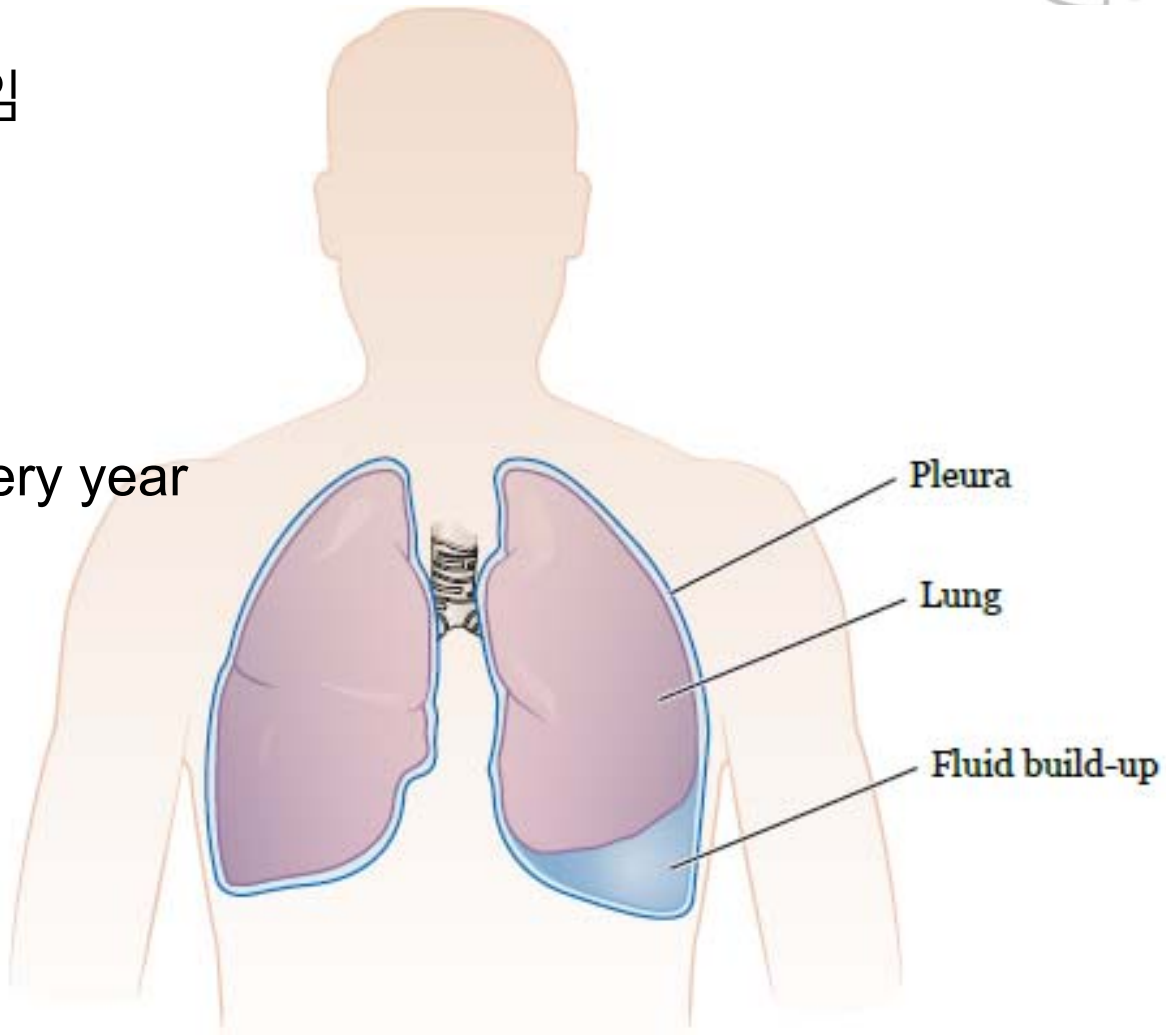
부산경남내과학회

증례

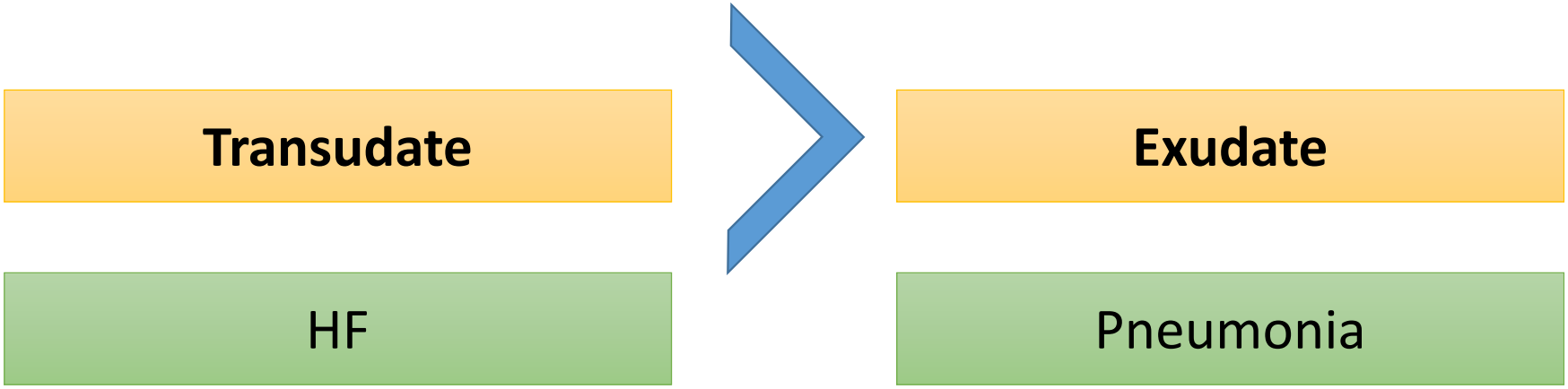
동아대병원
중환자의학과 / 호흡기내과
이동현

Pleural Effusion

- Pleural cavity 내에 과도한 액체가 고임
- Pleural fluid의 생성과 흡수의 불균형
- Common
  - 1 – 1.5 million new cases in US every year
  - 200,000 – 250,000 in UK
- Pneumonia에서의 PE의 빈도
  - >50%



Most Common Cause?



Cause of Pleural Effusion

Transudate	Exudate
HF	Pneumonia
LC	Malignancy
Nephrotic SD	Tbc
Urinothorax	Pulmonary embolism
Hypothyroidism	SLE, RA…
Hypoalbuminemia	Pancreatitis
CSF leakage	Liver abscess
…	…

M/83 Diastolic HF

◆ DIASTOLIC FUNCTION

Mitral:E: 105 cm/s A: cm/s, E/A : DT : 103 m/s

Tissue Doppler: Septal annulus: Sa: 6.1 cm/s, Ea: 6.7 cm/s, Aa: cm/s

Lateral annulus: Sa: 11.1 cm/s, Ea: 9.5 cm/s, Aa: cm/s

E/Ea (septal): 15.7 , E/Ea (lateral) : 11.1

LV Relaxation	Abnormal LV relaxation	LV Filling pressure	Elevated

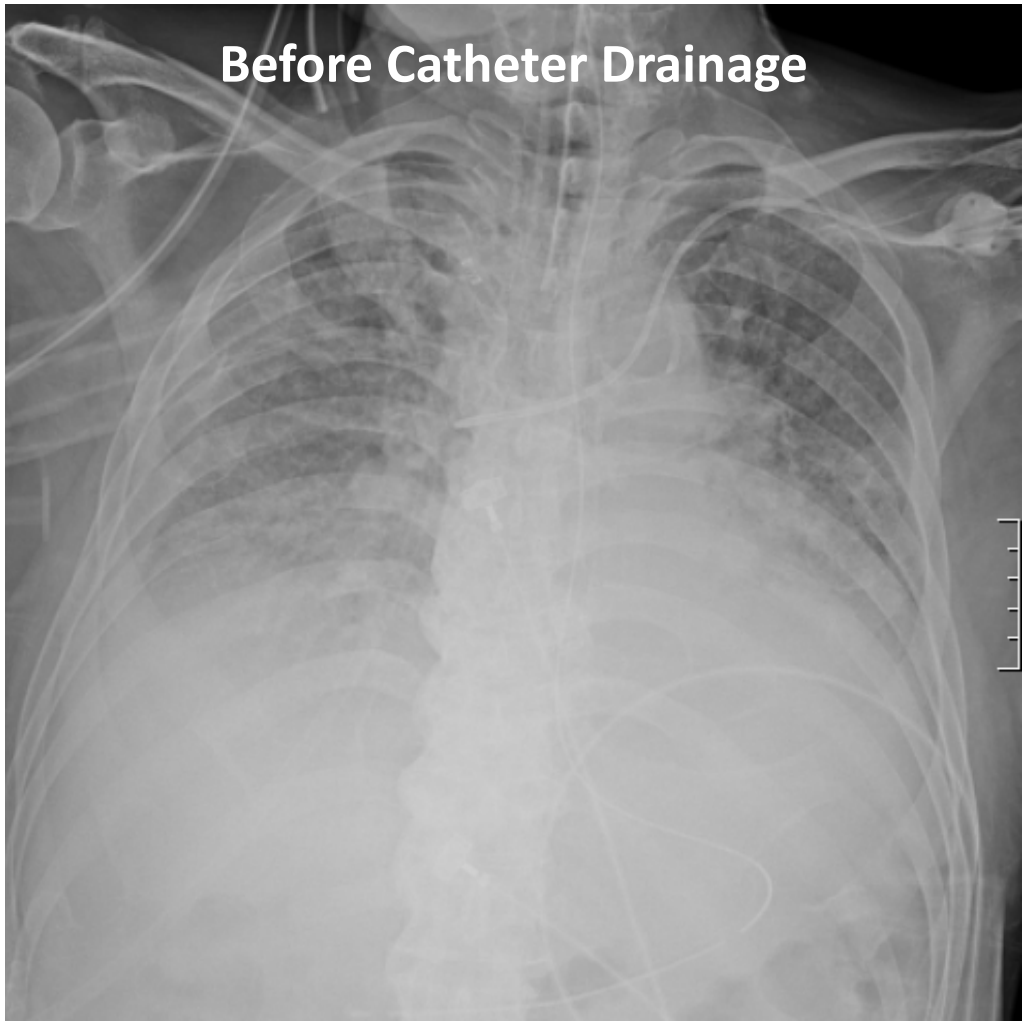
TR velocity : 3.5 m/s, RA pressure : 10 mmHg, Pa systolic pressure : 50 mmHg

