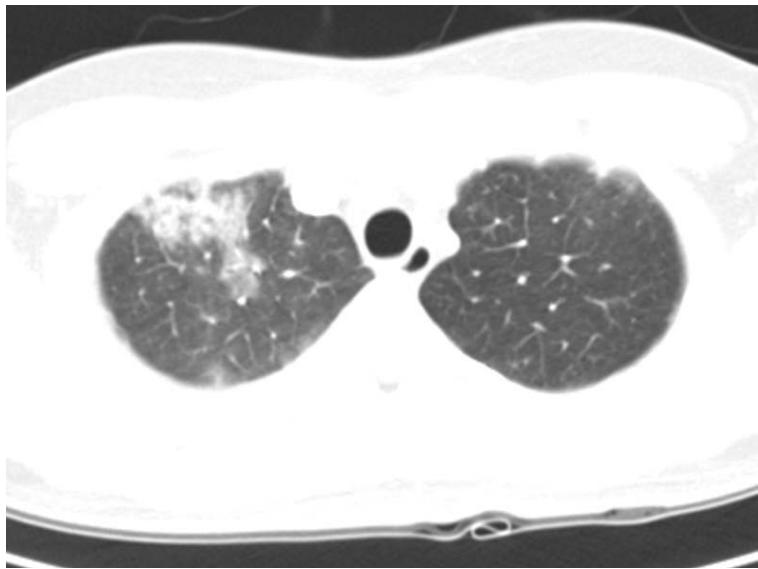
- CBC
  - 21300-17.3g/dl-252k (Seg 89.8%, Lympho 4.3%, Eosino 1.0%)
- ABGA
  - 7.463-28.5mmHg-77.7mmHg-20.0mmEq/L 96.3% (room air)
    - AaDO<sub>2</sub> = 35
- Electrolyte (mmol/L) & BUN/Cr. (mg/dL)
  - 137-3.8-105-17.0 11.6/0.88
- Chemistry
  - TP/Alb.(g/dl) 5.3/3.4 Ca./P(mg/dL) 8.0/2.2
  - T. Bil.(mg/dL) 0.7 ALP/AST/ALT/GGT/LDH(U/L) 41/16/18/15/144
  - CRP (mg/dL) 20.4

