월례 집담회

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R3 장원진

CASE

- **F/37　진O정**

- Chief complaint
  - Dyspnea (O: 불분명)

- Present illness
  - 임신 3rd trimester 부터 NYHA Ⅱ 의 dyspnea 있던 분으로 당시는 임신에 의한 증상으로 생각하였으나 출산 후에도 증상 지속되고 내원 2-3일 전 dyspnea aggravation되어 타 병원 내원. Chest CT 상 이상 소견 보여 본원 refer

- Past history
  - HTN/DM/Tbc/Asthma (-/-/-/-)
  - Adm/op (+/+) : 정상 질식 분만
    Liver transplantation donor
  - Smoking Hx(-)
  - Occupation Hx(+) : 대학교 교수(분장술)

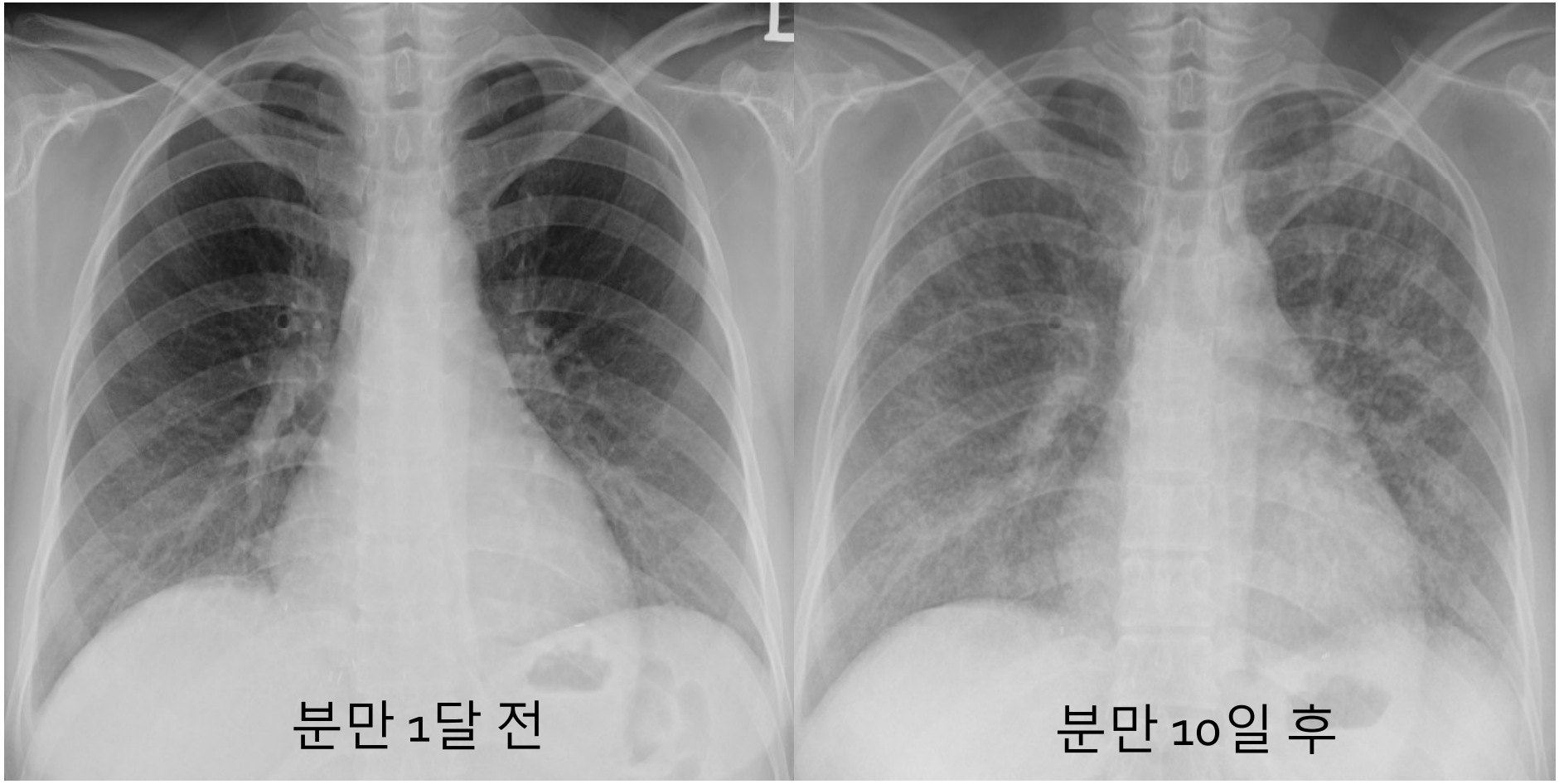
- Review of system

  – Fever/chill (-/-)
  – Cough/sputum (+-/-)
  – Dyspnea(+): NYHA III, Palpitation(+)
  – Arthralgia(+-) Dry mouth/eye(-/-)
    Raynaud phenomenon(-)
    Skin rash(-) photosensitivity(-)

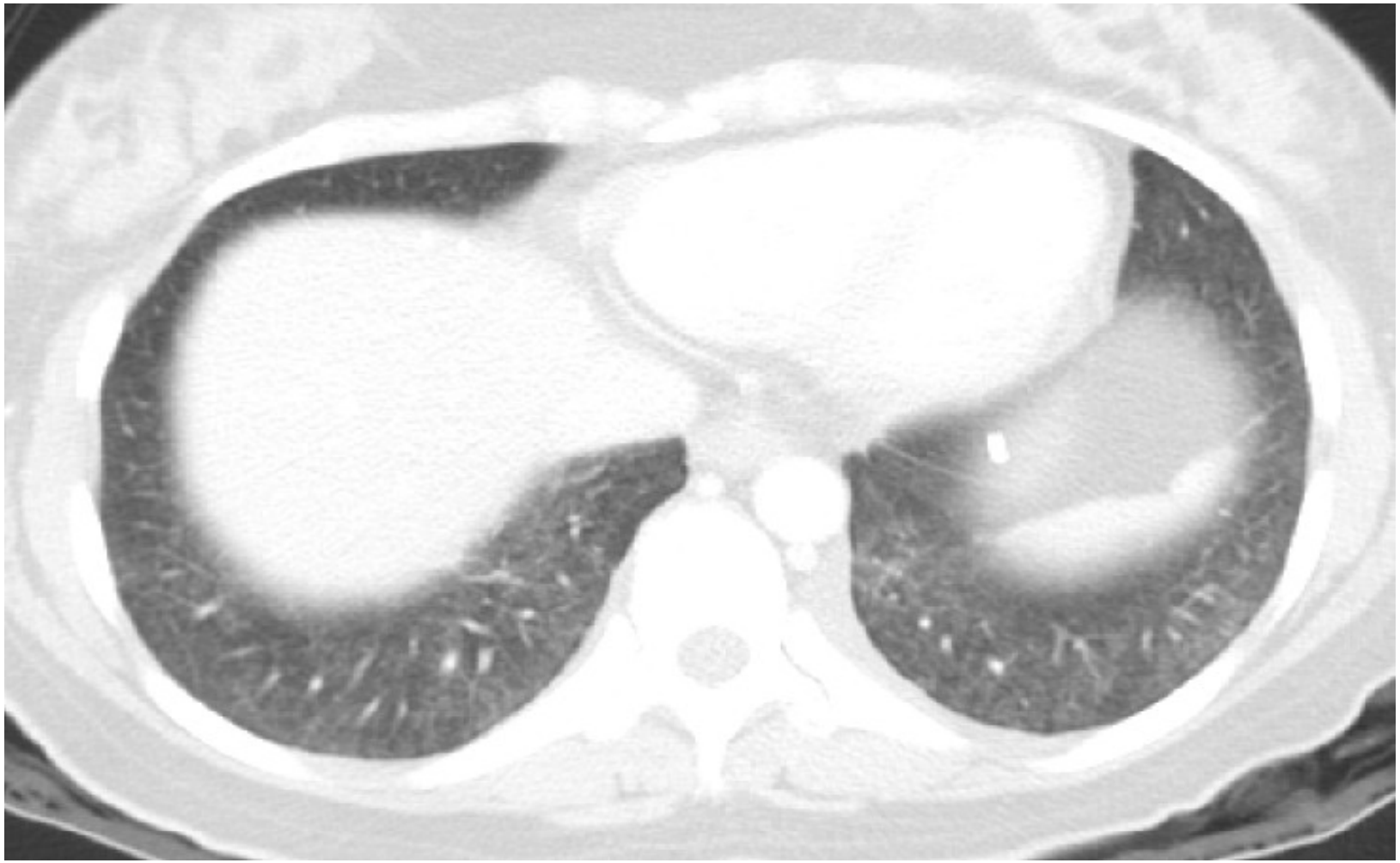
- Physical exam

  - V/S 36.5℃-110/80mmHg –80 회/min– 42회/min
  - Alert mentality
  - Regular heart beat without murmur
  - Normal breathing sound s crackle, wheezing
  - Clubbing(-)

타병원 chest X-ray



내원 당시 chest CT



- Initial impression
  - R/O ILD such as HP, COP
  - R/O HF
  - R/O Pneumonia
    - » R/O Bacterial pneumonia
    - » R/O Viral pneumonia
    - » R/O H1N1 infection

- Lab
  - CBC: 12.3g/dL- 9780 /uL-234K/uL
  - Electrolyte: 138 mmol/L – 3.6mmol/L -107mmol/L
  - BUN/Cr: 12/0.7 mg/dL
  - AST/ALT : 18/18 IU/L
  - CRP: 9.122mg/dL
  - NT pro BNP 33.2 pg/ml
  - FANA, ANCA, C3, C4, Ig A/M/G : negative
  - ABGA(R/A)
    - 7.419- 34.9mmHg - 84mmHg – 22.1mmol/L - 96%

- R/O HF
  - 2-D echo: EF 55~60%
  - NT pro BNP 33.2 pg/ml

- R/O Pneumonia
  - Sputum study, viral culture, H1N1 PCR

- R/O ILD such as HP, COP
  - Bronchoscopy with BAL, VATS Bx

- HD #1 & HD #2
  - BAL(LUL lingular)
    - WBC140 (Neut 38%, Lym 28%, mono 17%, Eos 17%)
    - Culture (-)
  - VATS lung Bx
    - LUL lingular seg, LLL superior seg, LLL posterobasal seg