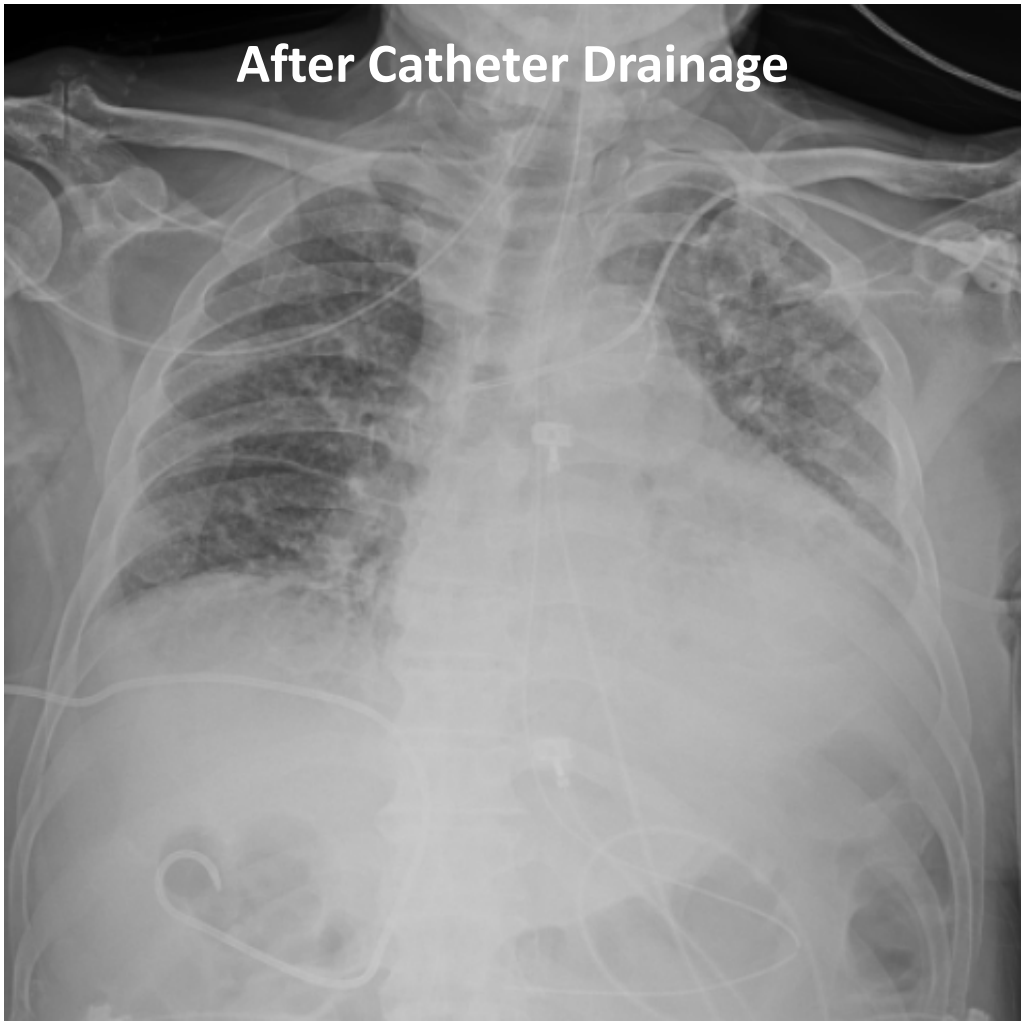
Stroke Volumn : ml, HR : bpm, Cardiac output : L/min

Strain imaging : LV GLS : -19 %

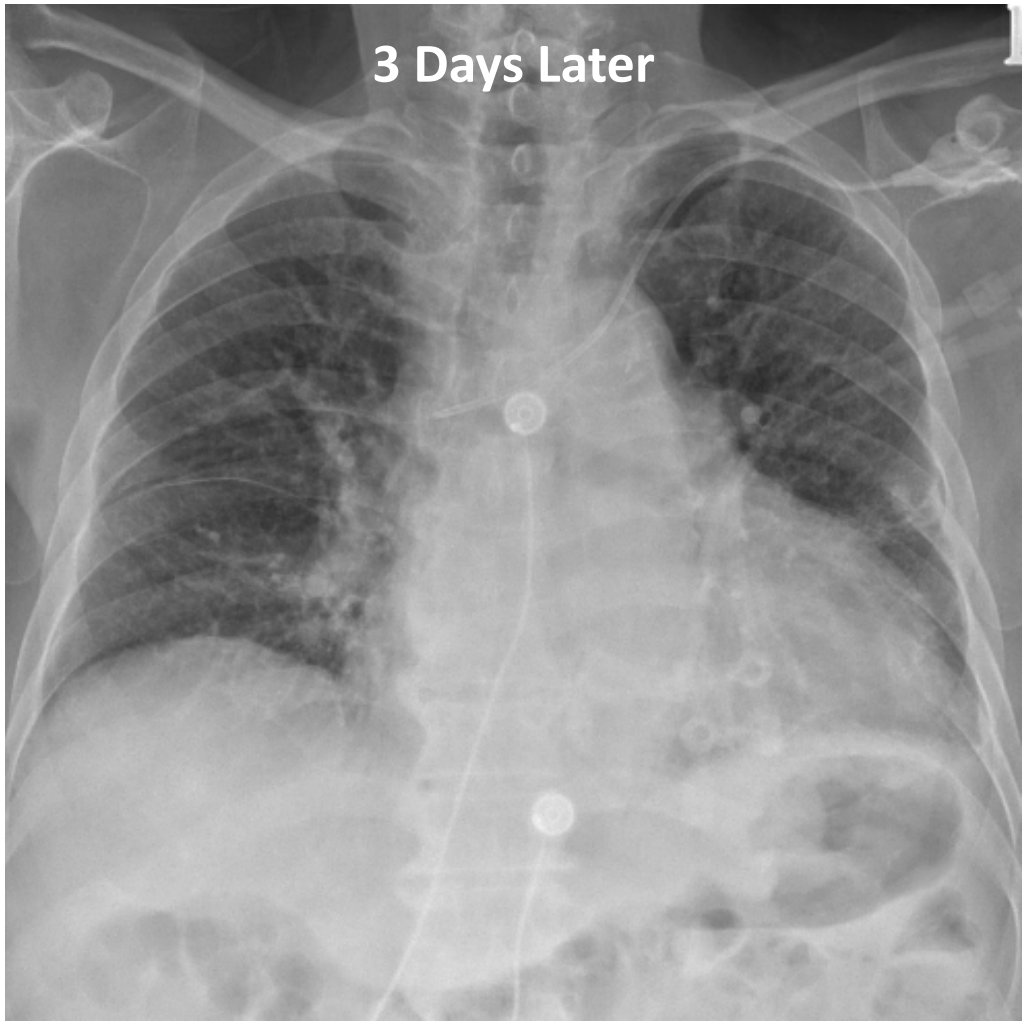
Ventilator Weaning Failure

M/83 Diastolic HF





M/83 Diastolic HF



검사명	결과
Serum Protein	3.1
Pleural Fluid Protein	0.5
Serum LDH	272 (480)
Pleural Fluid LDH	75

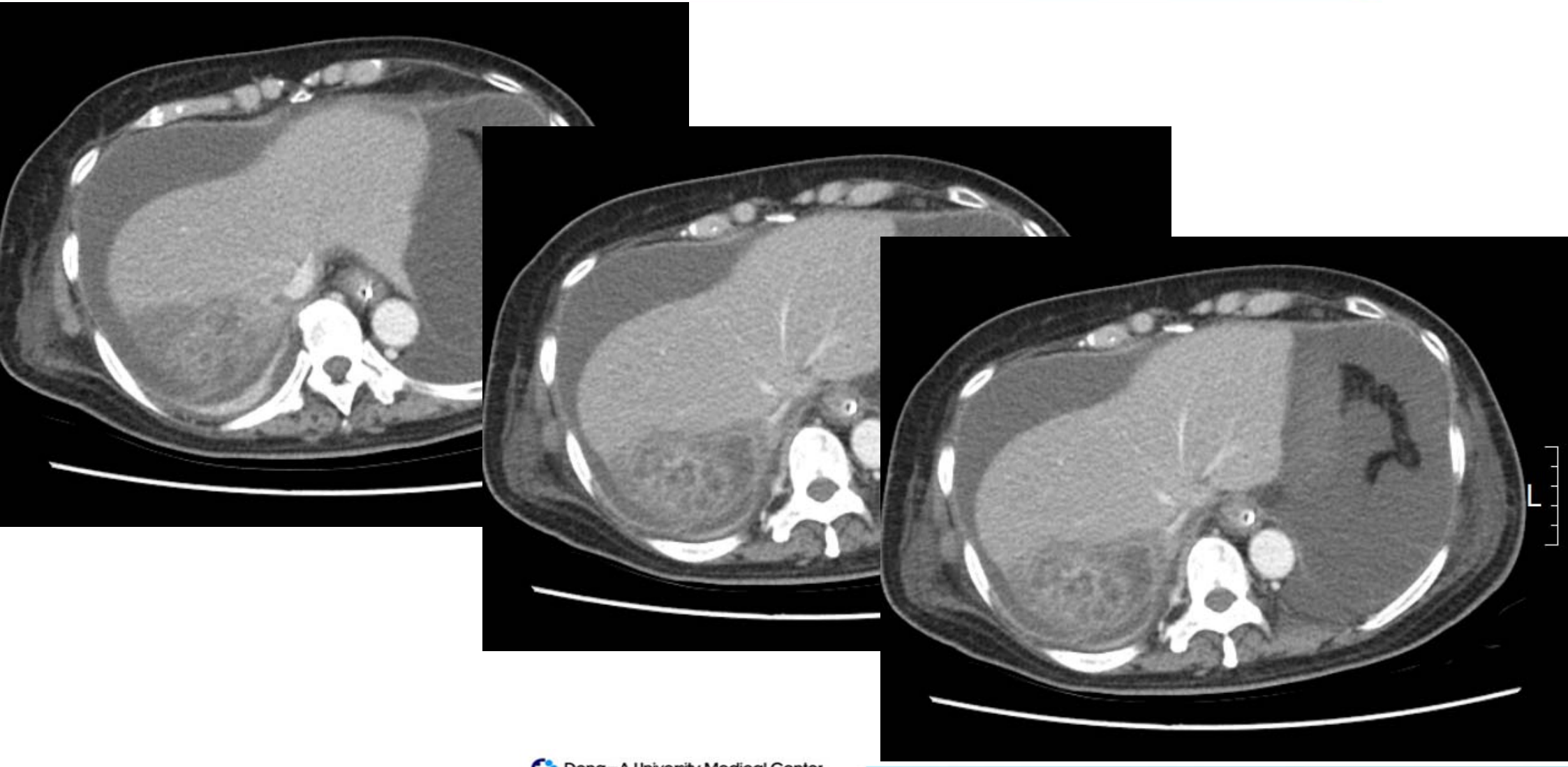
Transudate

Light Criteria

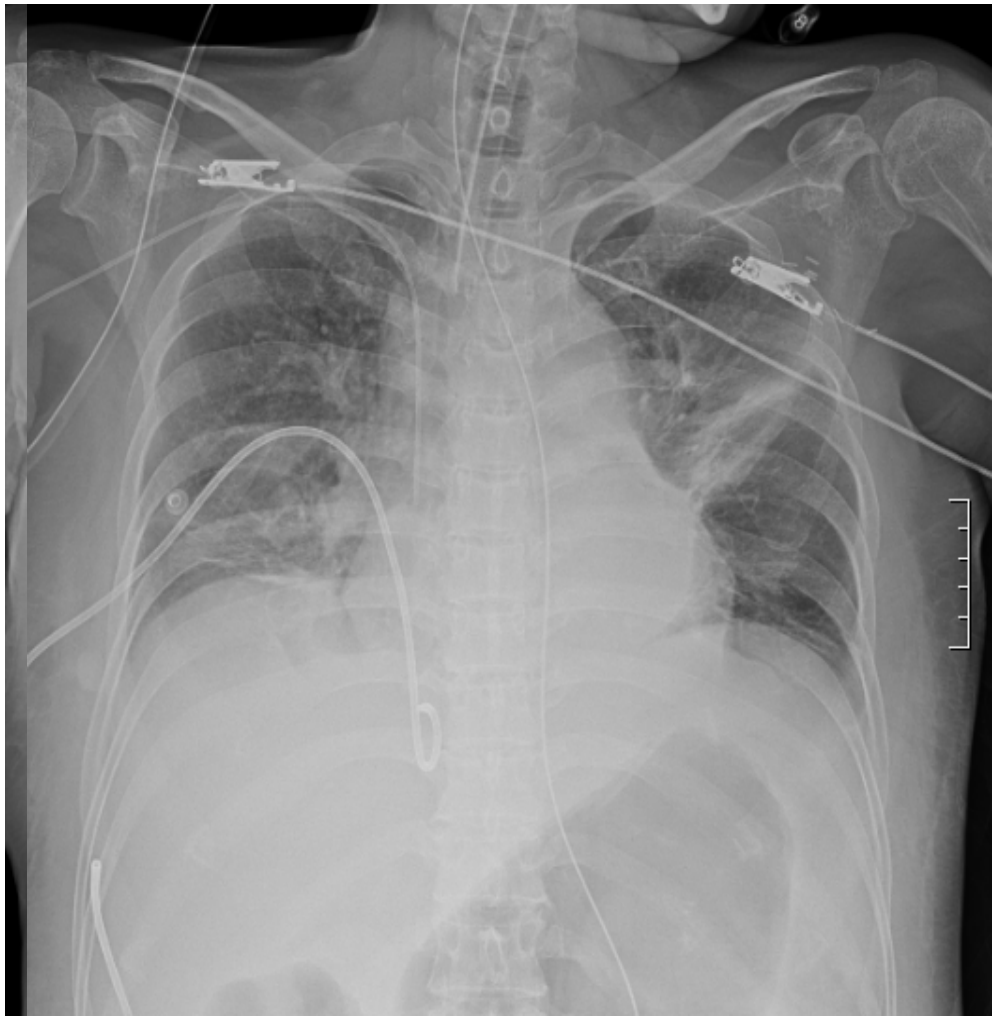
Pleural Fluid Protein / Serum Protein	> 0.5
Pleural Fluid LDH / Serum LDH	> 0.6
Pleural Fluid LDH	> 2/3 of Normal Limit

하나라도 만족하면 Exudate!!