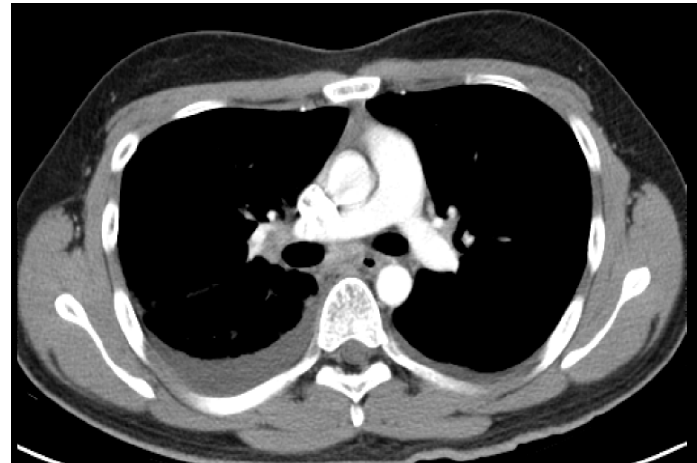
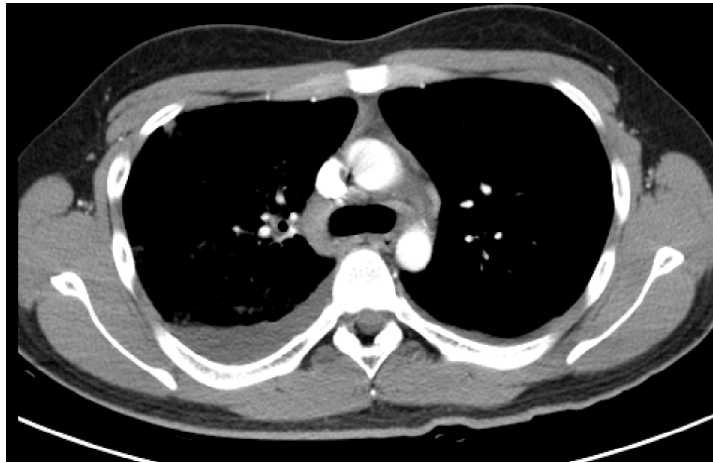
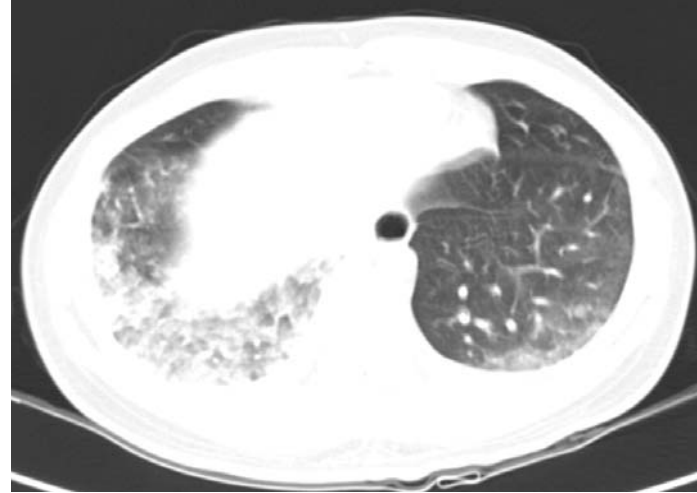
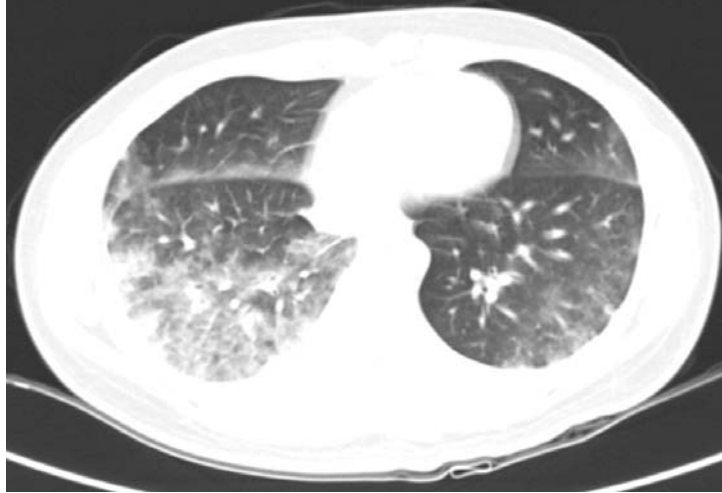
# Initial chest x-ray