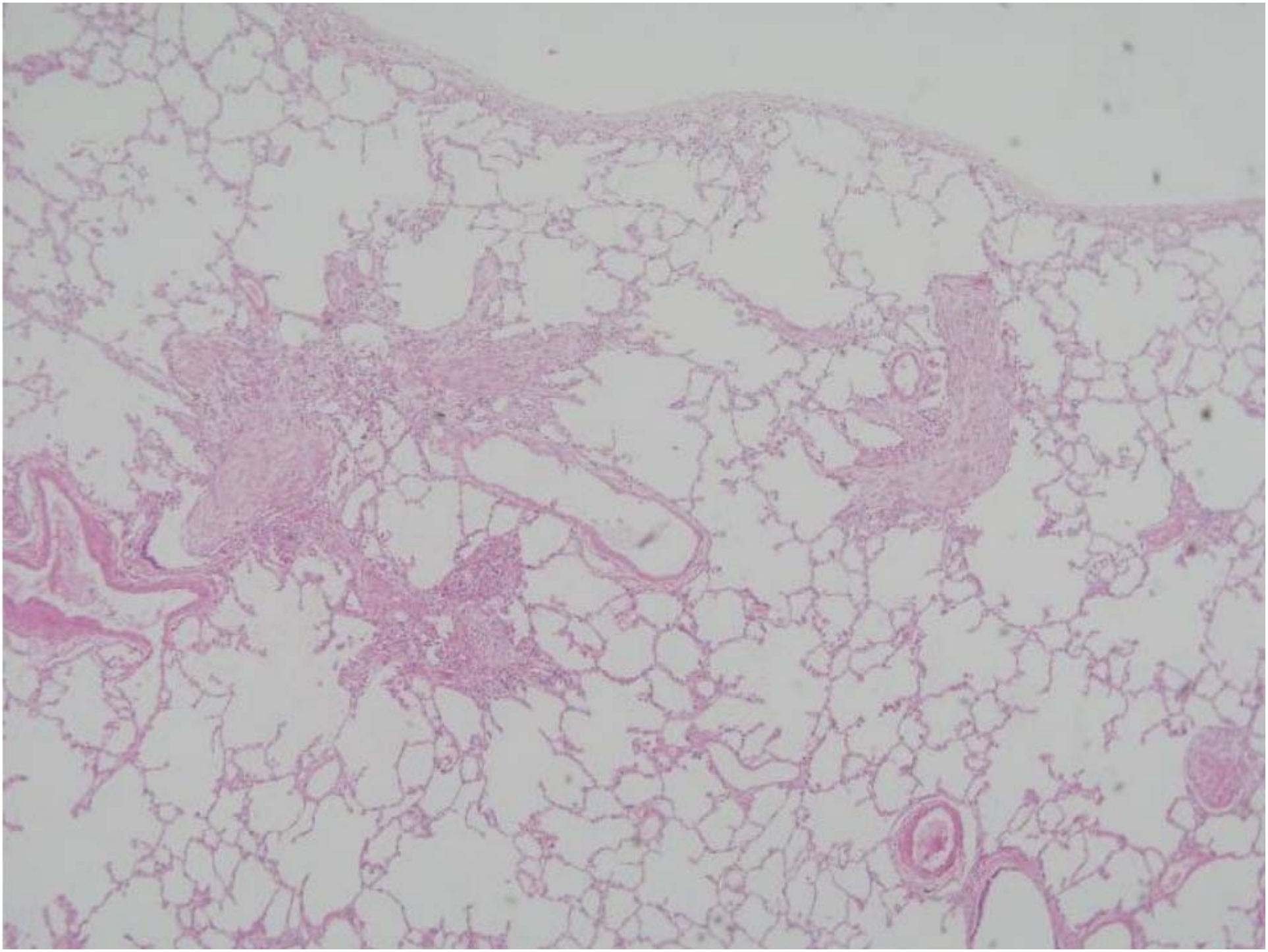
- HD #2
  - Steroid start (1mg/kg/day)

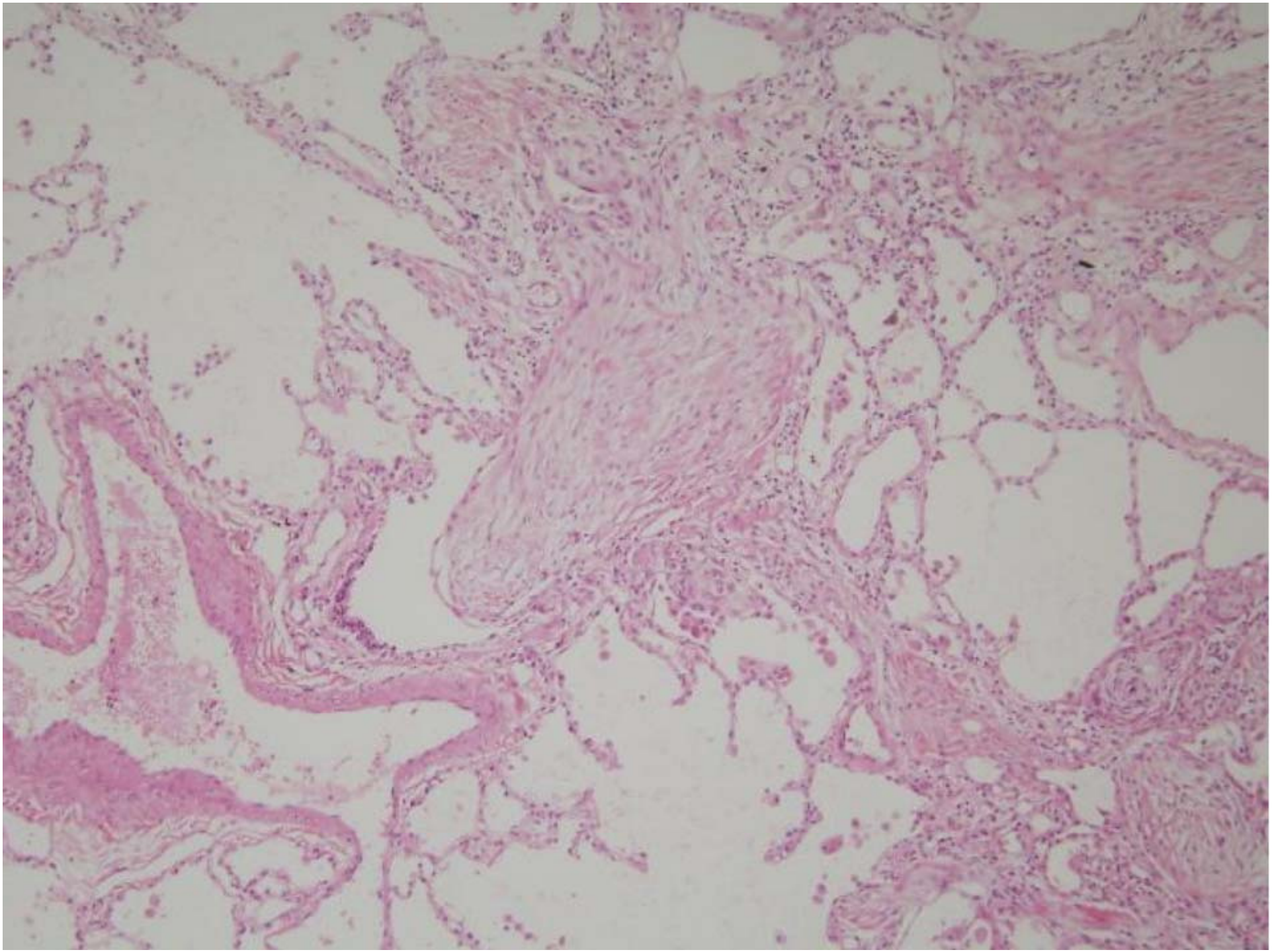
R/O Pneumonia

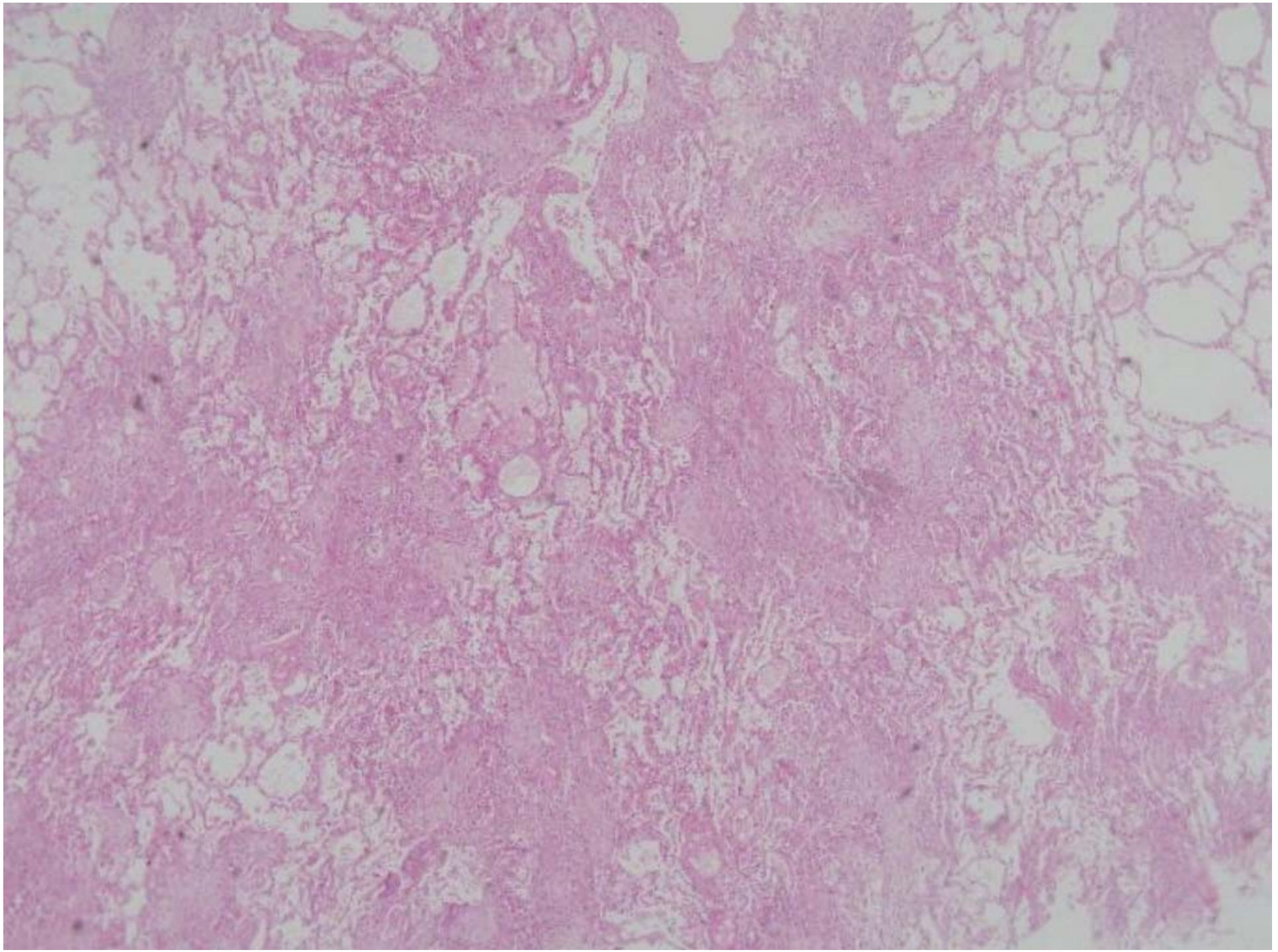
- Sputum study(-)
- Viral culture(-)
- H1N1 PCR(-)