F/63 Liver abscess



F/63 Liver abscess



검사명	결과
Serum Protein	5.1
Pleural Fluid Protein	2.9
Serum LDH	(480)
Pleural Fluid LDH	398

Exudate

Cause of Pleural Effusion

Transudate	Exudate
HF	Pneumonia
LC	Malignancy
Nephrotic SD	Tbc
Urinothorax	Pulmonary embolism
Hypothyroidism	SLE, RA…
Hypoalbuminemia	Pancreatitis
CSF leakage	Liver abscess
…	…

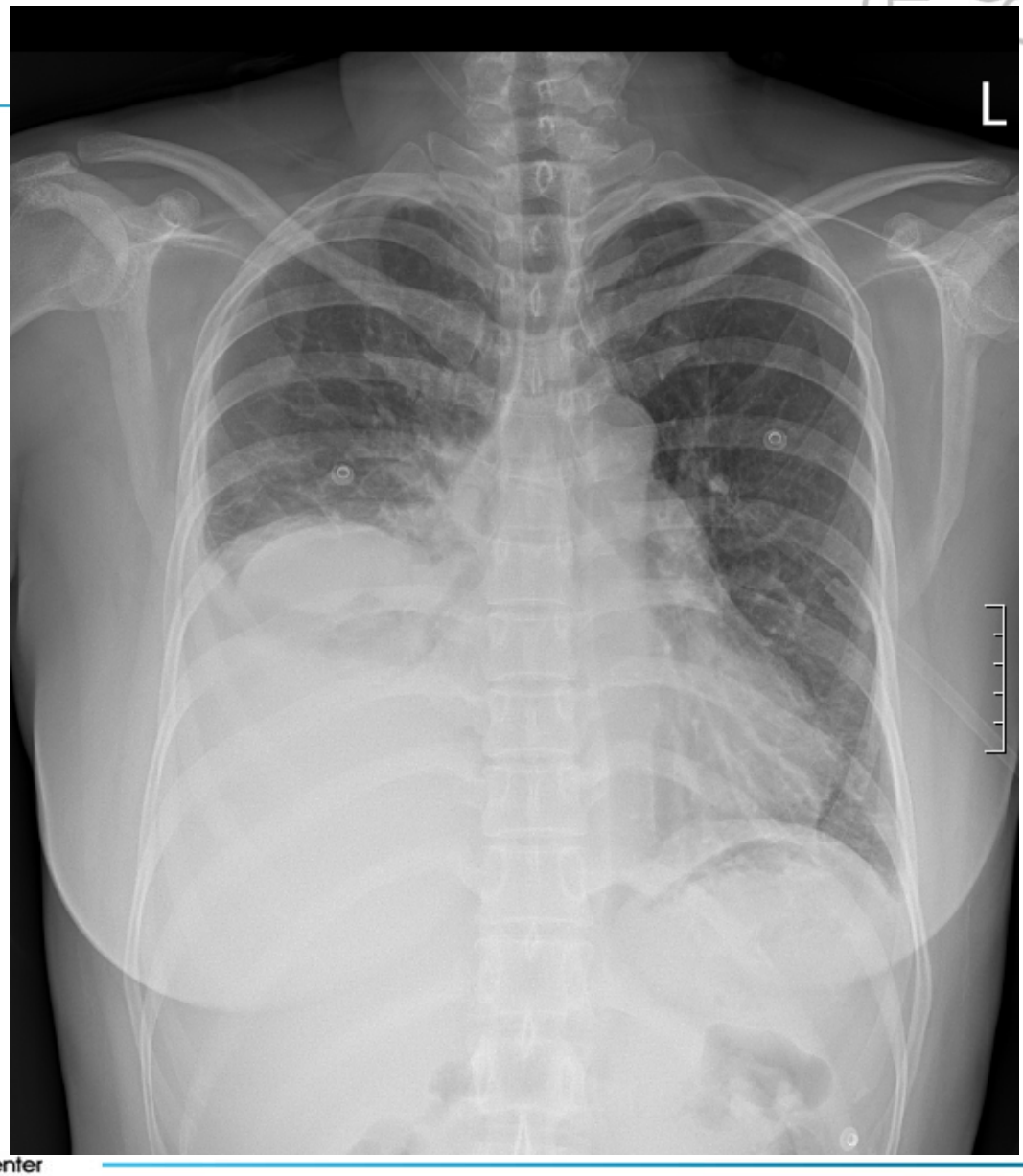
Pleural Effusion의 증상?

- 증가하는 속도
- Effusion의 양
- 원인 질환, 동반 질환
- 환자의 폐기능
  → 에 따라 다양하게 나타난다.

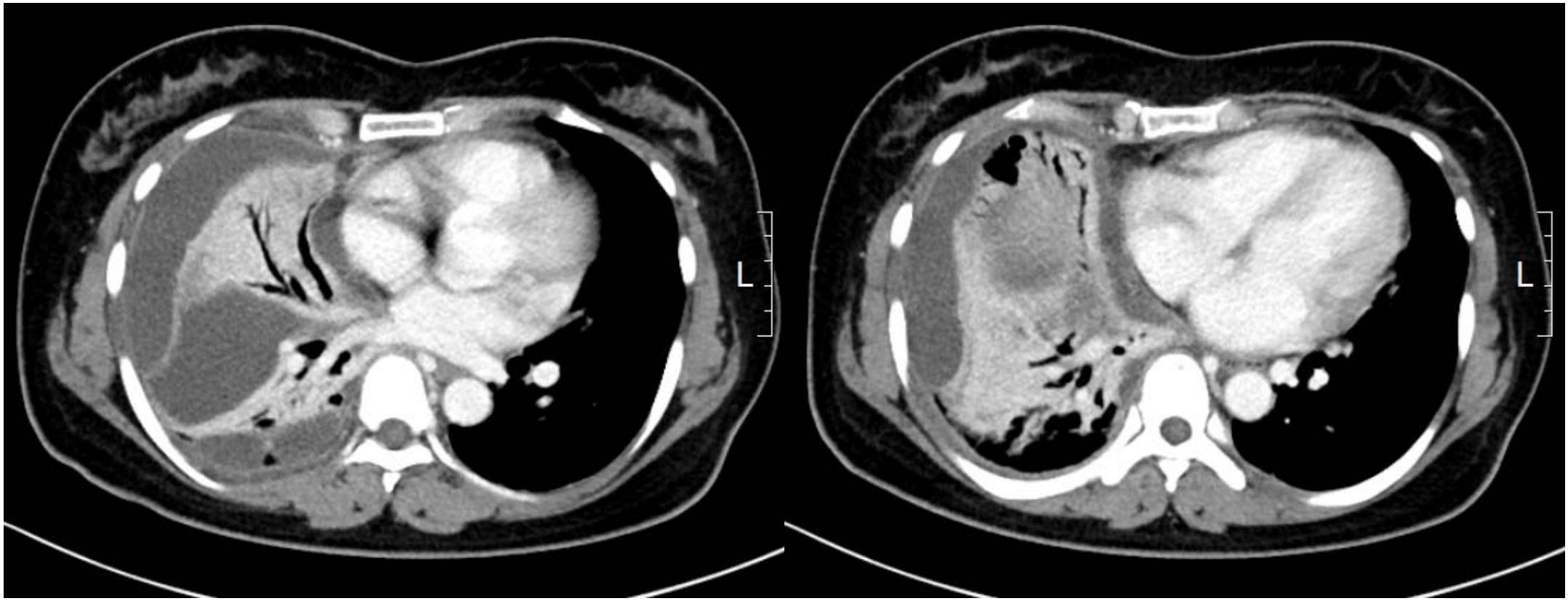
- 호흡곤란
- 기침 (non-productive)
- 흉통 (pleuritic)

F/47 Fever

- 1 개월 전부터 마른기침 가끔
- 1주 전부터 발열, 오한
- 2일 전부터 전흉부 통증



F/47 Fever



처음 고민하는 문제

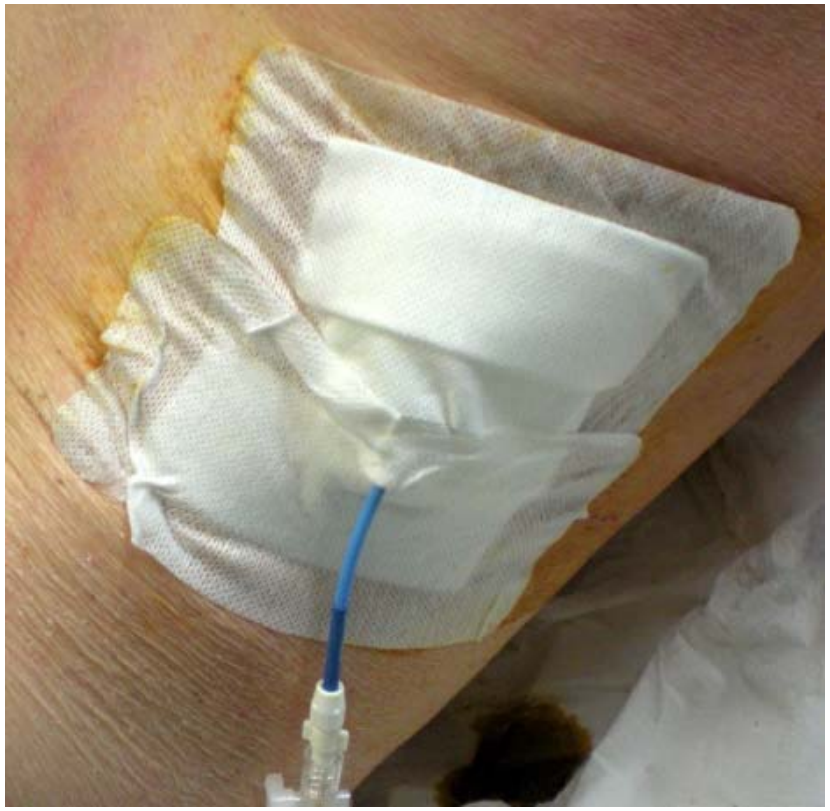
- “뺄 것인가?”
- “원인은?”
- “Complicated 인가?”