2013. 03. 26



# Chest CT







## Problem list)

#1. Dyspnea with fever

#2. Dry cough

#3. Consolidation, patchy GGO with pleural effusion

#4. 지하철 공익근무, 지하창고 대청소

## Assessment)

Community acquired pneumonia

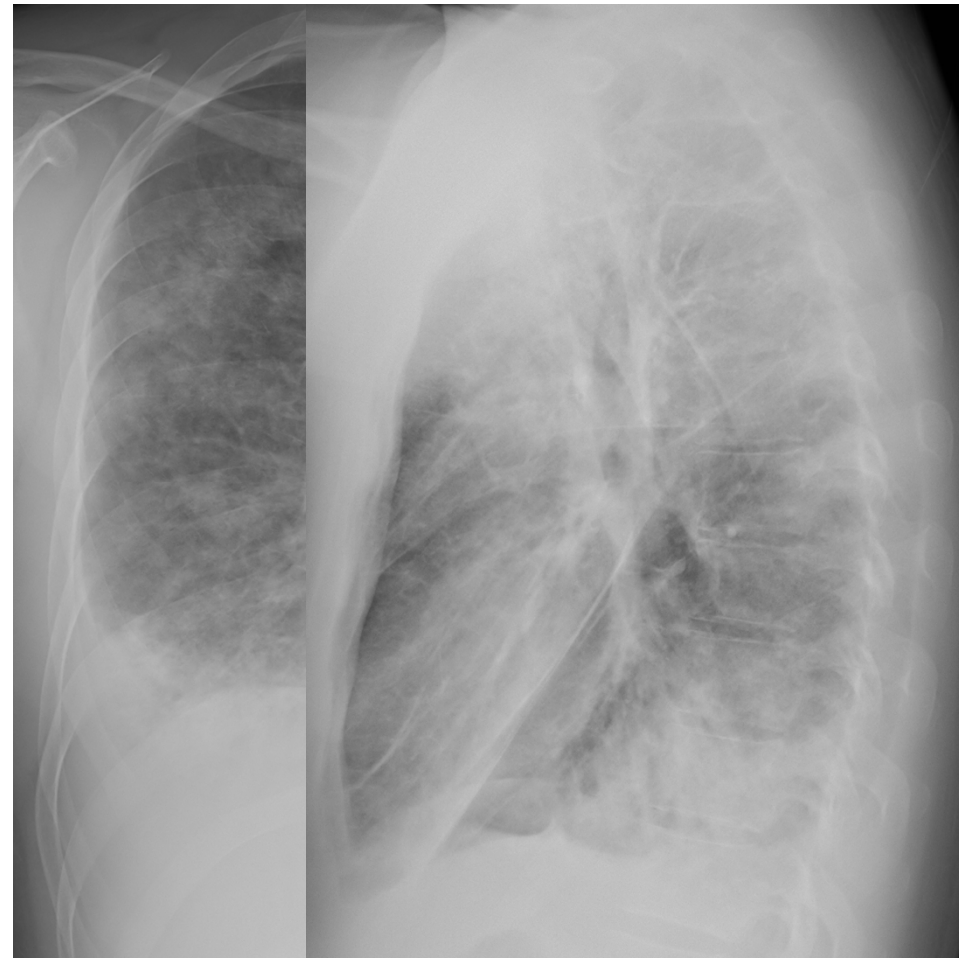
r/o Acute eosinophilic pneumonia

## Plan)

Moxifloxacin [Avelox (R)]

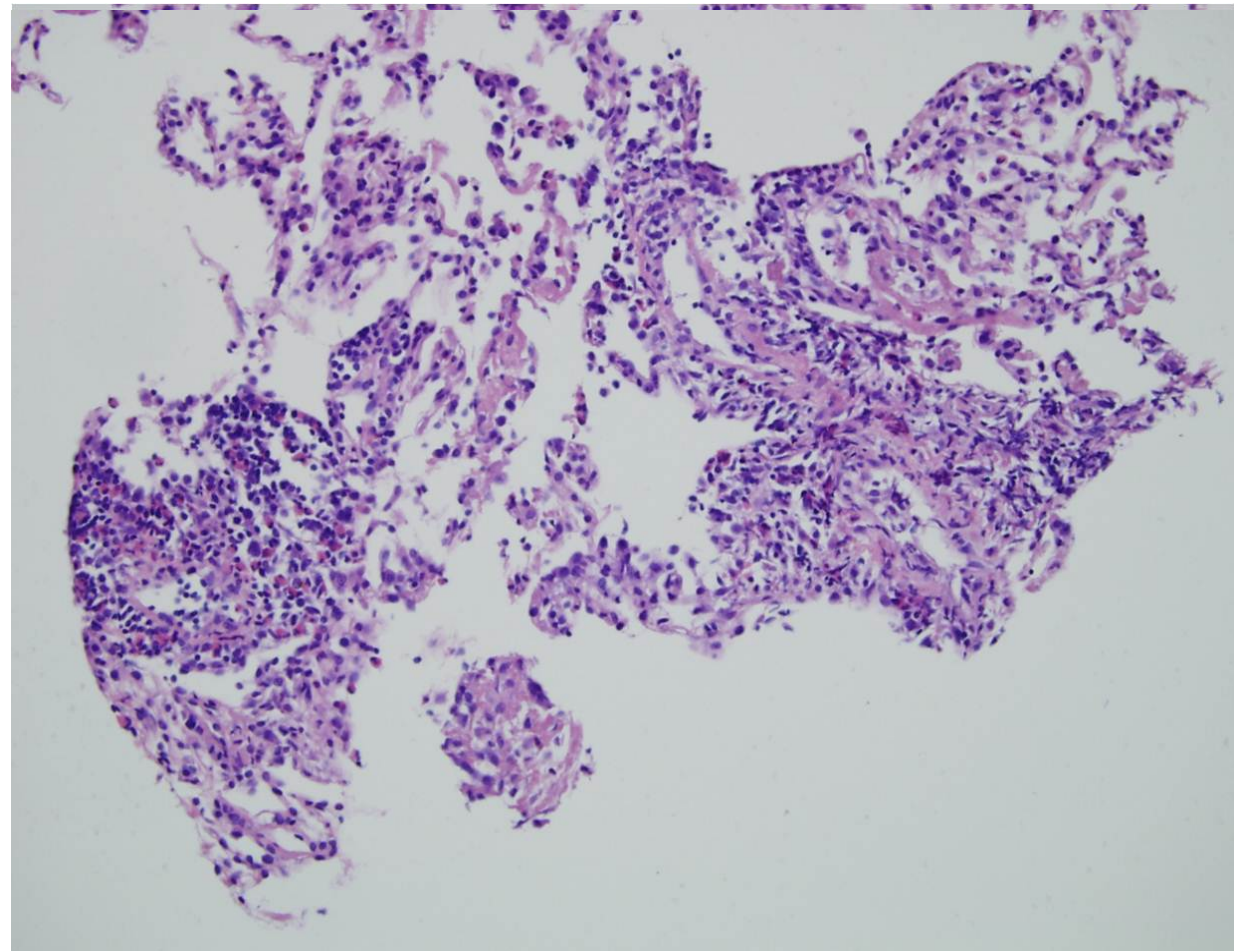
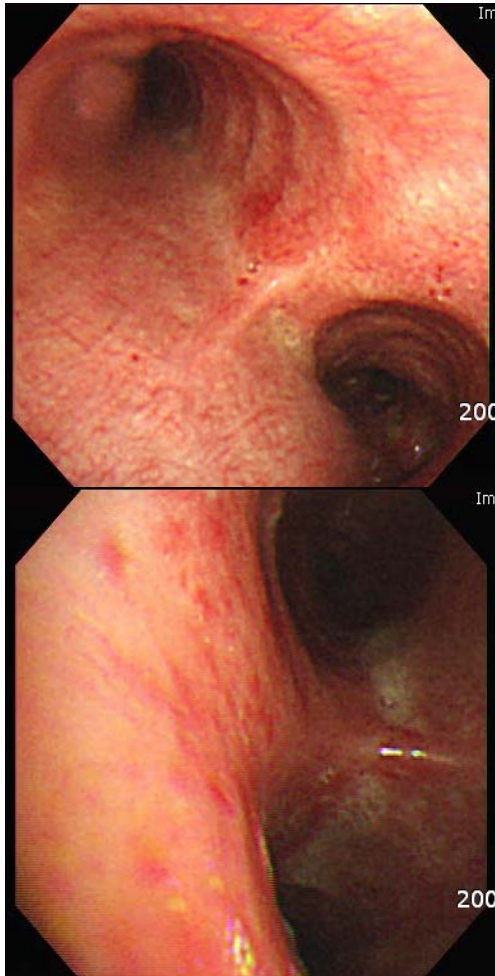
# HD#3