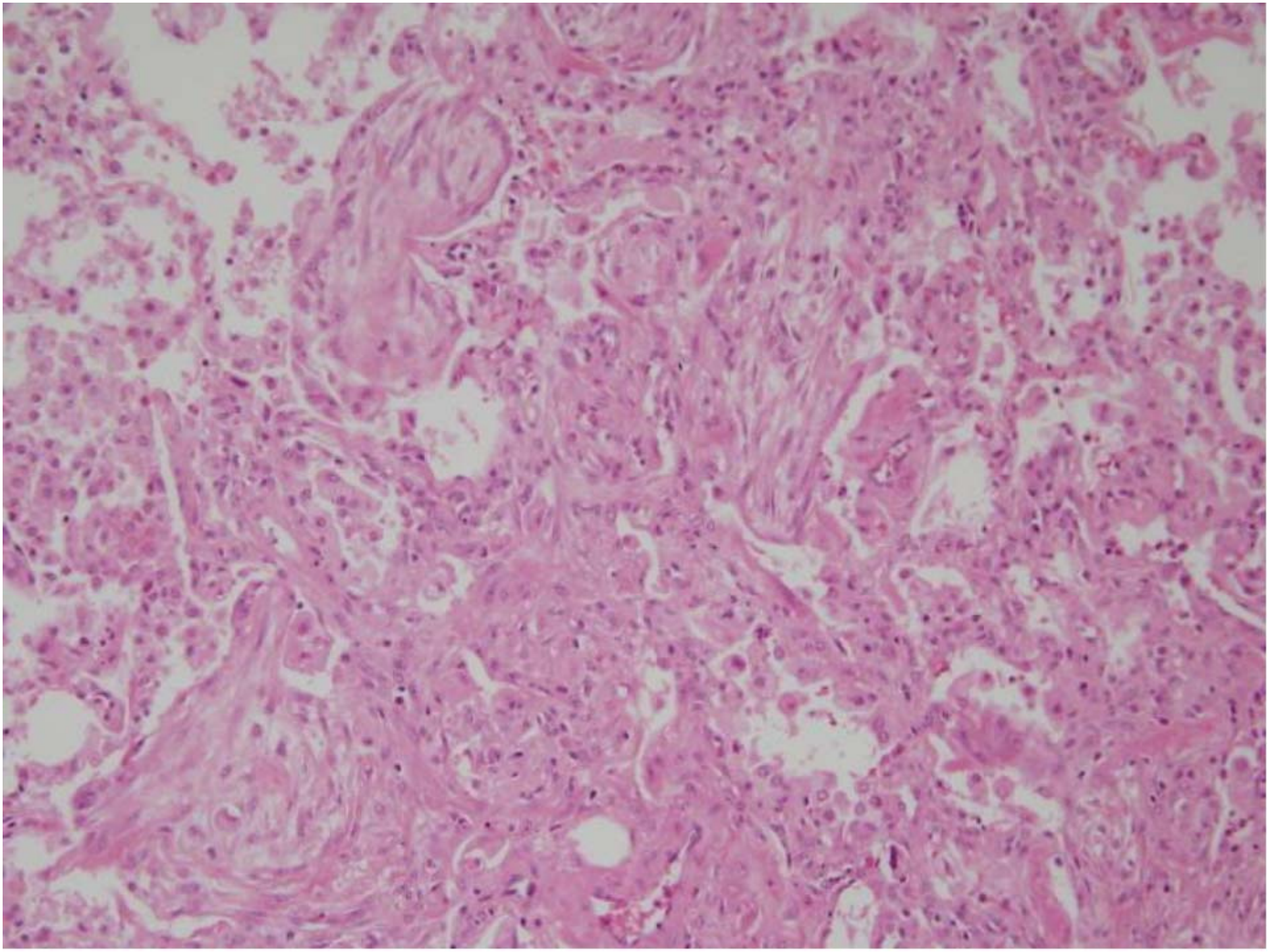
R/O ILD such as HP, COP

- HD #9 : Bx 결과 confirm

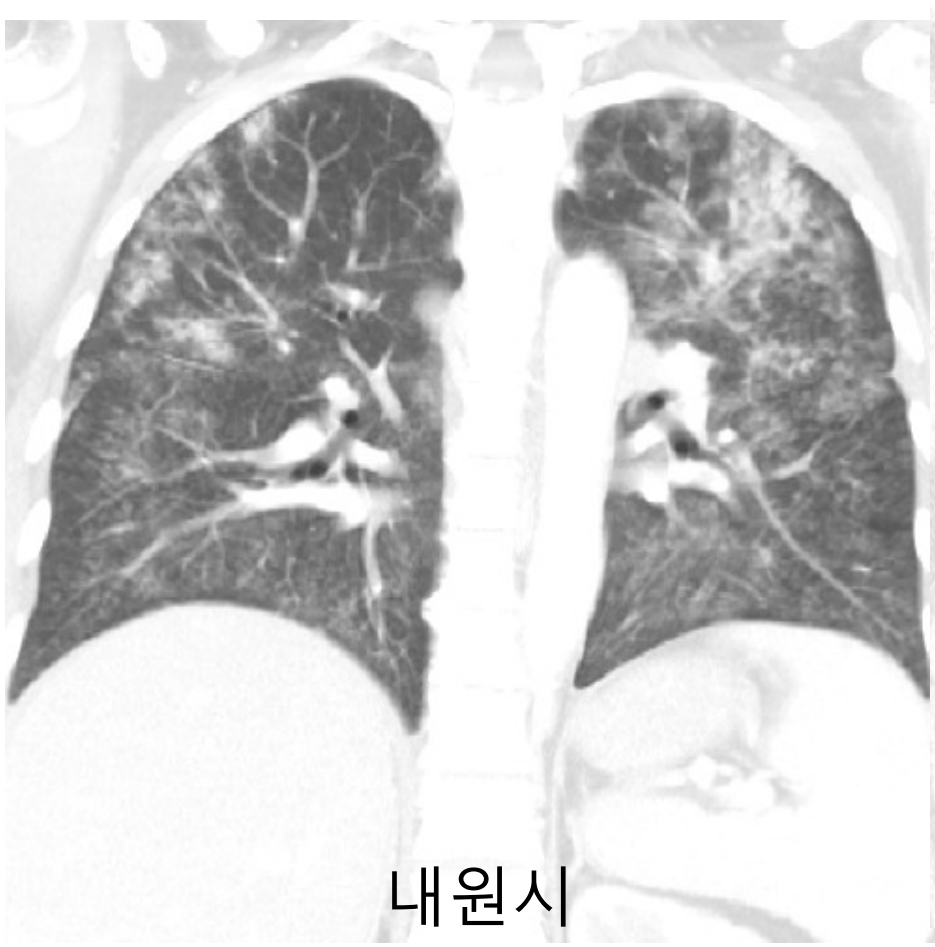




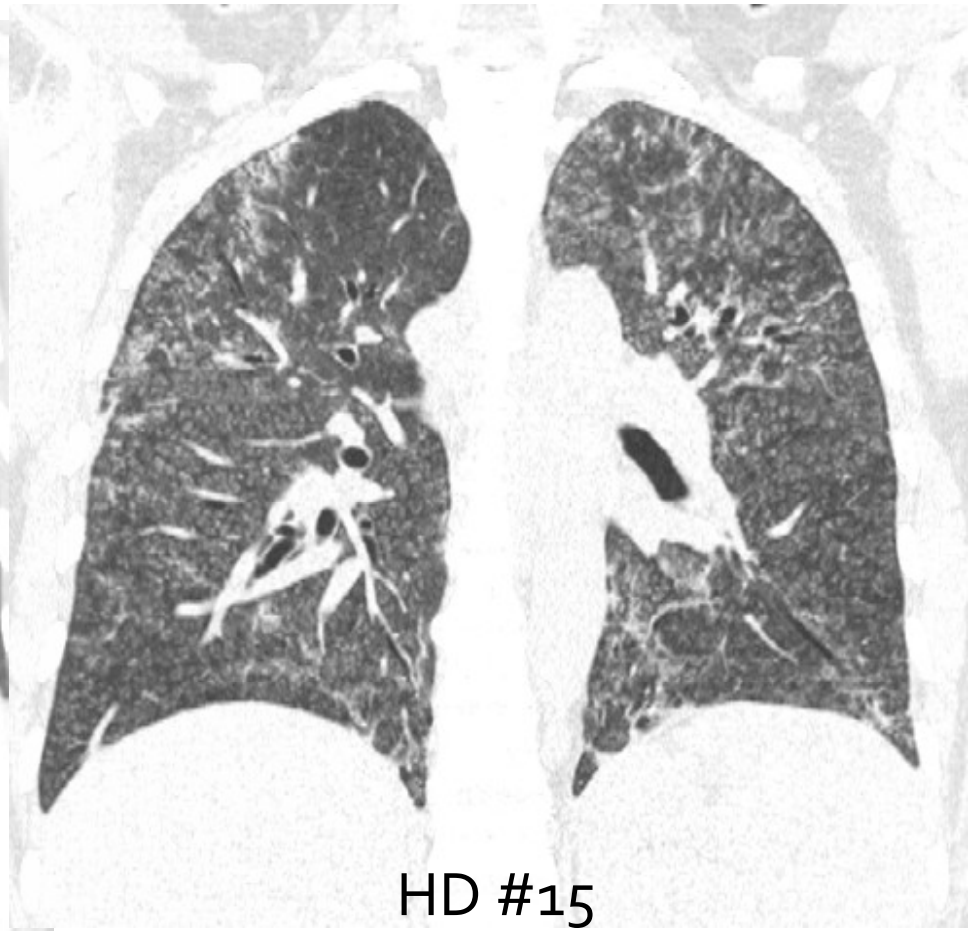




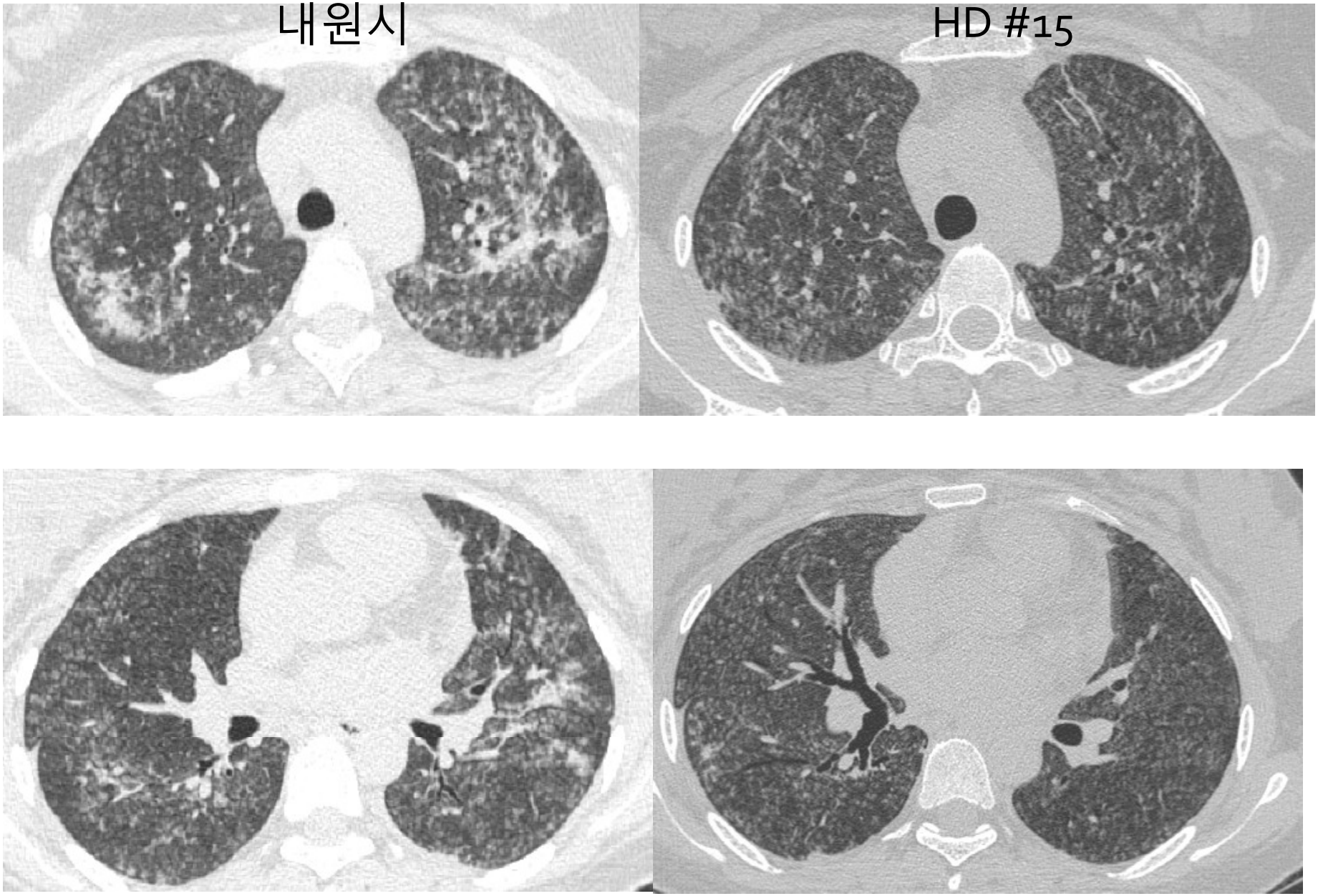
- HD #15