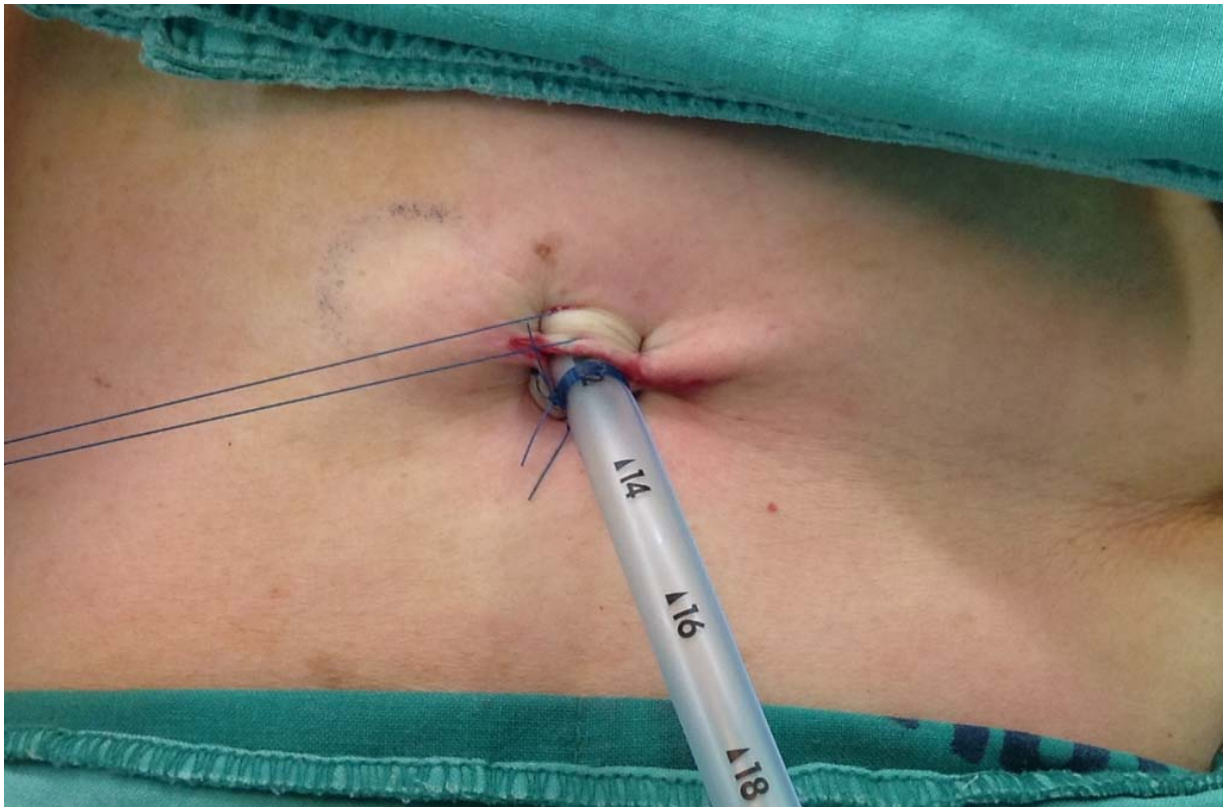
Complicated Effusion

- Bacterial invasion into pleural space

- Neutrophils ↑
- Pleural fluid acidosis
- Glucose ↓
- LDH ↑↑
- Gram stain: bacteria
- Gross pus
- Foul odor of pleural fluid
- Pleural thickening (fibrin), loculation

‘Drainage Catheter’ vs ‘Chest Tube’





꼭 해야 할 병력청취

- 증상의 정도, 기간, 악화되는 속도
- 전신 증상의 여부 (발열, 오한, 발한, 체중감소..)
- 심장, 간, 신장의 주요 질환 여부
- 최근의 입원력, 흉부에 관련된 질환/외상이나 흉부의 시술, 수술 여부
- 악성 질환의 병력
- 결핵의 과거력/치료 여부, 감염 가능성 (접촉자)
- 직업력, 석면이나 분진 노출 여부
- 흡연
- 약물 복용 (특히 최근에 시작했거나 바뀐 약, 항응고제)

F/77, HF, Ventilator Weaning Failure

◆ CARDIAC SIZE AND FUNCTION

Measurements

	M-mode	2-D		M-mode	2-D
LVIDd(mm)	63	63	Aortic root(mm)	35	
LVIDs(mm)	51		Ascending aorta(mm)		
LVSd(mm)	9		LA		
LVPWd(mm)	9				
LVOTd(cm)		2.0			

LV Size is	Severely enlarged
LV Function is	Severely depressed
EF is	20-24%
Wall Motion shows	Global hypokinesia

◆ SUMMARY

*Severe LVE/LAE

*Eccentric LVH

*Global hypokinesia

*Severe LV dysfunction and normal RV function

*AoV: mild calcification and normal motion, root calcification

*MV: mild thickening and tethering motion, MAC

*Mild MR, trace AR/PR, mild TR with pulmonary HTN

*Small pericardial effusion (RA:1.2cm) *Tachycardia noted during the study

*Dilated IVC (diameter:2.3cm) not well collapsed

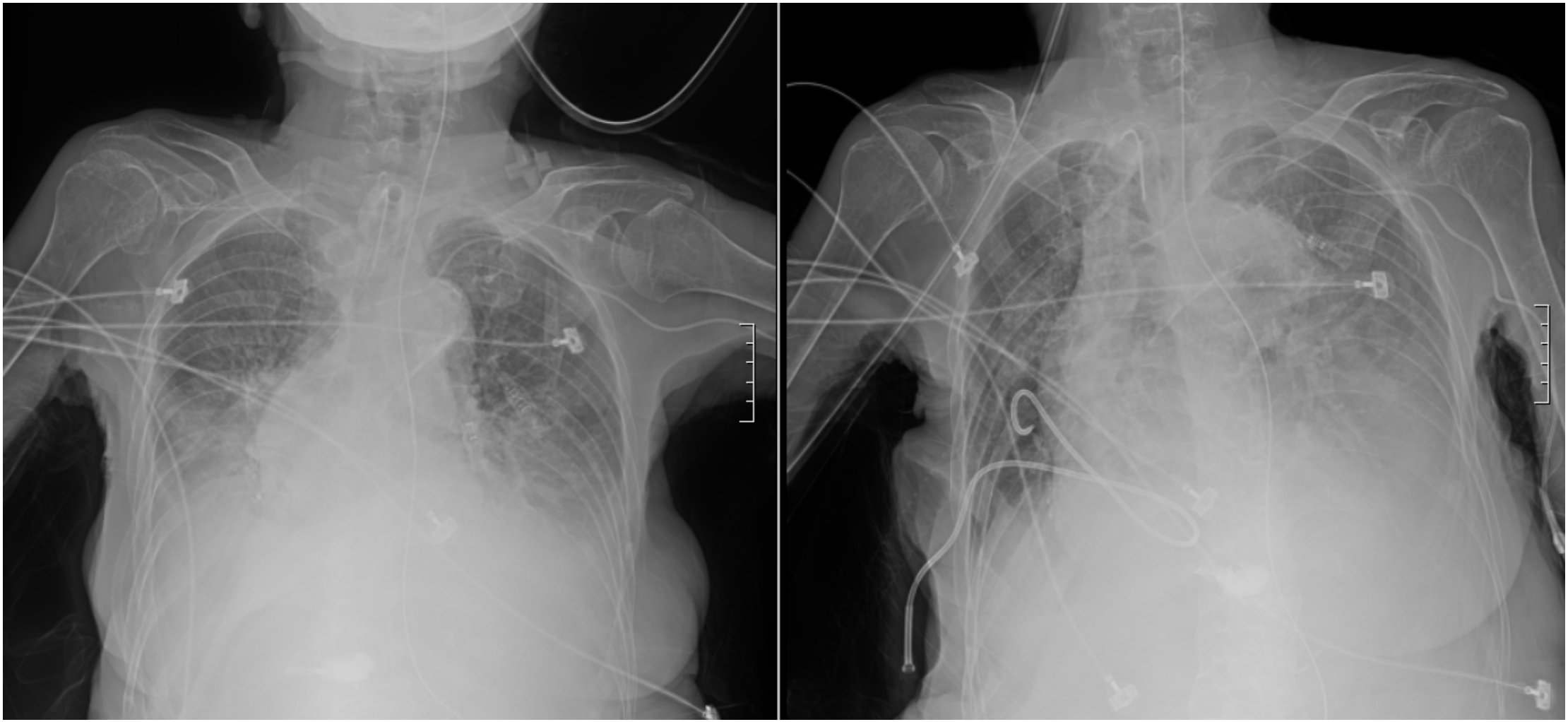
◆ COMMENTS

Severe LV dysfunction with global hypokinesia

Severe LVE, severe LAE, AF

Pulmonary HTN

F/77, HF, Ventilator Weaning Failure



F/77, HF, Ventilator Weaning Failure

검사명	결과
Serum Protein	5.4
Pleural Fluid Protein	3.2
Serum LDH	238 (480)
Pleural Fluid LDH	195

Exudate

Cause of Pleural Effusion

Transudate	Exudate
HF	Pneumonia
LC	Malignancy
Nephrotic SD	Tbc
Urinothorax	Pulmonary embolism
Hypothyroidism	SLE, RA…
Hypoalbuminemia	Pancreatitis
CSF leakage	Liver abscess
…	…

Tb Pleurisy

- 폐외결핵의 한 종류

- 진단
  - 삼출액 (exudate)
  - ADA > **70** [>40?]
  - Lympho-dominant (lympho > 50%)

- 치료: 6개월 요법

결핵성 흉막삼출액에서 흉수 Adenosine Deaminase치와 림프구/호중구 비의 진단적 유용성

경상대학교 의과대학 내과학교실

신민기, 함현석, 이동원, 조유지, 정이영, 김호철, 이종덕, 황영실

The Diagnostic Usefulness of Pleural Fluid Adenosine deaminase with Lymphocyte/Neutrophil Ratio in Tuberculous Pleural Effusion

Min Khi Shin, M.D., Hyun Seok Ham, M.D., Dong Won Lee, M.D., Yoo Ji Cho, M.D., Yi Yeong Jeong, M.D., Ho Cheol Kim, M.D., Jong Deok Lee, M.D., Young Sil Hwang, M.D.

Department of Internal Medicine, College of Medicine, Gyeongsang National University, Jinju, Korea

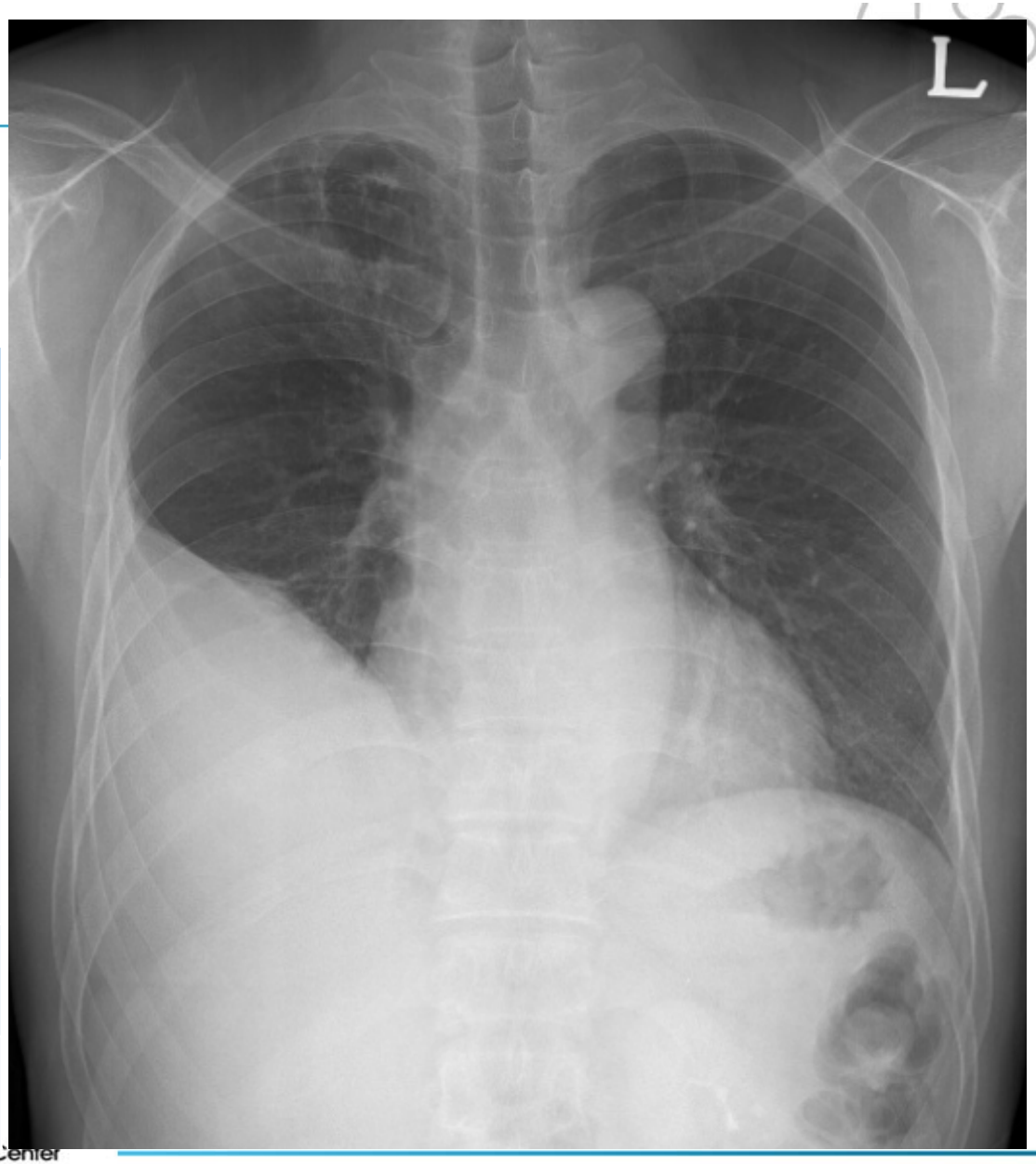
1999년 1월부터 2001년 12월까지 경상대학교병원 내과에 흉수로 내원하여 원인 질환이 밝혀진 198명의 환자들을 대상으로 후향적 조사를 시행하