- S) Dyspnea, MRC IV  
Dry cough
  
- O) CBC 22600-14,4-363k (Seg. 86.8% Eo. 0.4%)  
IgE 49.2 IU/ml  
Sputum culture - /AFB - /Tb culture -  
Mycoplasma Ab negative (<1:40)  
Influenza A/B/H1N1 -/-/-  
Legionella/Pneumococcal urine Ag -/-  
Respiratory virus test: -  
Rapid HIV test -
  
- P) Bronchoscopy



# HD#3

## Bronchoscopy & TBLB

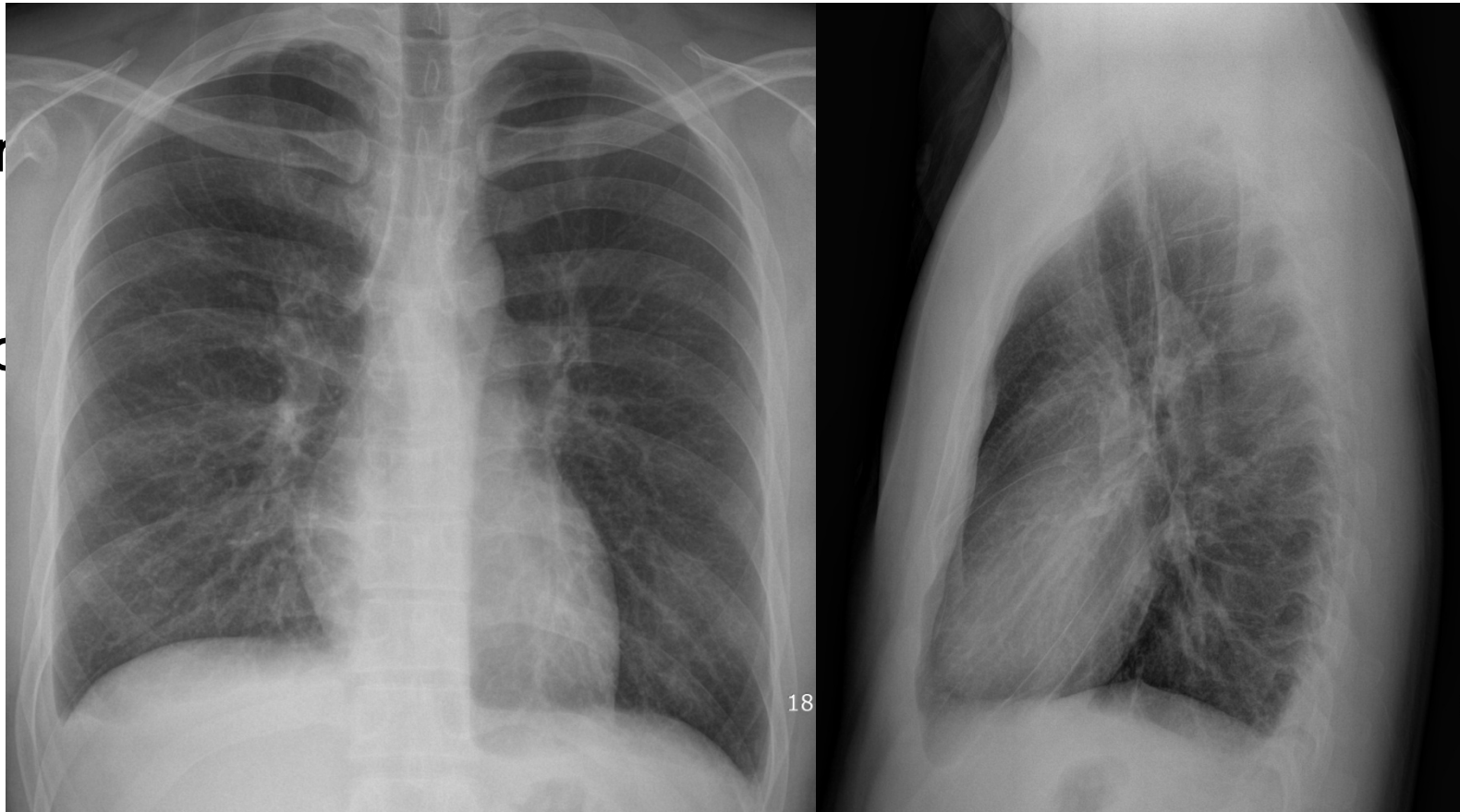


# Re-assessment

## Acute eosinophilic pneumonia

Ster

Disc



# Review



급성 호산구성 폐렴

Acute eosinophilic pneumonia (AEP)

# AEP : Introduction

[Am Rev Respir Dis.](#) 1989 Jan;139(1):249-52.

## Acute eosinophilic pneumonia: a hypersensitivity phenomenon?

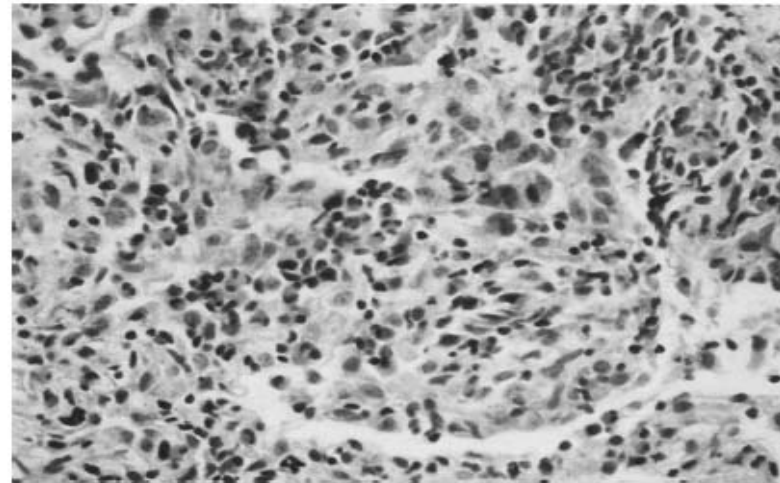
[Badesch DB](#), [King TE Jr](#), [Schwarz MI](#).