  - Dyspnea aggravation (despite of steroid use)
  - Chest CT f/u



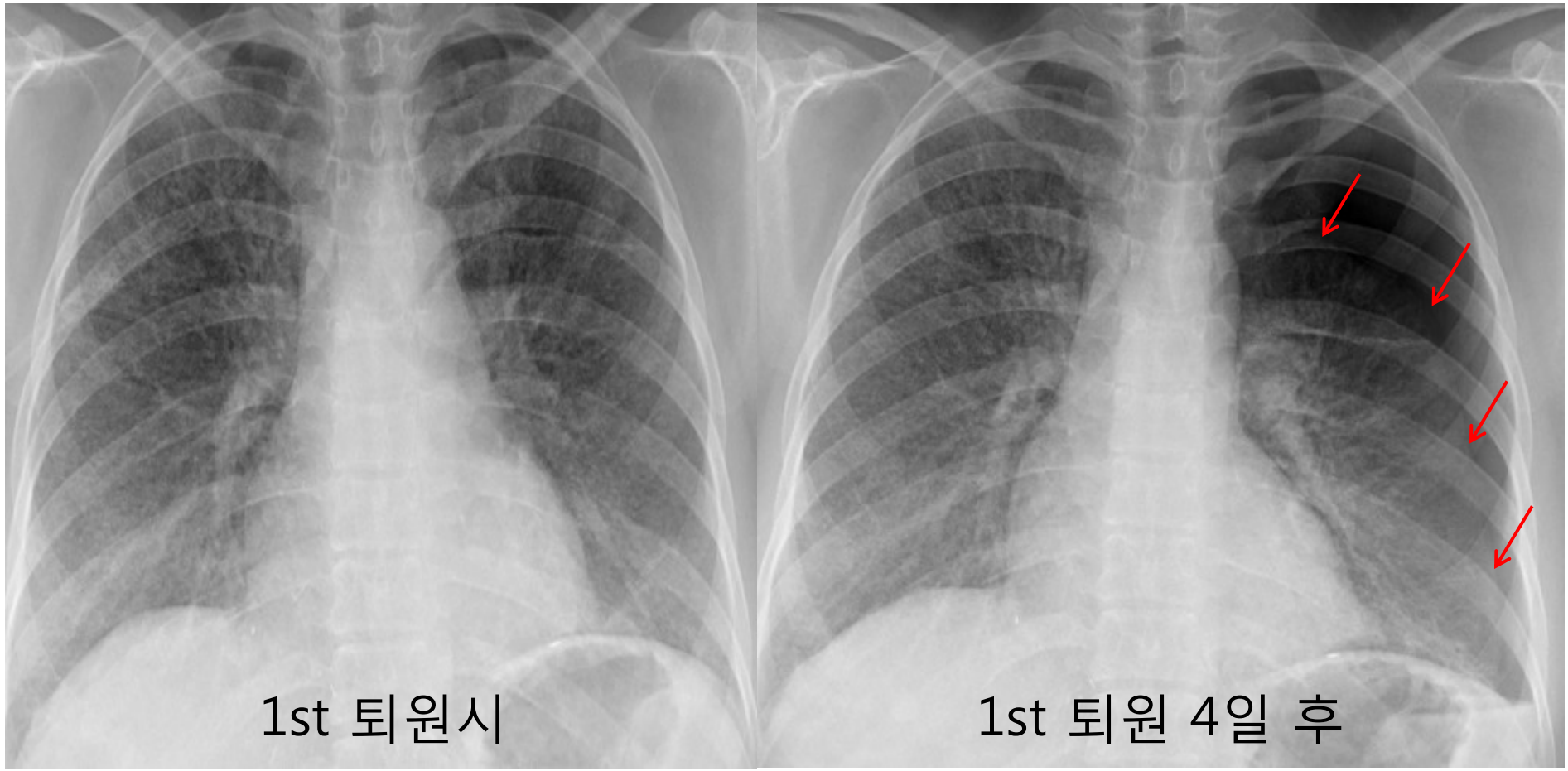
내원시



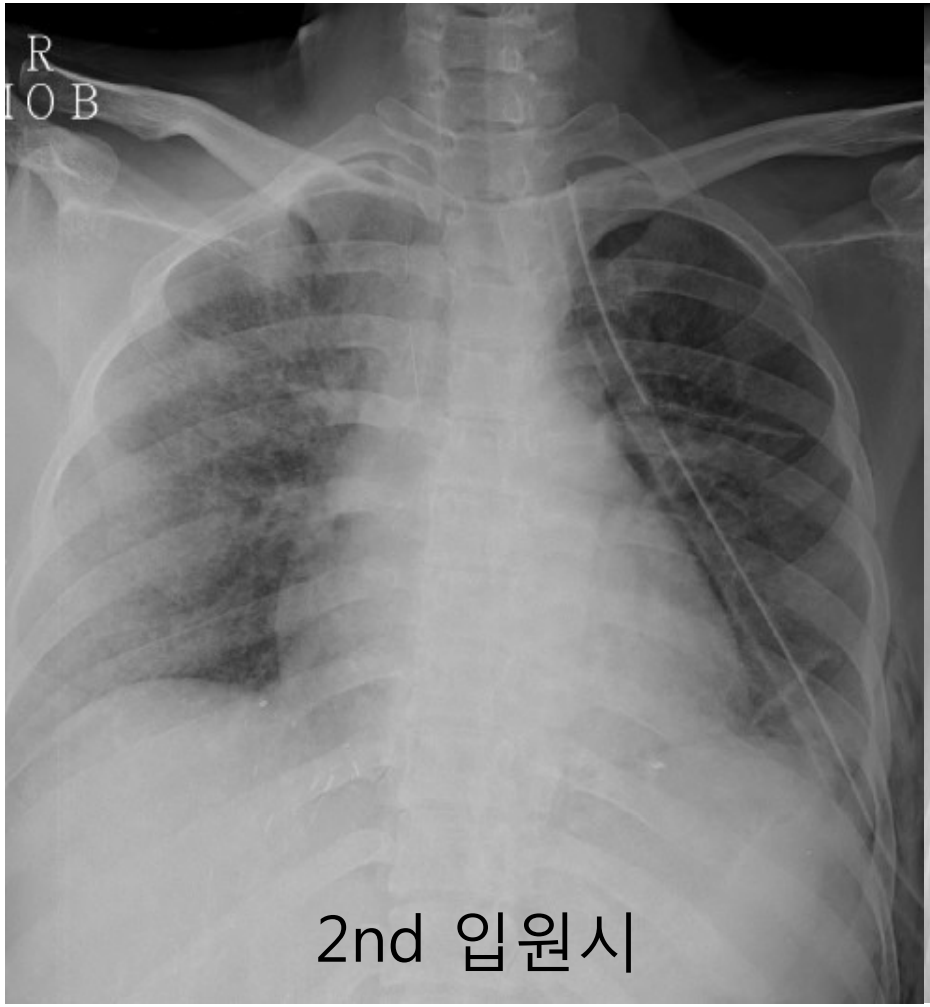
HD #15


내원시
HD #15

- HD #17
  - Steroid pulse therapy for 3days -> tapering
- HD #24
  - Steroid 및 home O_2 유지하여 퇴원