총 198명의 환자가 연구에 포함되었고 결핵성 흉막삼출액이 91명(나이: 50.1±21.9, 남/여=60/31), 부폐렴성 흉막삼출액이 65명(나이: 60.1±14.1, 남/여=52/13),

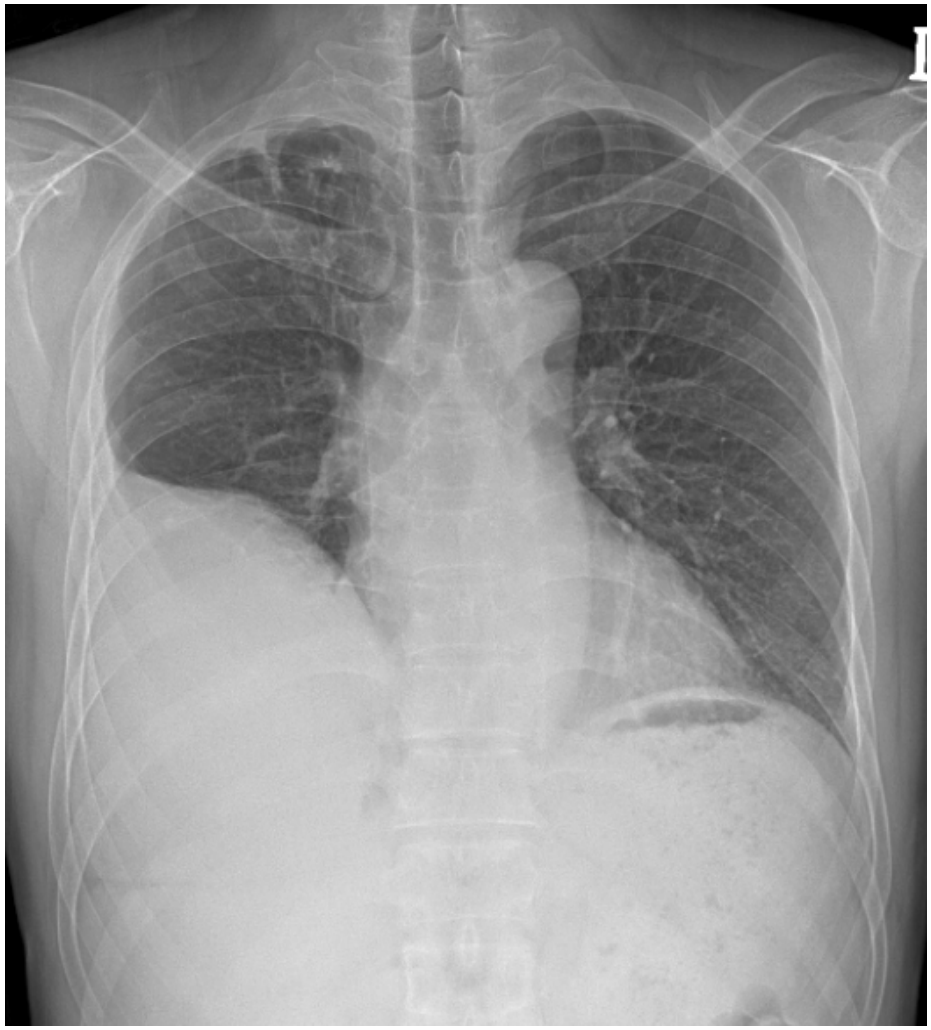
M/53, Pleural Effusion

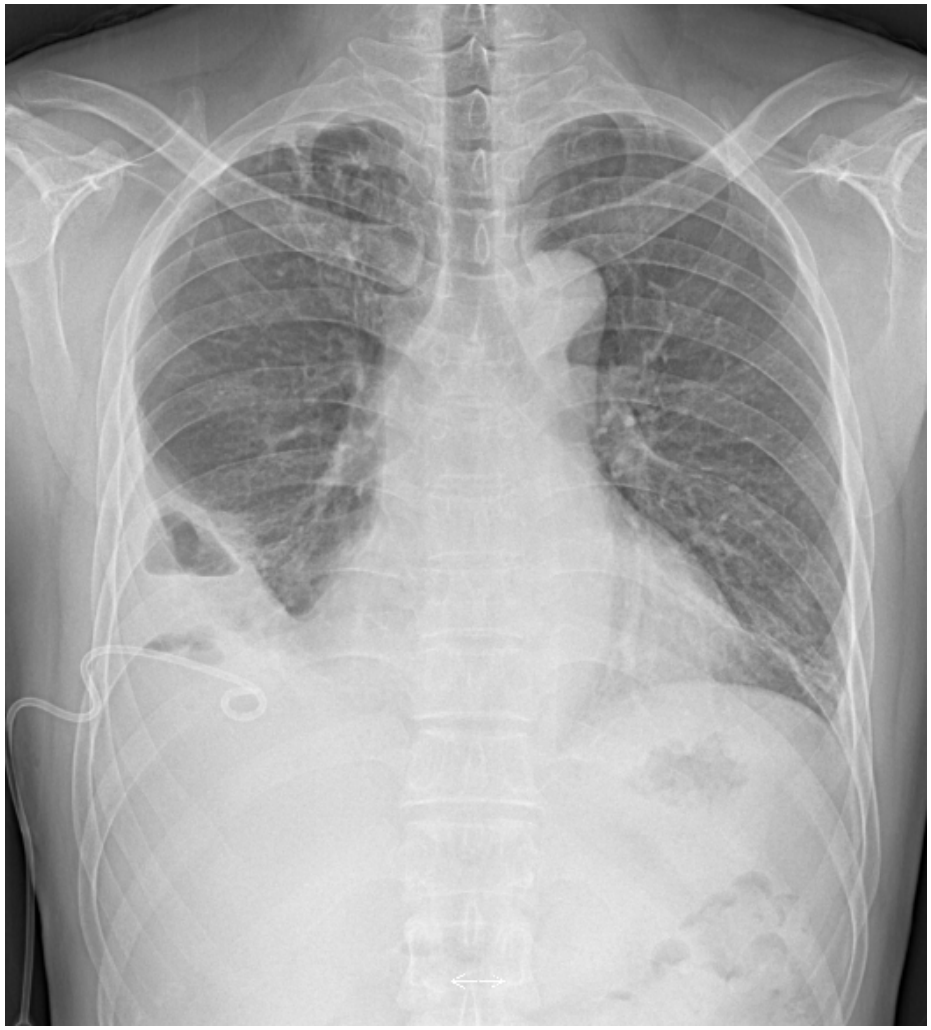
- CXR abnormality
- Hx. of Pul. Tbc

검사명	결과
Serum Protein	7.4
Pleural Fluid Protein	6.2
Serum LDH	369 (480)
Pleural Fluid LDH	2614
ADA	55
P.E. WBC	220 (lympho: 53%)