Department of Medicine, University of Colorado Health Sciences Center, Denver.



21-yr old male, non smoker,  
exposed to dusts (motocross)

Peripheral blood eosinophils:  
• 459 /mm<sup>3</sup> Day 0,  
• 1274 /mm<sup>3</sup> Day 1  
Alveolar eosinophilia : 52%



Transbronchial biopsies  
- Eosinophilic infiltration  
- Organising pneumonia

# AEP: Introduction (2)

ORIGINAL ARTICLE

ARCHIVE

## Acute Eosinophilic Pneumonia as a Reversible Cause of Noninfectious Respiratory Failure

James N. Allen, M.D., Eric R. Pacht, M.D., James E. Gadek, M.D., and W. Bruce Davis, M.D.  
N Engl J Med 1989; 321:569-574 | August 31, 1989 | DOI: 10.1056/NEJM198908313210903

- 4 patients ; 3 M, 1 F
- Smokers
- Absence of history
- Acute respiratory distress
- Fever, cough, dyspnea in 3 / 4
- Onset in 1 – 7 days
- Hypoxemia (PaO<sub>2</sub> < 60 mmHg on room air)
- Diffuse interstitial and alveolar opacities (4 / 4) ; pleural effusion (2 / 4)
- Frequent lack of peripheral blood eosinophilia
- BAL eosinophils : 42% (28 – 50%)
- Absence of infection (BAL)
- Rapid resolution (<10 days) without relapse with prednisone therapy (+ erythromycin)

# Patients characteristics

Series	Pope-Harman, 1996	Tazelaar, 1997	Philit, 2002	Shorr, 2004	Uchiyama, 2008	Total
Number	15	9	22	18	33	<b>97</b>
Mean age	28	44	29	22	19	<b>~30 yrs (14-86)</b>
M - F	9 - 6	4 - 5	13 - 9	16 - 2	23 - 10	<b>M=67%</b>
Smokers	6	3	8	18	31	<b>68%</b>

# Clinical manifestation

Dyspnea	100%
Fever	100%
Cough	80 – 100%
Thoracic pain	50 – 70%
Crackles	70 – 80%
Myalgias	30 – 50%
Abdominal pain	25%

*NB : Absence of systemic manifestation*

Pope-Harman et al, 1996  
Tazelaar et al, 1997  
Philit et al, 2002  
Shorr et al, 2004  
Uchiyama et al, 2008

# Etiology

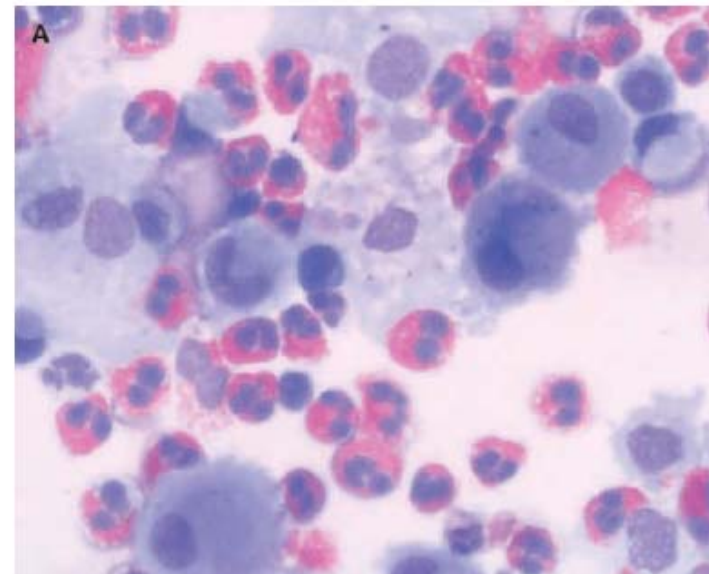
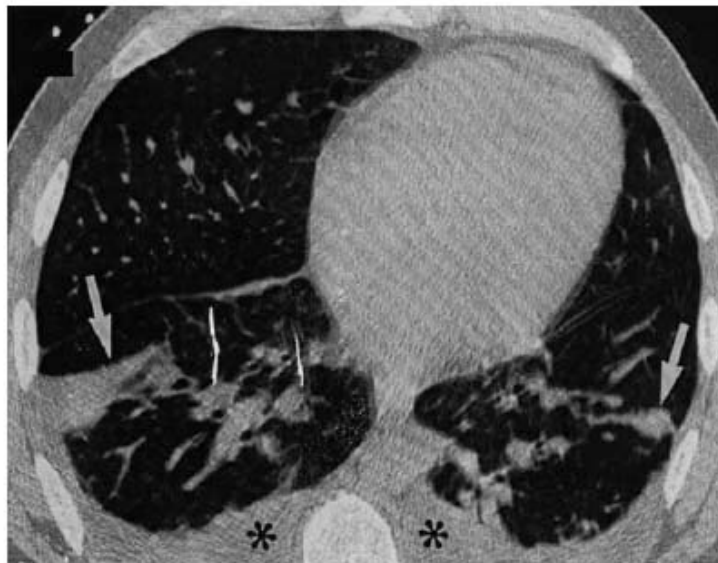
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- Smoking : majority of patients
- Recent onset (< 3 months) [ $0.67 \pm 0.53$  months] or increase in quantities of cigarettes smoked daily
- « Rechallenge » or « tolerance »
- Any kind of tobacco (cigars)
- Short-term passive (massive) smoking sufficient
- Other inhaled agents
  - Cave exploration, plant repotting, wood pile moving, smoke-house cleaning, motocross race in dusty conditions, hay baling, smoke from fireworks, etc