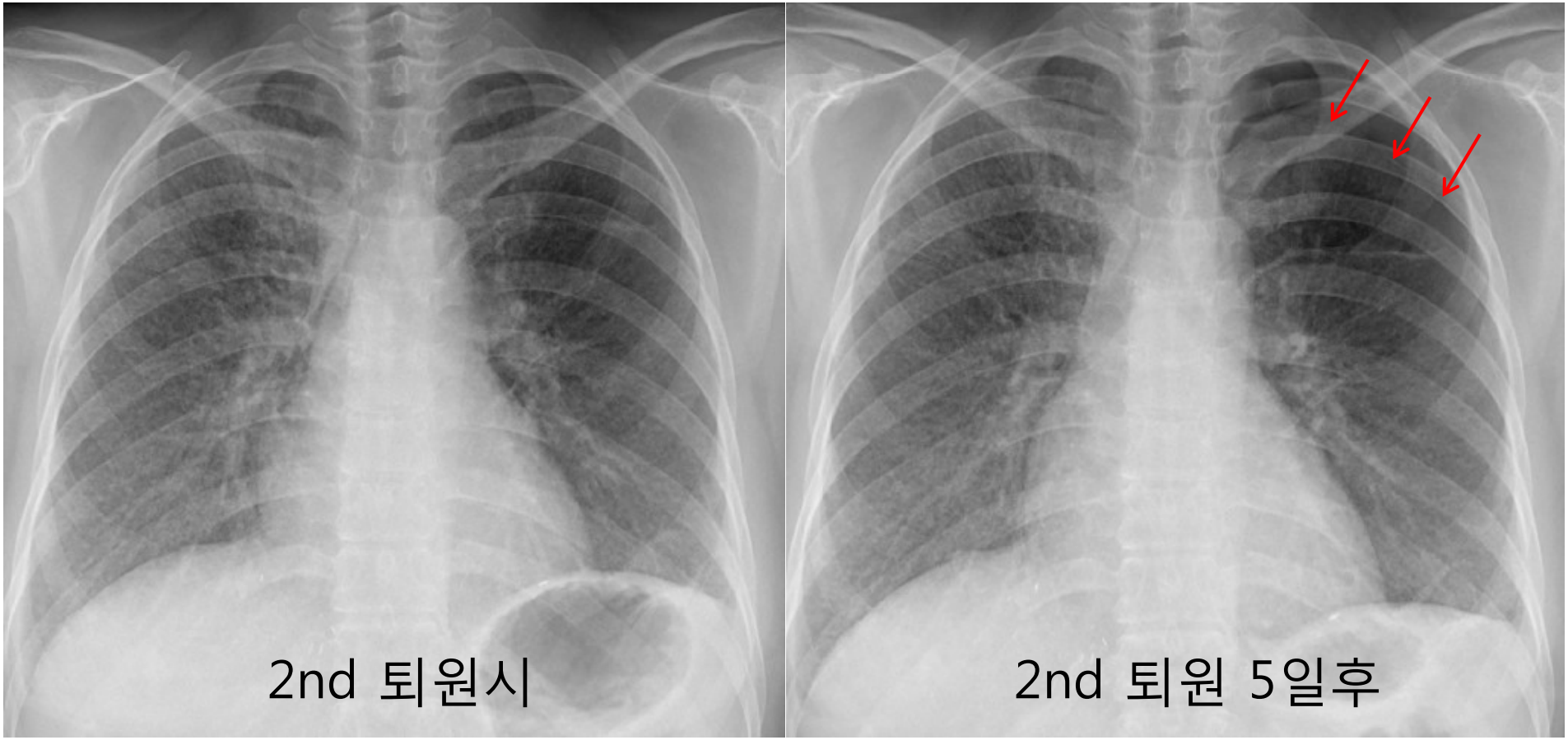


- Lt. pneumothorax develop
  : readmission for 14days



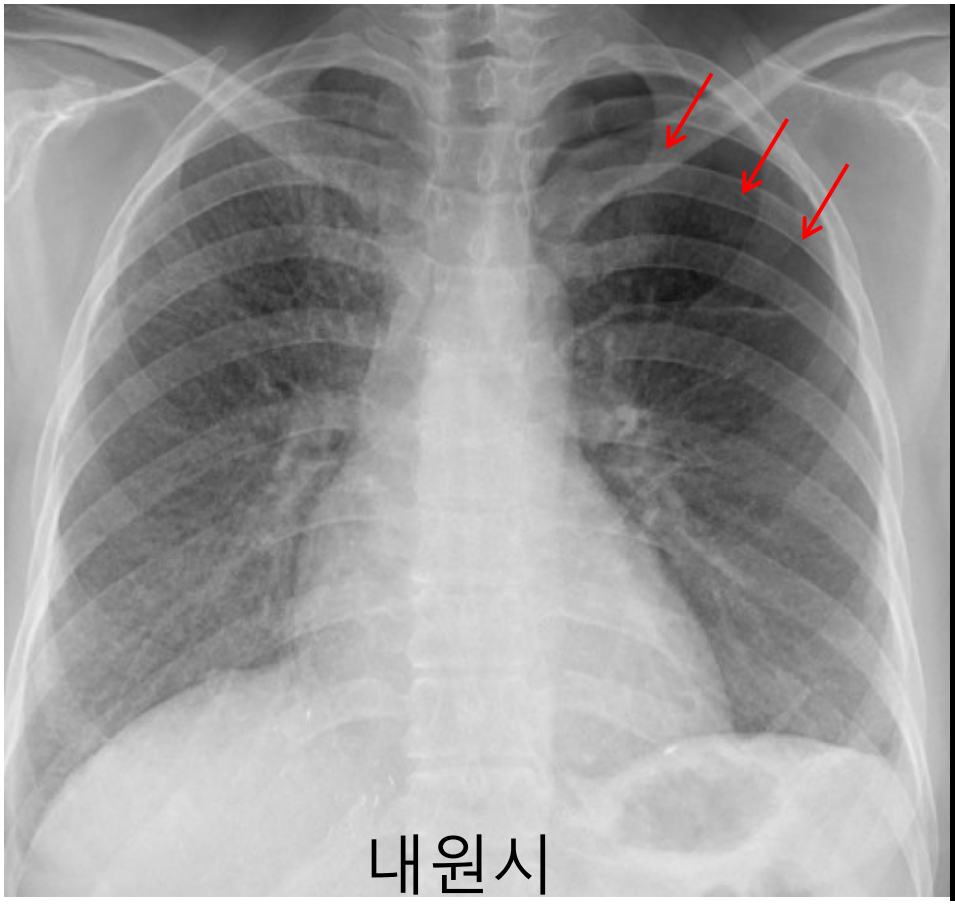
2nd 입원시

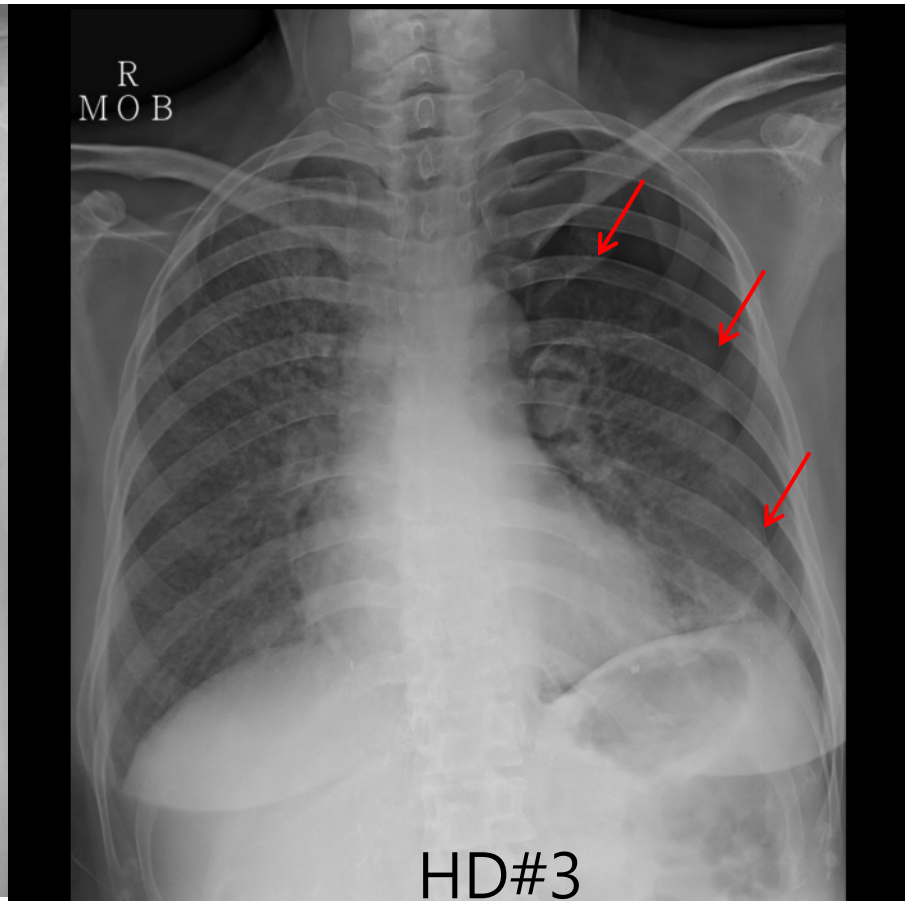
2nd 퇴원시



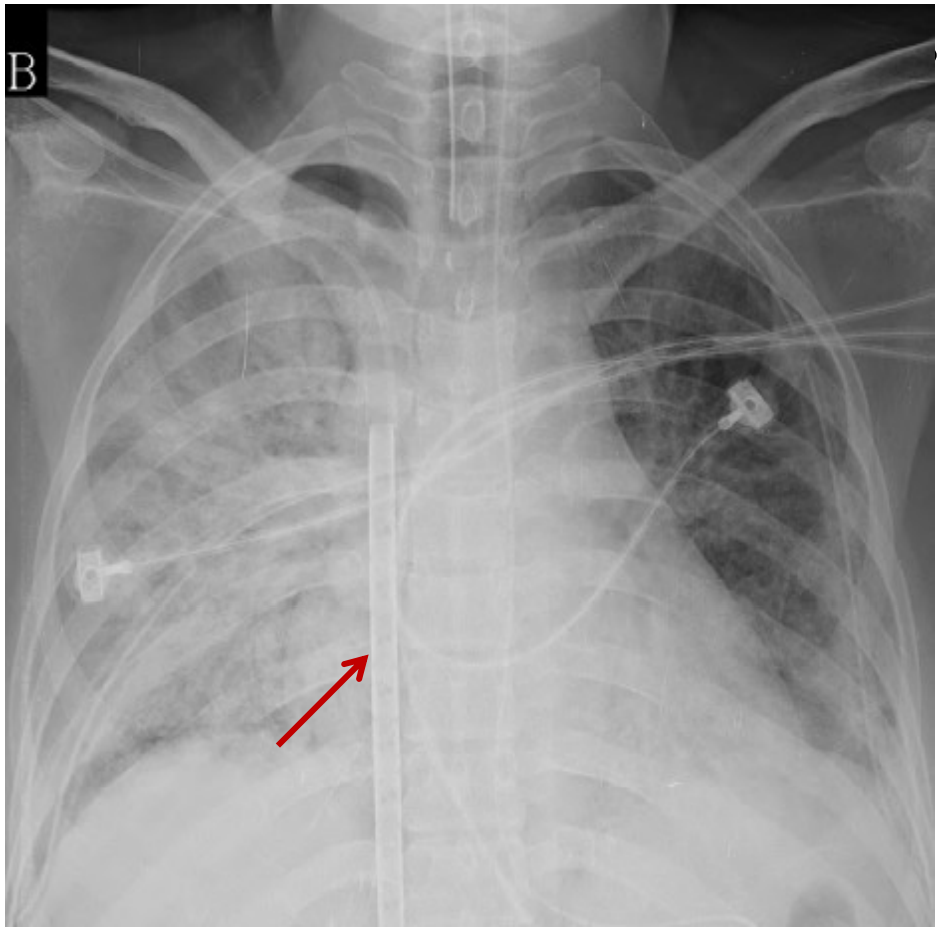
- Lt. pneumothorax develop: readmission