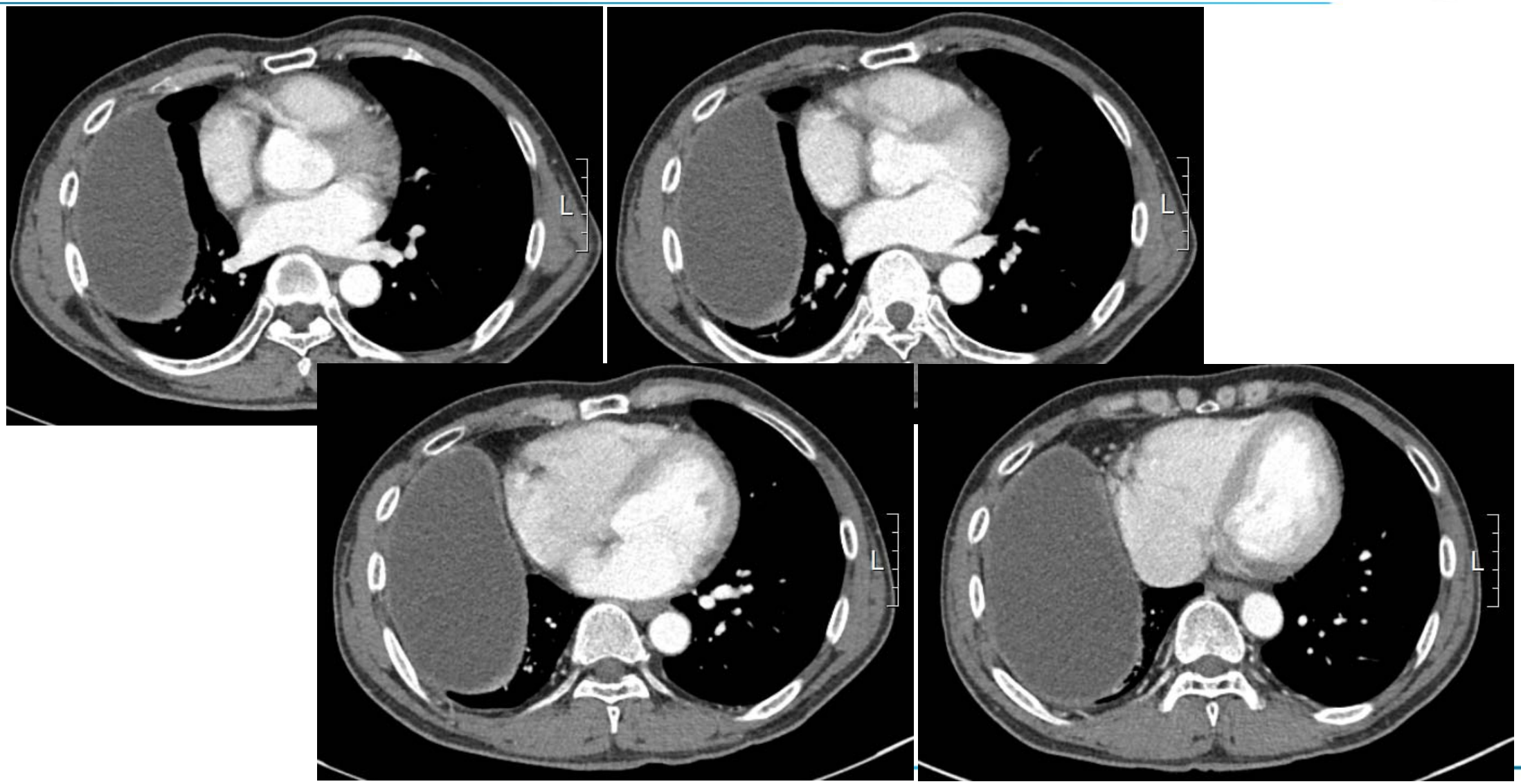


M/53, Pleural Effusion





M/53, Pleural Effusion

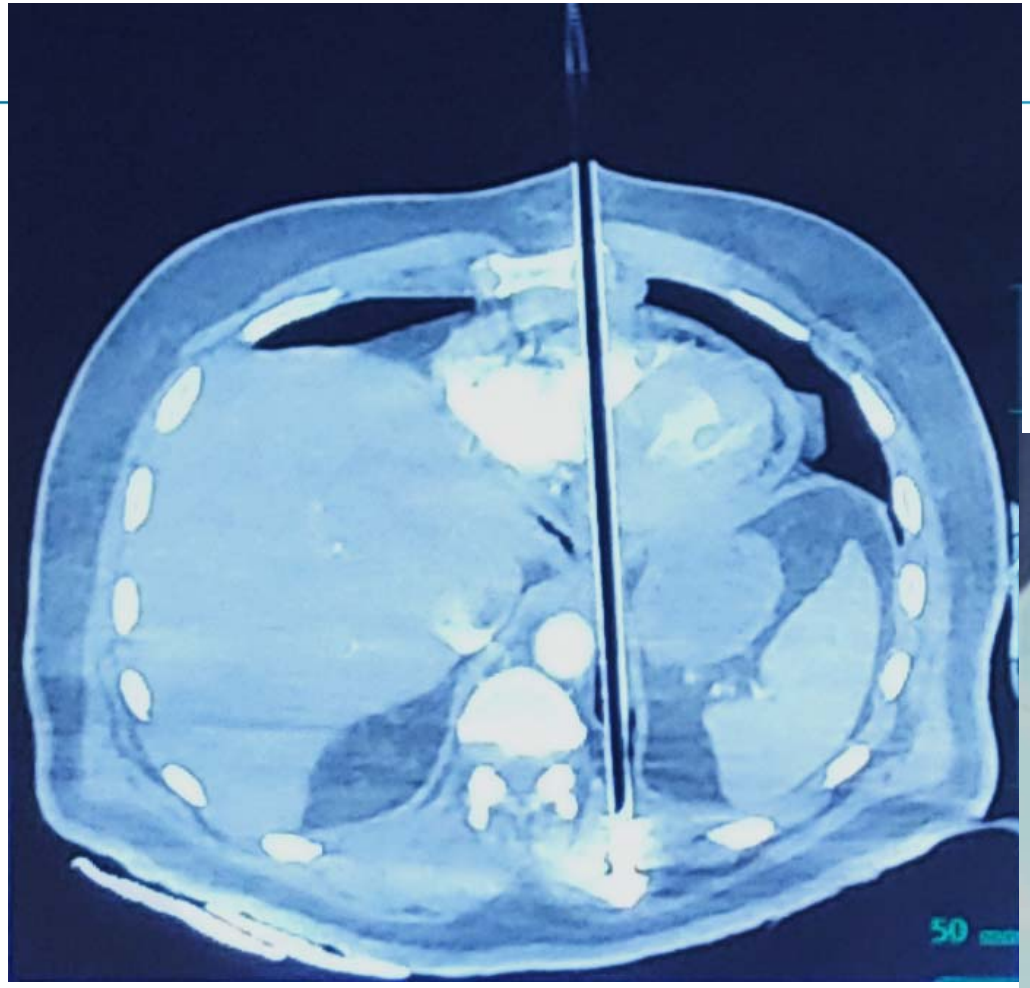


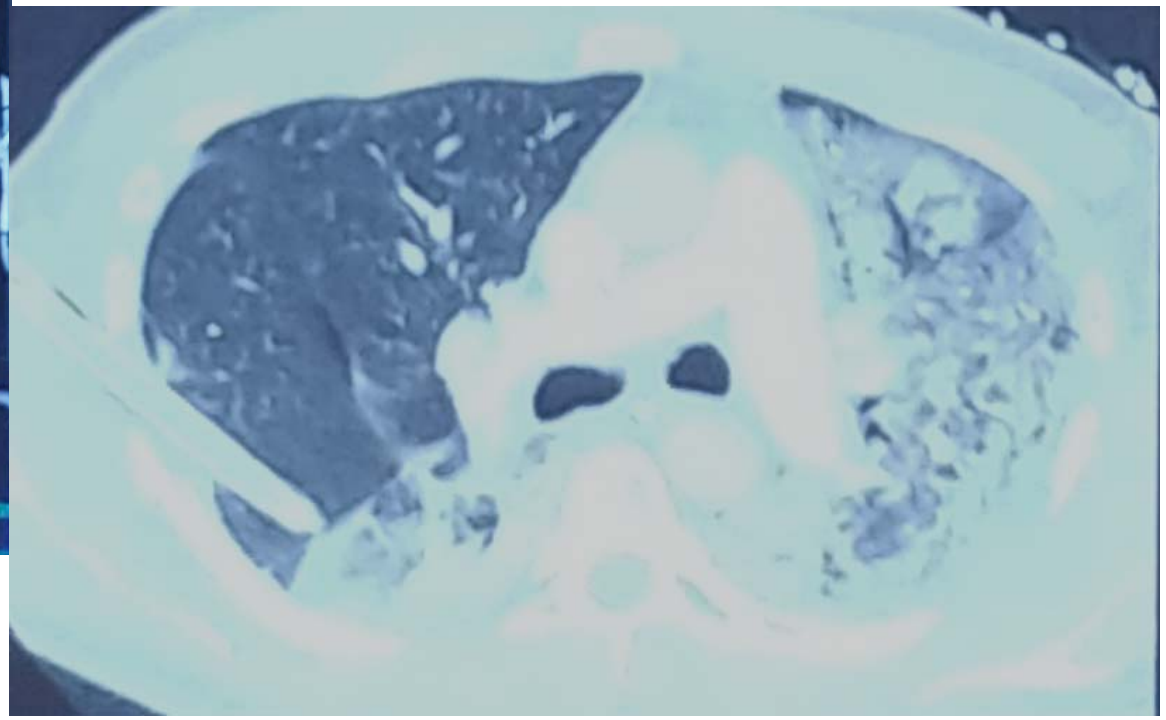
Routine Pleural Effusion Analysis

- **CXR – post-Procedure**
- **Serum**
  - **LDH**
  - **Protein**
- **Pleural fluid**
  - **LDH**
  - **Protein**
  - **Microscopy, culture, sensitivity**
  - **Cytology**
  - pH, glucose,
  - AFB, ADA, Tb PCR
  - Amylase/Lipase

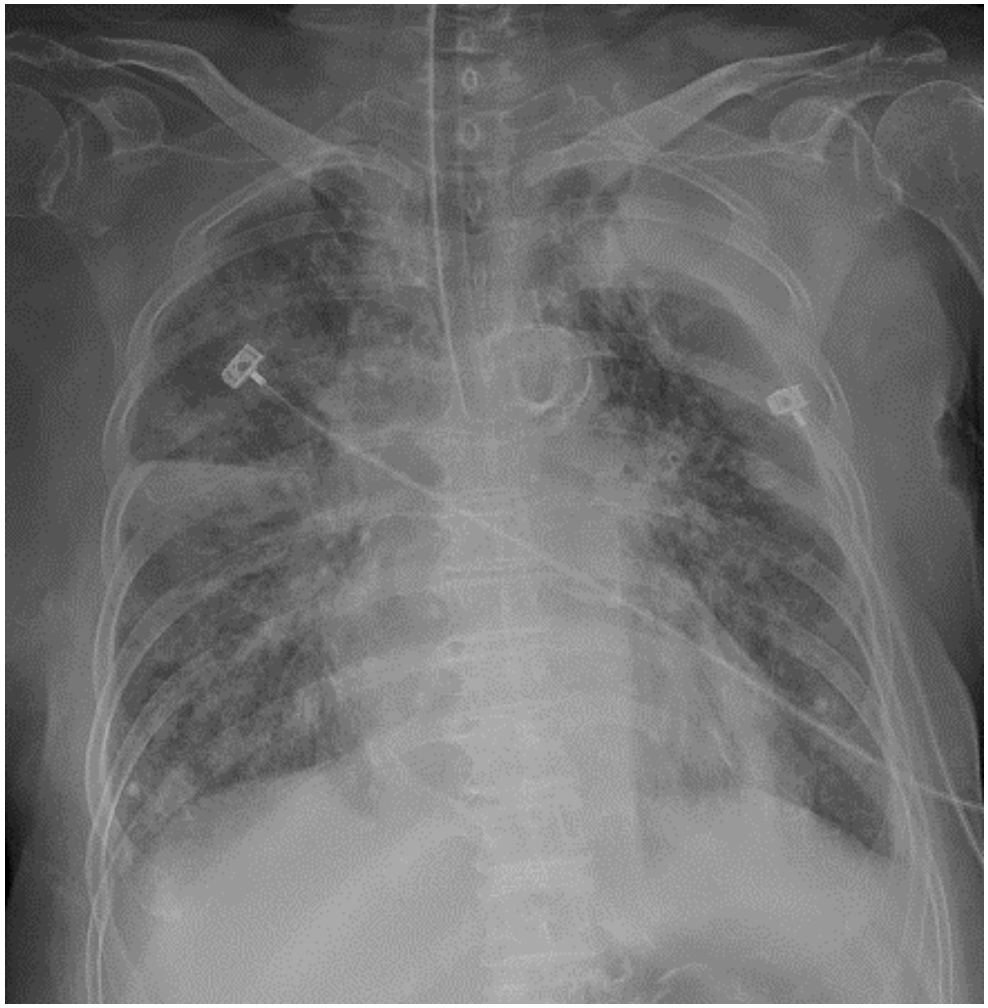
Blind로 해도 안전한가?

- 통증
- 출혈 (hematoma, hemothorax, hemoperitoneum)
- 기흉 **3%** 12% 30%
- 농흉, 연조직 감염
- Spleen/liver puncture
- Vasovagal events
- Tumor seeding
- Re-expansion pulmonary edema