# Case report

## Acute Eosinophilic Pneumonia in a New York City Firefighter Exposed to World Trade Center Dust

William N. Rom, Michael Weiden, Roberto Garcia, Ting An Yie, Pratan Vathesatogkit, Doris B. Tse, Georgeann McGuinness, Victor Roggli, and David Prezant



70% eosinophils at BAL  
differential count

AJRCCM 2002;166:797

# Diagnostic criteria

- Acute onset: 30days before presentation
- Fever
- Bilateral infiltrates in chest radiography
- Severe hypoxemia
  - PaO<sub>2</sub> < 60mmHg(room air) and/or PaO<sub>2</sub>/FiO<sub>2</sub> ≤ 300 mmHg
- Lung eosinophilia: BAL > 25% eosinophils
- No history of drug, infection, other known cause of eosinophilic lung disease

Adapted from Allen JN, Pacht ER, Gadek JE, Davis WB: Acute eosinophilic pneumonia as a reversible cause of noninfectious respiratory failure. N Engl J Med 321:569-574, 1989; and Cottin V, Cordier JF: Eosinophilic pneumonias. Allergy 60:841-857, 2005.

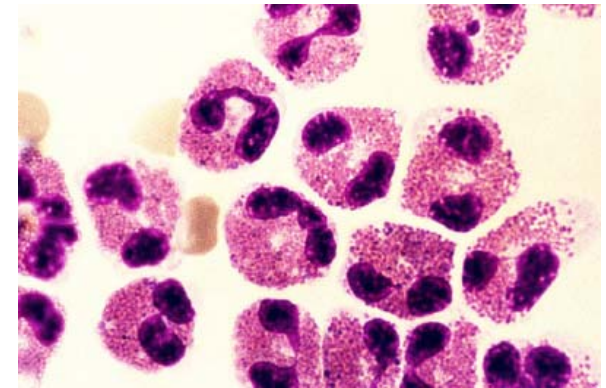
# Differential diagnosis

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- *Chronic* eosinophilic pneumonia
- ARDS including infectious pneumonia
- Acute interstitial pneumonia (idiopathic)
- Diffuse alveolar hemorrhage
- Organizing pneumonia
- Hypersensitivity pneumonitis
- Acute exacerbation of IPF
- Etc.

# Diagnostic methods

- BAL (key method)
  - Eosinophilic alveolitis
  - Neutrophils & lymphocytes ↑
  - BAL fluid culture & stain : Negative



- Transbronchial or open lung biopsy
  - Alveolar & interstitial infiltration by eosinophils
  - Interstitial edema
  - Diffuse alveolar damage

# Treatment



- Spontaneous improvement: frequent (treatment not a diagnostic test)
- Corticosteroids highly effective ; improvement within 96h ; imaging normal within 2-4 weeks
- Optimal regimen and duration not established
- Often initiated at  $\geq 1$  mg/kg of prednisone per day and tapered over a few weeks (< 3 months)
- Recurrence has not been described ; no sequelae

Pope-Harman et al, 1996  
Philit et al, 2002  
Shorr et al, 2004