HD#3





HD #3



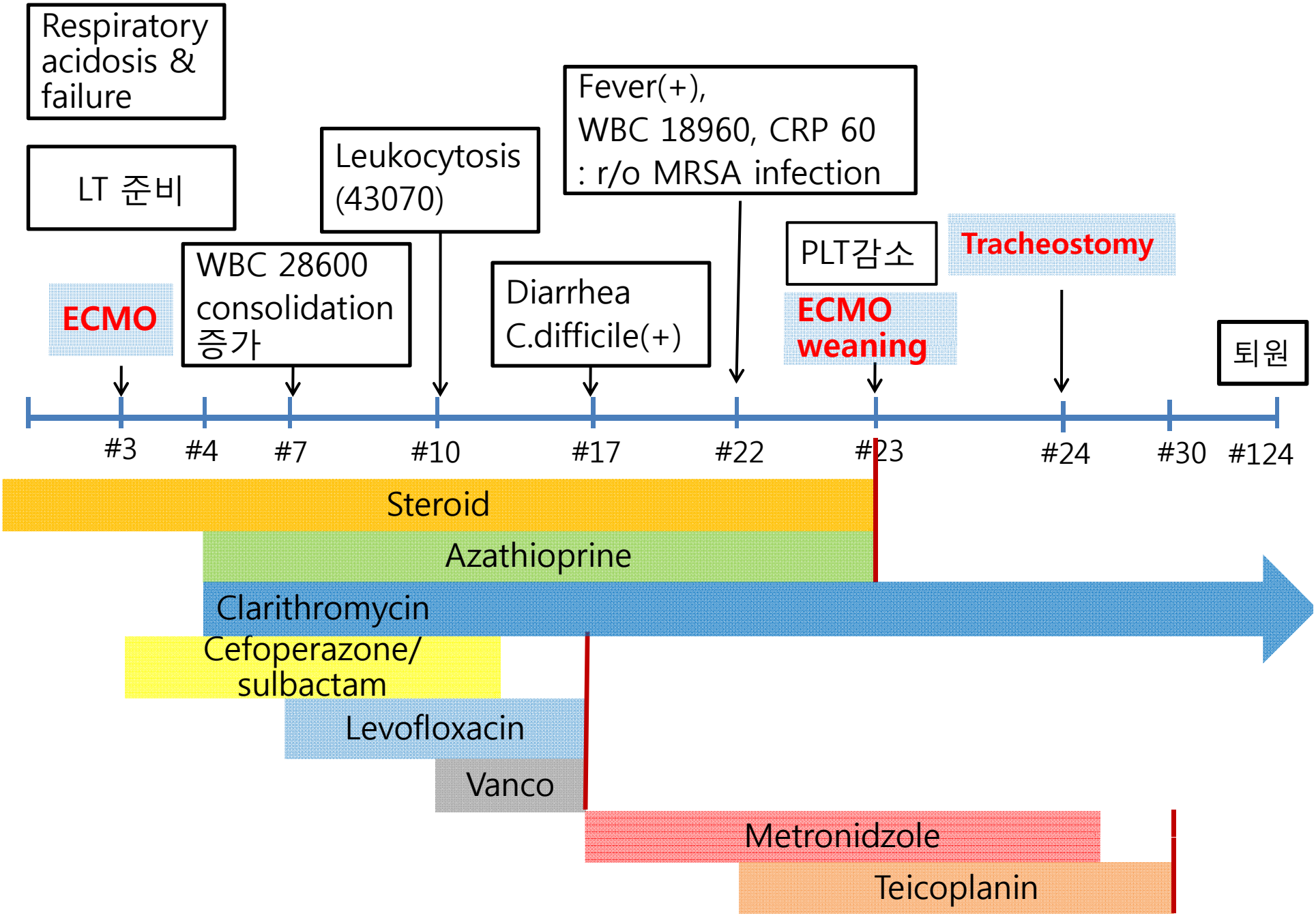
Respiratory acidosis & failure

– ABGA :

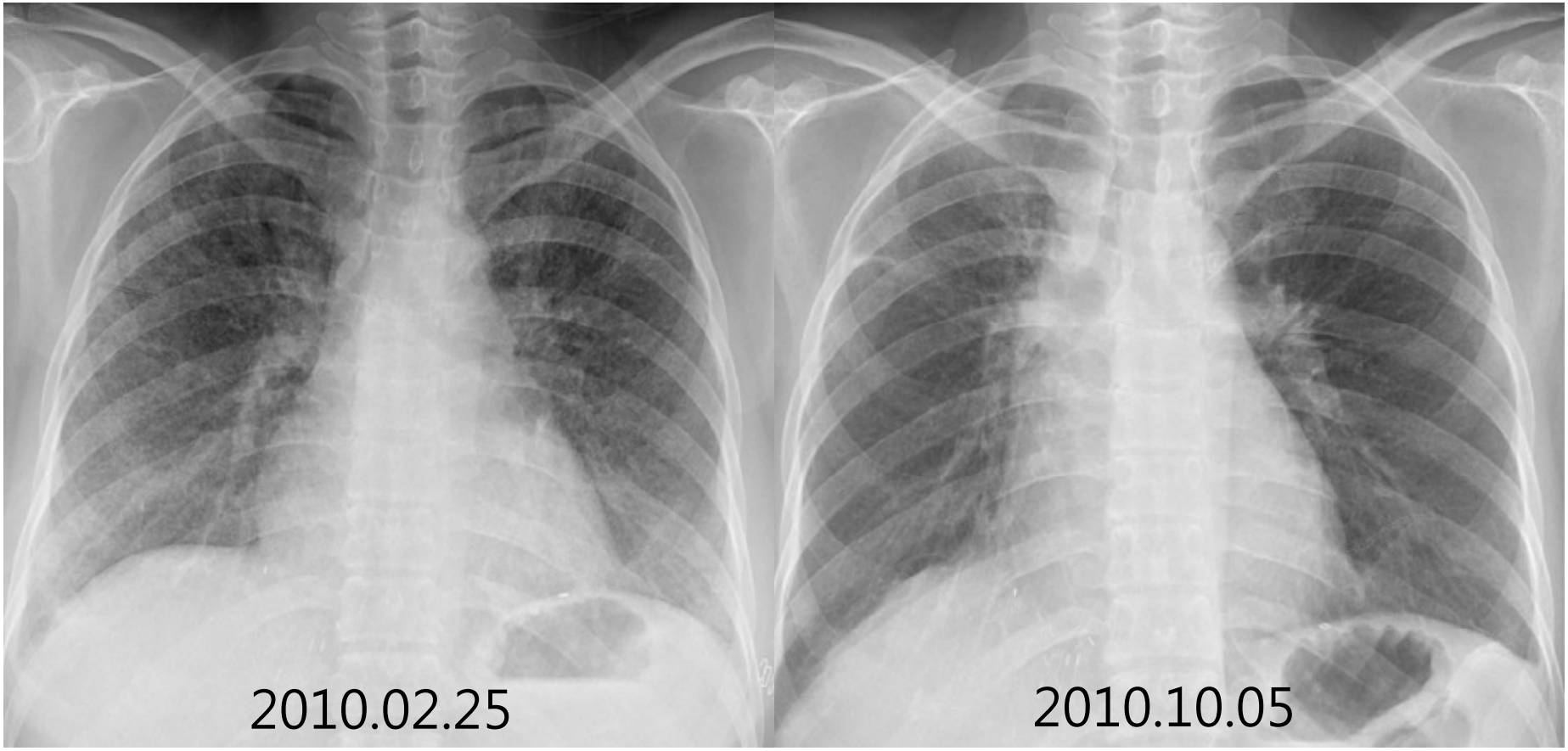
pH 7.023-PCO_2 142.2-PO_2 29.8 – HCO_3 36.1-SAT 33.1%

Intubation
Ventilator
(PC: PEEP 0 RR 22 FIO_2 100%)