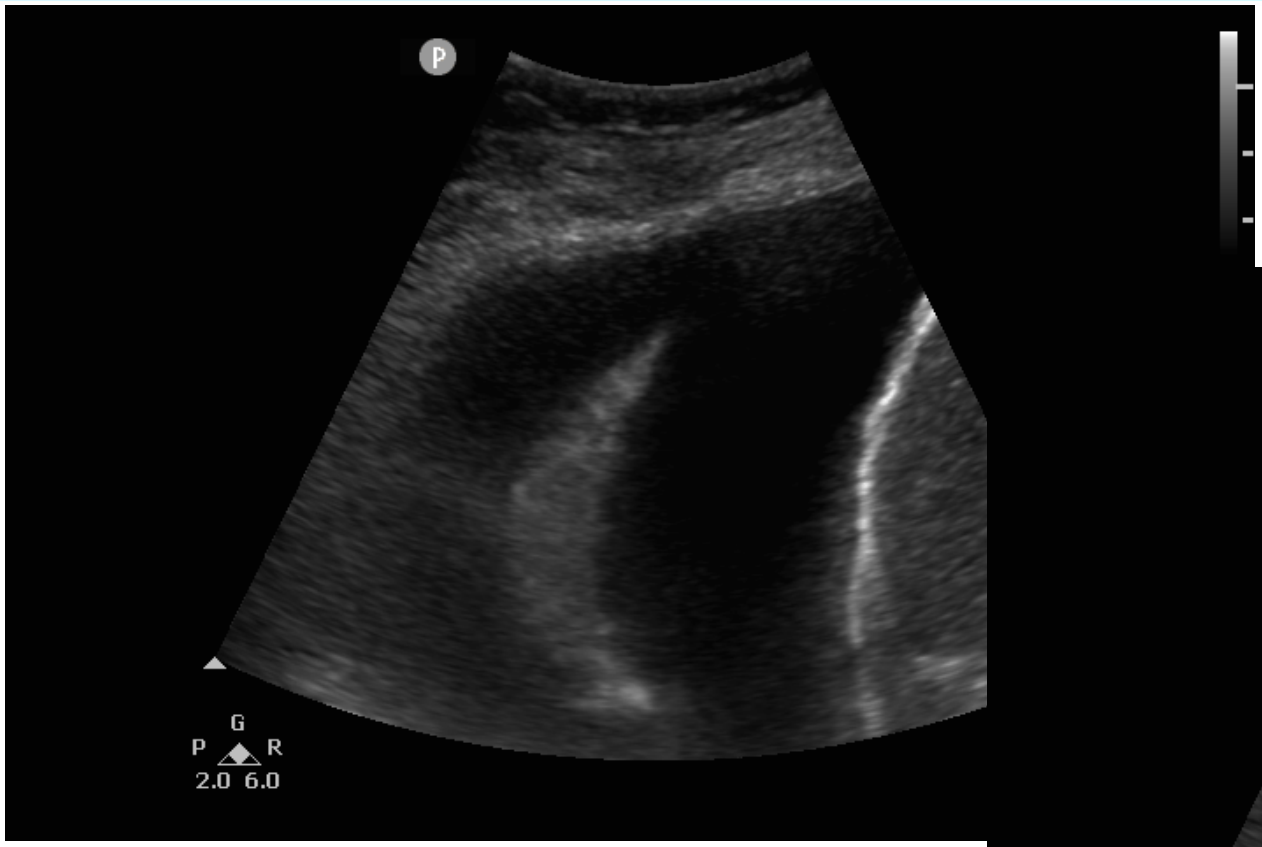


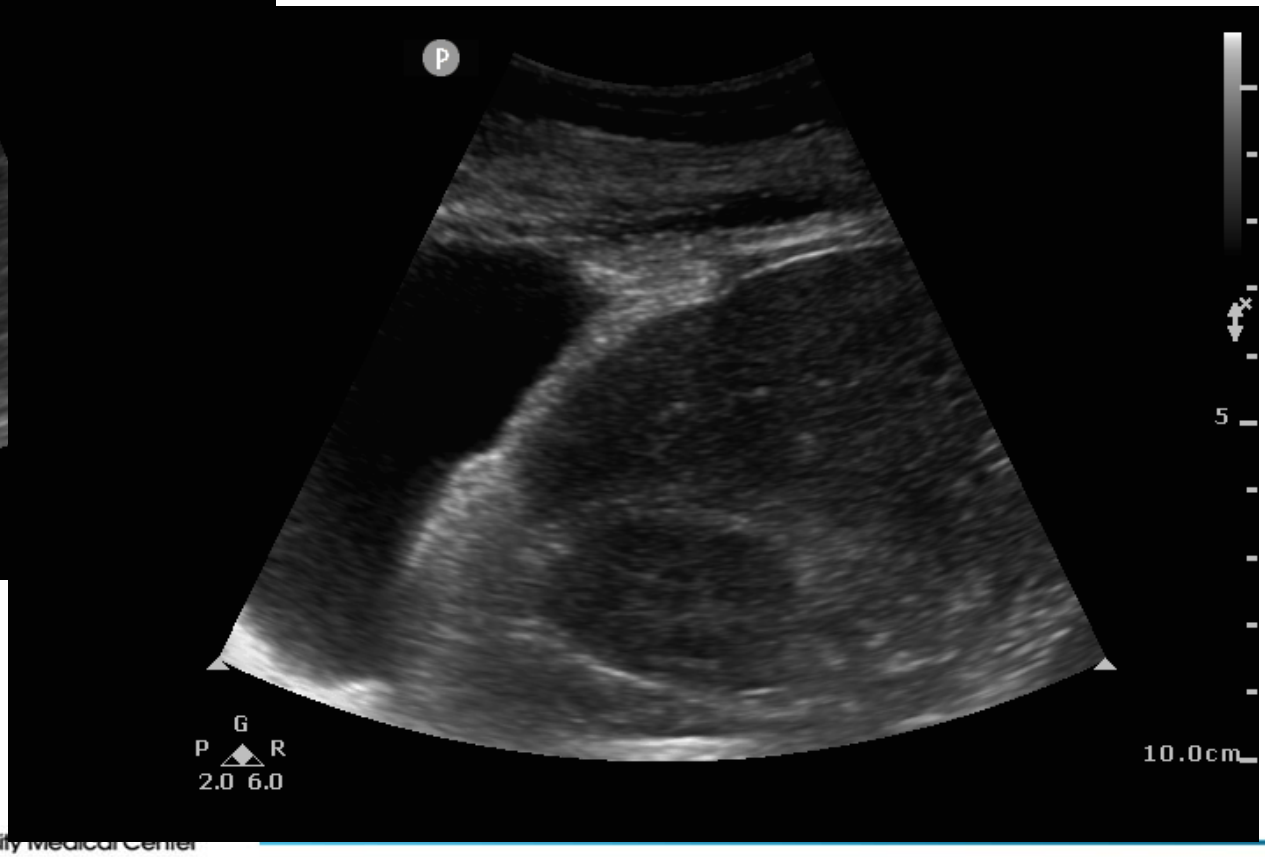
F/78, Pneumonia

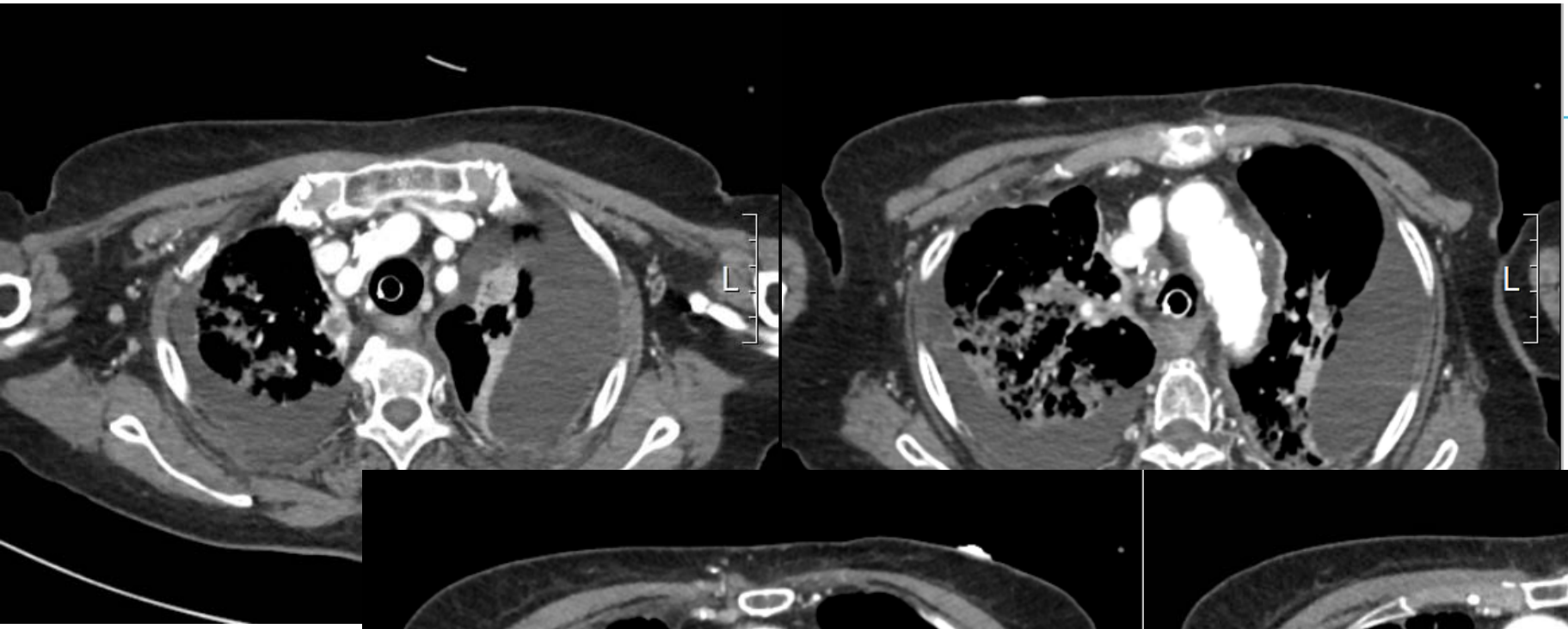


"흉수가 있나요?"