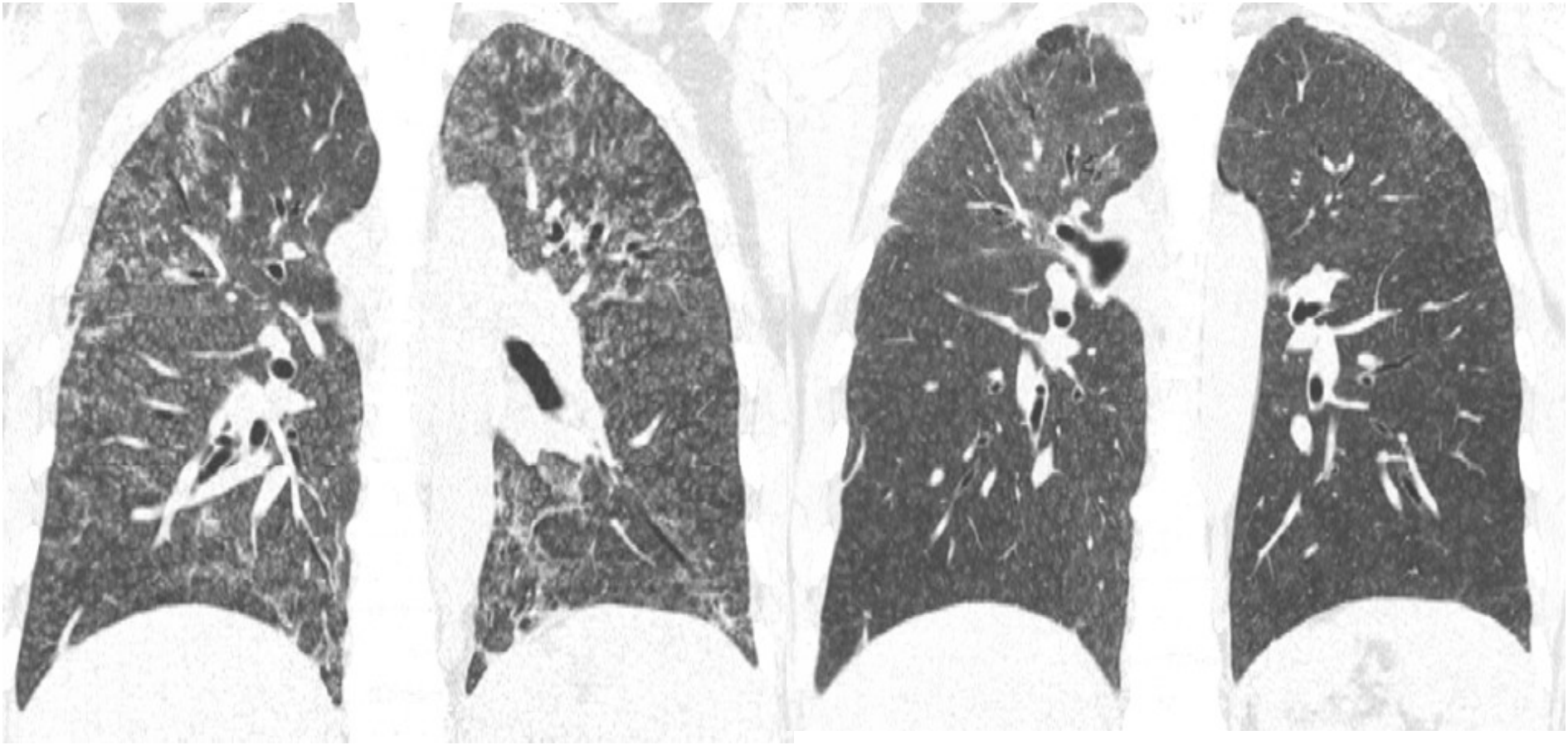
pH 6.975- PCO_2 228.5-PO_2 75.6- HCO_3 54.6-SAT 82.2%


Respiratory acidosis & failure
LT 준비
Leukocytosis (43070)
Fever(+), WBC 18960, CRP 60 : r/o MRSA infection
WBC 28600 consolidation 증가
ECMO
Diarrhea C.difficile(+)
PLT감소
Tracheostomy
ECMO weaning
퇴원
#3
#4
#7
#10
#17
#22
#23
#24
#30
#124
Steroid
Azathioprine
Clarithromycin
Cefoperazone/ sulbactam
Levofloxacin
Vanco
Metronidzole
Teicoplanin

f/u chest x-ray



f/u chest CT



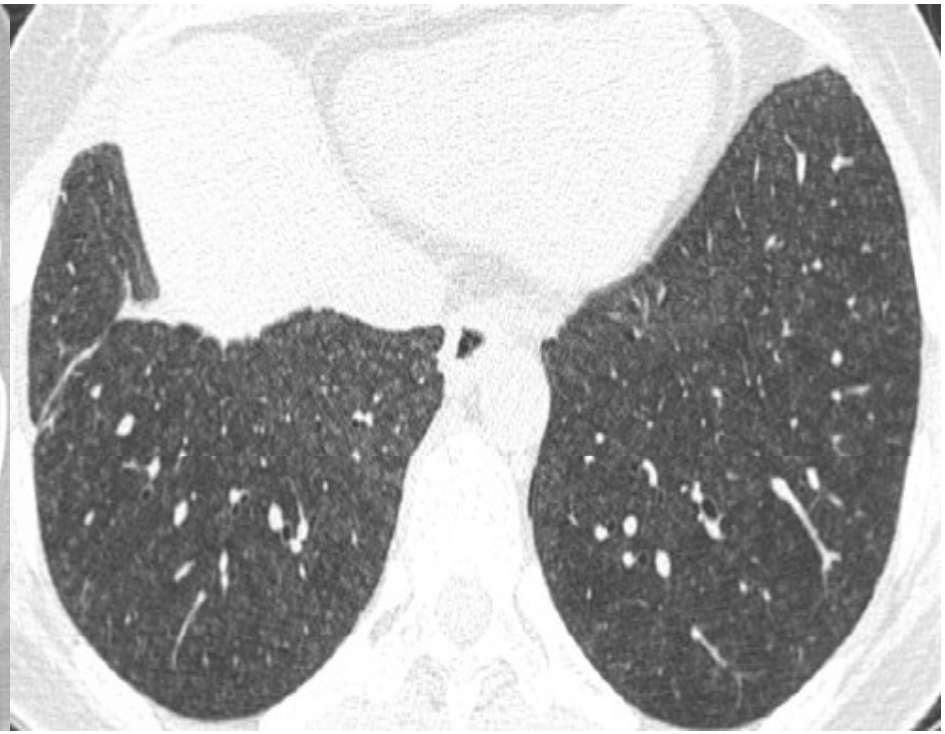
2010.02.25

2010.10.05

f/u chest CT

2010.02.25

2010.10.05



- Final Diagnosis
  - Cryptogenic organizing pneumonia

- Treatment
  - Clarithromycin

Review

COP (cryptogenic organizing pneumonia)

- Bronchiolitis obliterans organizing pneumonia (BOOP)
- Idiopathic BOOP

- Organization within alveolar ducts and alveoli ("organizing pneumonia") with or without organization within bronchioles ("polypoid bronchiolitis obliterans")

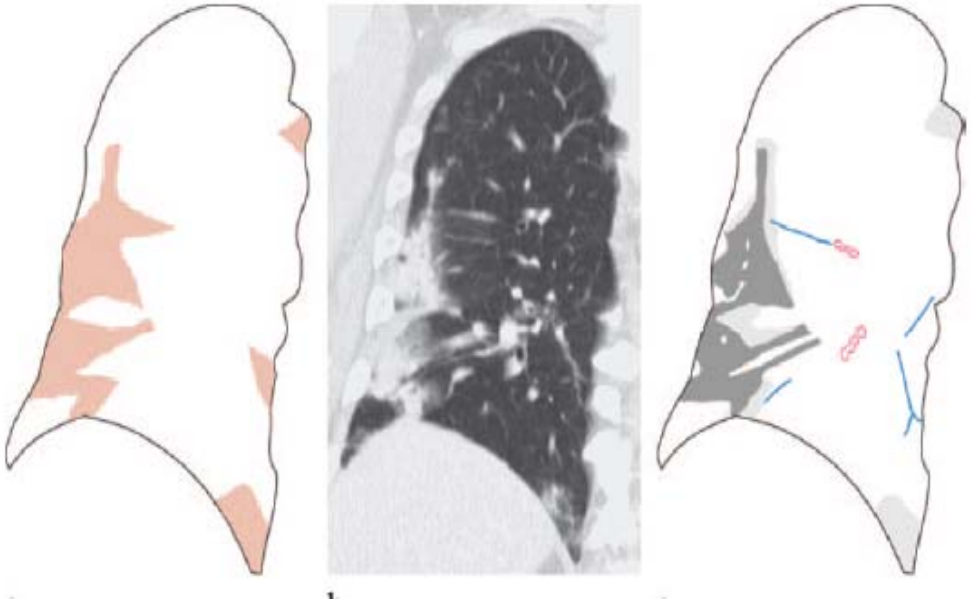
Am J Respir Crit Care Med 2002;165: 277-304

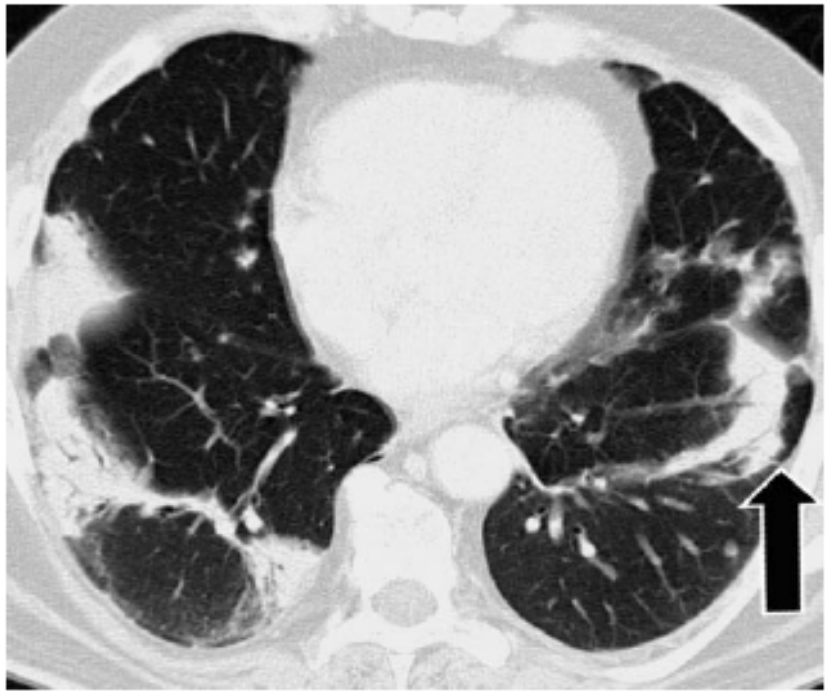
Clinical Features

- M=F, Mean age : 55yr
- Nonsmoker : smoker = 2:1
- Subacute (<2m)
  - Cough, dyspnea, whitish sputum, wt.loss, sweating, chill, intermittent fever, myalgia
  - Often received at least one and frequently several courses of antibiotics
- Clubbing(-)

Am J Respir Crit Care Med 2002;165: 277-304

Radiologic Features





Consolidaiton (90%)

Peripheral/peribronchiolar, lower lobe

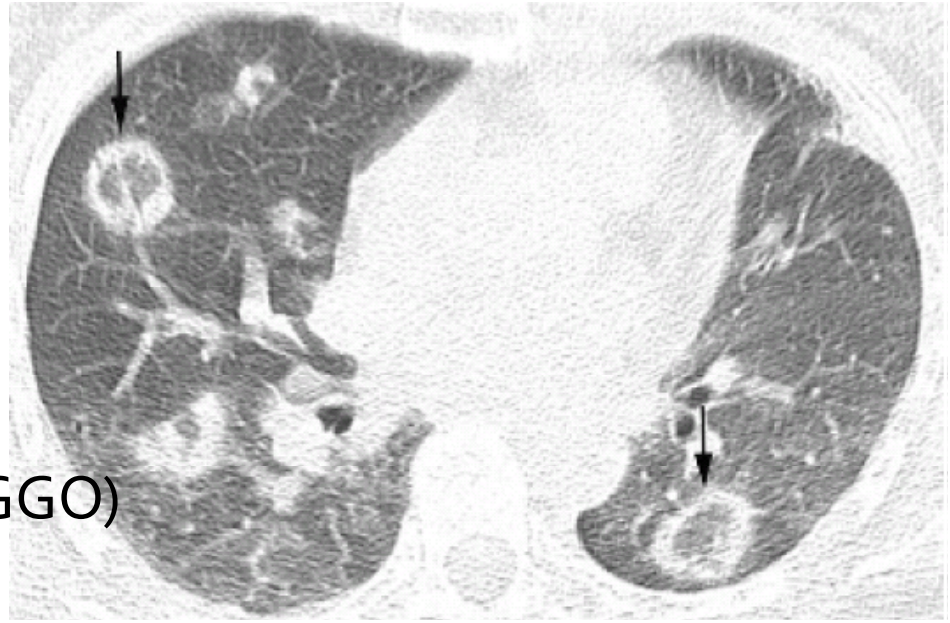
Mild bronchial dilation in the area of consolidation

GGO (60%), small nodules (50%)

Thorax 2007;62: 546-553

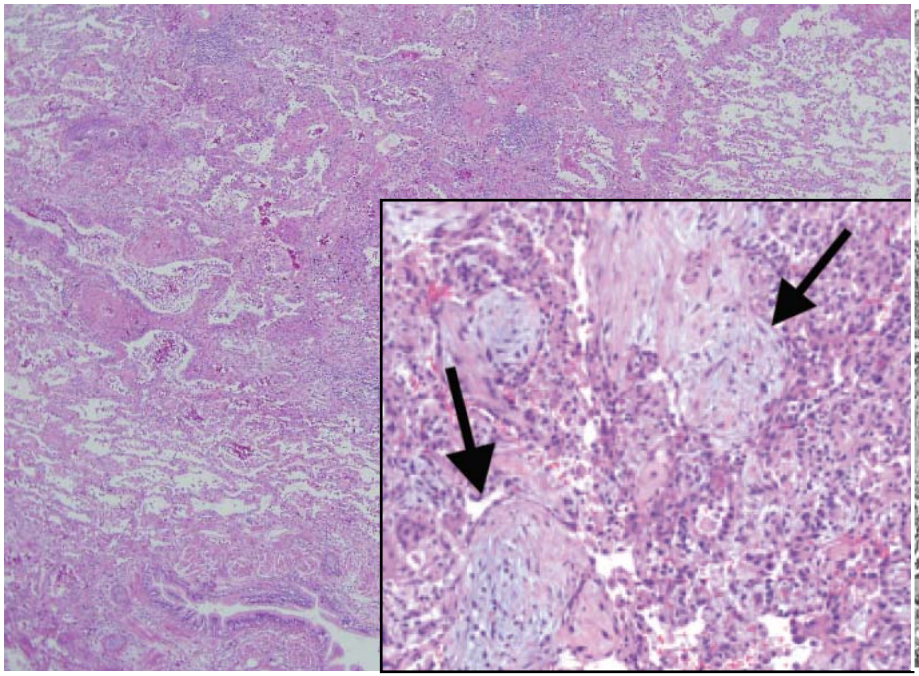
** Atypical

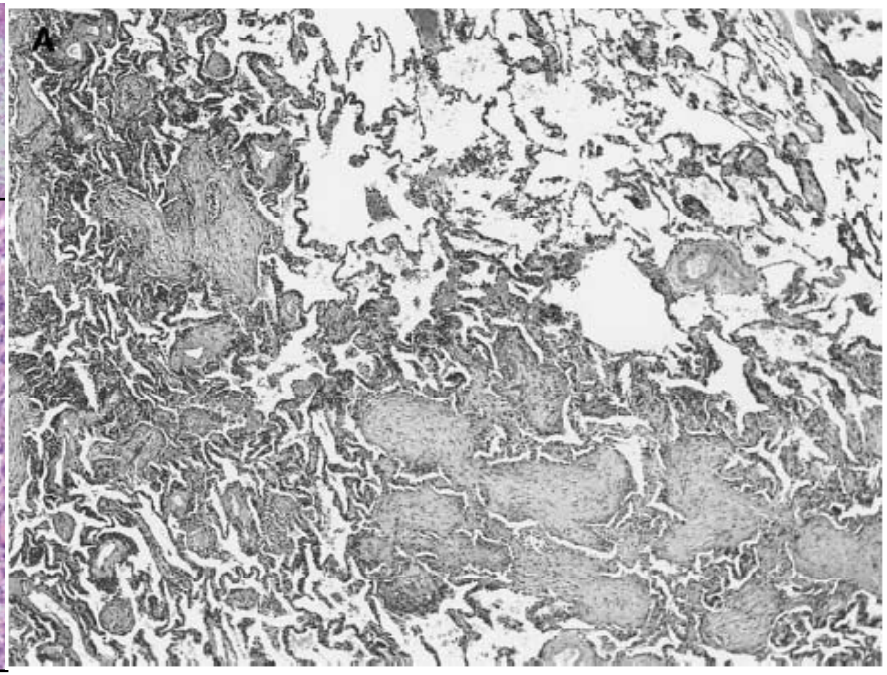
- Cavitary nodule
- Perilobular opacities
- Multiple masses
- Reverse halo sign
(PPh consolidation + central GGO)



Thorax 2007;62: 546-553

Histologic Features





Key Histologic Features	Pertinent Negative Findings
Organizing pneumonia : Intraluminal organizing fibrosis in distal airspaces (bronchioles, alveolar ducts, alveoli) **Patchy distribution** **Preservation of lung architecture** Uniform temporal appearance Mild interstitial chronic inflammation	Lack of interstitial fibrosis (except for incidental scars or apical fibrosis) Absence of granulomas Lack of neutrophils or abscesses Absence of necrosis Lack of hyaline membranes or prominent airspace fibrin Lack of prominent infiltration of eosinophils Absence of vasculitis

- Clinical course
  - Majority : recover completely on administration of oral corticosteroid
  - Significant number relapse within 1 to 3 mon
    - Corticosteroids are reduced (usually to below 15 mg/d) or stopped
  - Prolonged treatment for 6 mo or longer
  - Other options for progression despite steroids
    - *Macrolides* (Data limited to a few case reports)

opinions and hypotheses

Macrolides*

A Treatment Alternative for Bronchiolitis Obliterans Organizing Pneumonia?

Diane F. Stover, MD, FCCP; and Debra Mangino, DO

Some macrolid… …h as asthma, panbr… …the immunomodula… …olitis obliterans orga… …cases of radiation-related bronchiolitis obliterans organizing pneumonia th… …d to macrolide therapy. An explanation of why macrolides may have anti-inflammatory effects … …atients with these syndromes is discussed. These cases help to reinforce accumulating data that macrolides are beneficial as anti-inflammatory agents and organizing pneumonia may be another pulmonary disease that can benefit from such therapy.

(CHEST 2005; 128:3611–3617)

Macrolides are beneficial as **anti-inflammatory** agents and organizing pneumonia may be another pulmonary disease that can benefit from such therapy

Organizing pneumonia — clarithromycin treatment

Introduction: Organizing pneumonia (OP) is a rare syndrome that has been associated with a variety of underlying factors including infections, collagen vascular diseases, toxic fumes, cancer, drugs and radiotherapy. A cryptogenic form is also observed. OP is a curable disease in the most cases. Steroids are the standard therapy, but other treatment regimens have been used as well.

Material and meth

selected for the stu

5 patients, and in 7 p

Results: Dyspnoea

pain (8%) were the n

of ground glass att

clarithromycin (CLA

clinical and radiological remission

months of CLA therapy in 7 and a partial response in an additional 2 patients, in whom treatme

ged to 4 months. During the first month of CLA treatment 3 patients did not respond to the therapy

rednisone was introduced. The observation period ranged from 30 to 90 months (mean 42 months). Adver

eaction to CLA and relapse did not occur.

Conclusions: OP can be treated with clarithromycin. It may be an alternative treatment, particularly for patients in good clinical status and in whom the probability of adverse events in the course of corticotherapy is high.

OP can be treated with clarithromycin.
It may be an alternative treatment, particularly for patients in good clinical status and in whom the probability of adverse events in the course of corticotherapy is high

Key words: cryptogenic organizing pneumonia, antibiotic therapy, corticosteroid therapy, clarithromycin

Pol. Pneumonol. Allergol. 2008; 76: 334–339

Macrolides

- 1970, Itkinetal
  - Asthmatic patients
  - Erythromycin & troleandomycin

- Studies from Japan
  - DPB(diffuse panbronchiolitis)
    - Infiltration of respiratory bronchioles with inflammatory cells (Polymorphonuclear cell)
  - Erythromycin

- Macrolides

  *"Not as anti-infectious agents but as **anti-inflammatory drugs**"*

  – Direct immunosuppressive effect on neutrophil & T-cell functions

    - Inhibit neutrophil oxidation bursts
    - Suppress granulocyte macrophage-colony simulating factor
    - Reduce or block production of both tumor necrosis factor-a & certain adhesion molecules

Take home message

- **COP**
  - Subacute onset
  - Organization within alveolar ducts, alveoli, bronchioles
  - Bibasilar, patchy alveolar infiltrates with a peripheral distribution
  - Majority of Pts recover completely on administration of oral corticosteroid
  - Other options for progression despite steroids
    - Macrolides