F/78, Pneumonia



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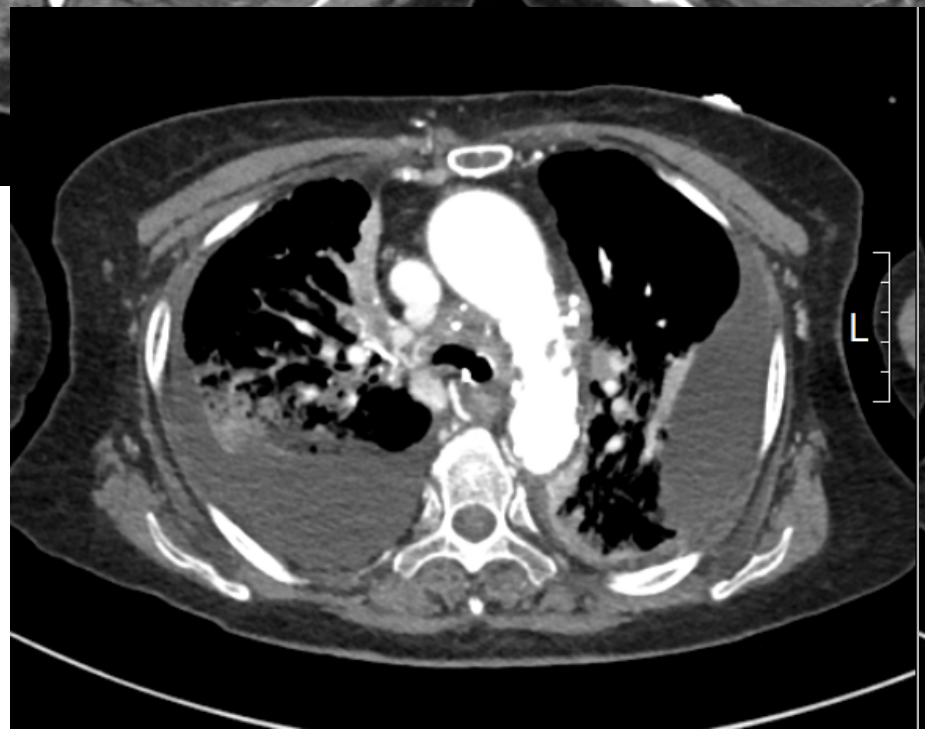
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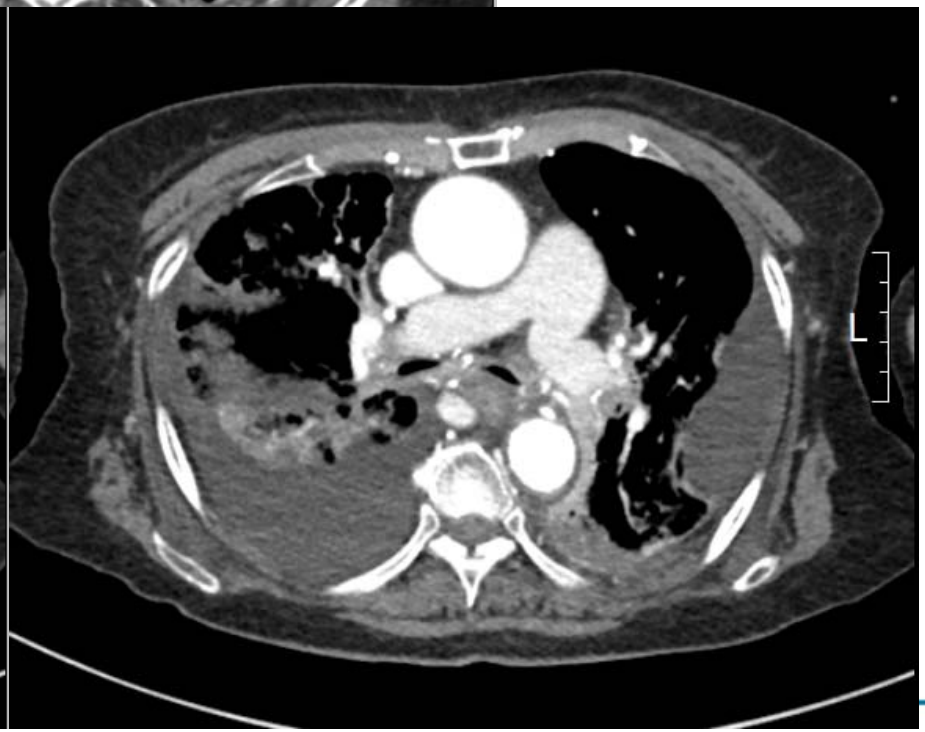
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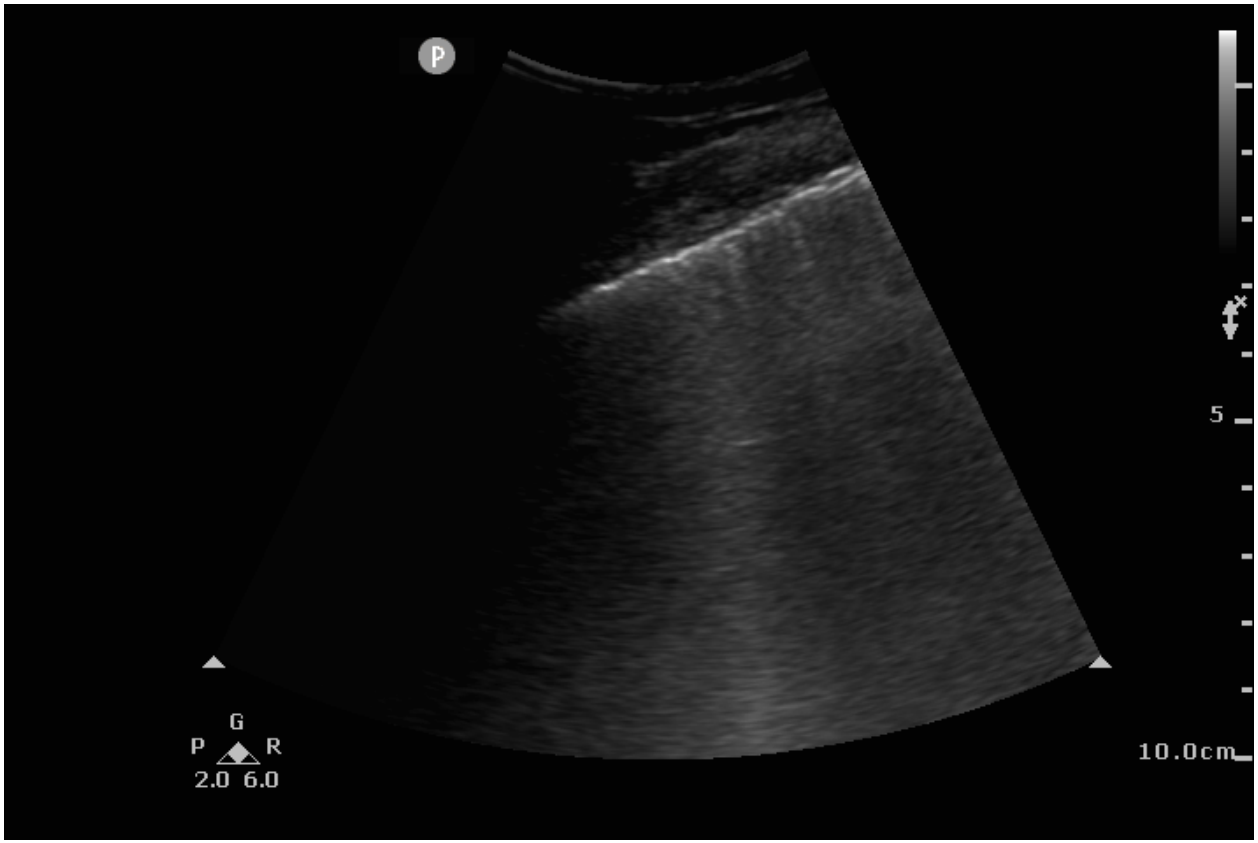
F/78, Pneumonia



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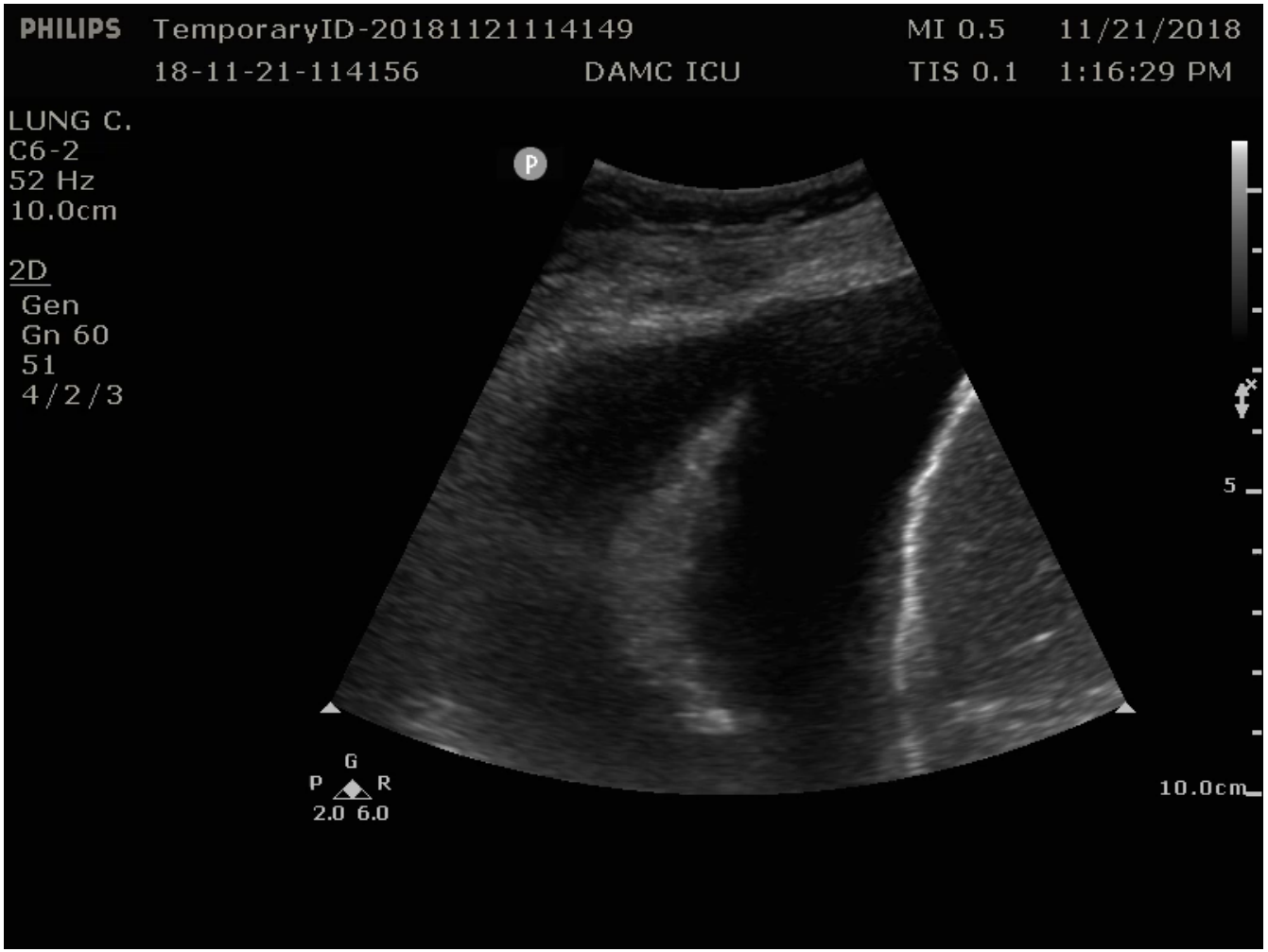

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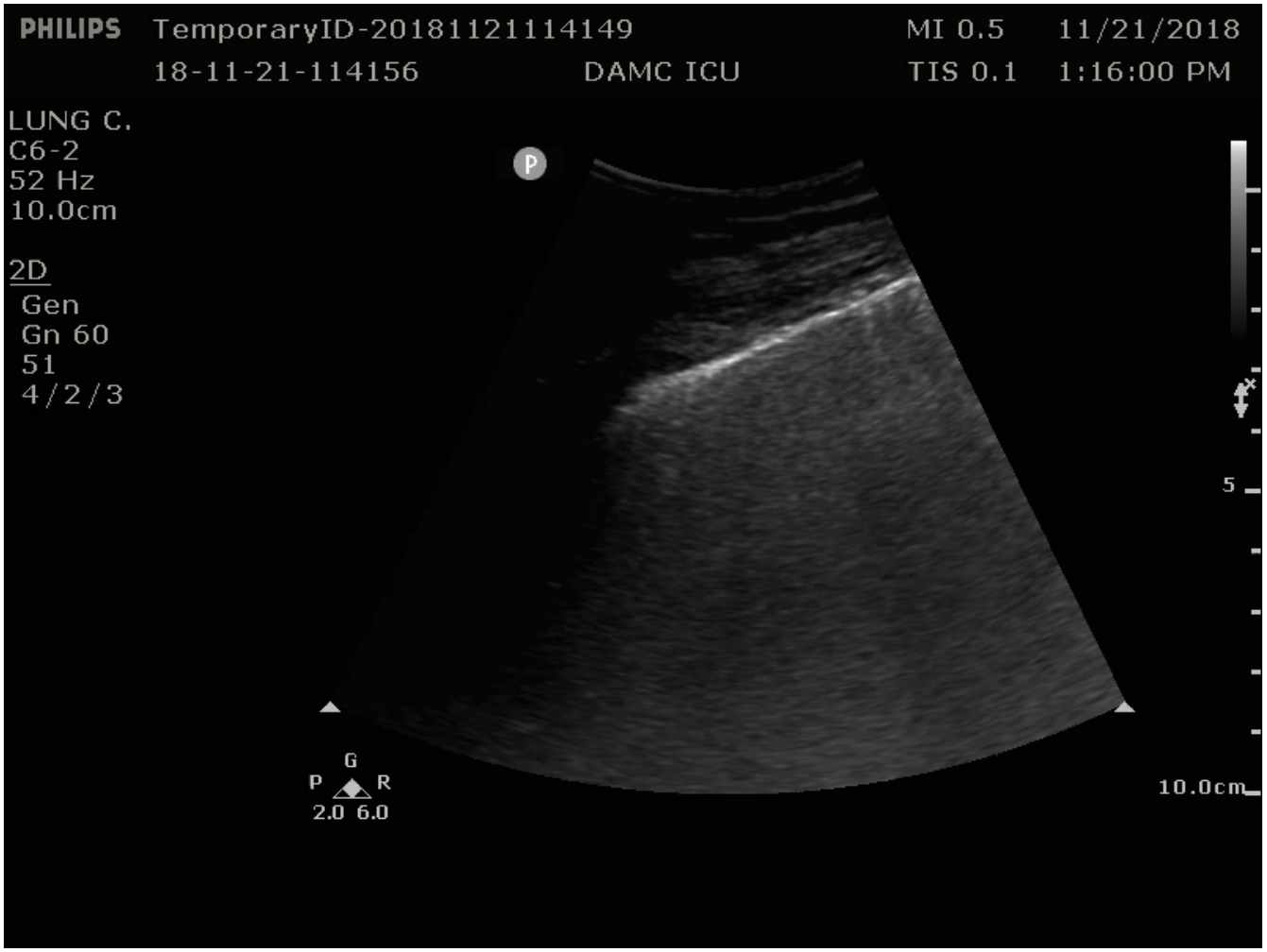

F/78, Pneumonia