



GÖĞÜS HASTALIKLARI İÇİN TORAKS BT: TEMEL PATERNLER

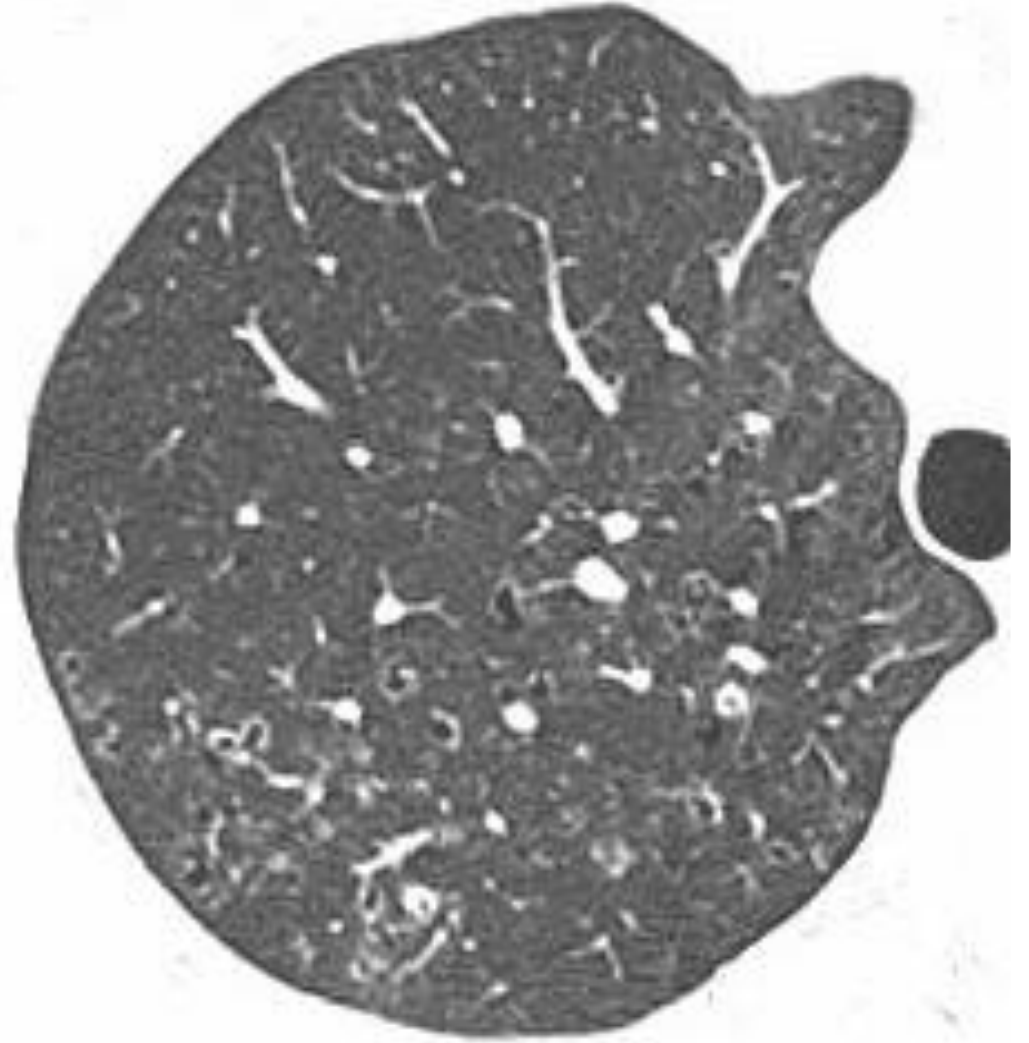
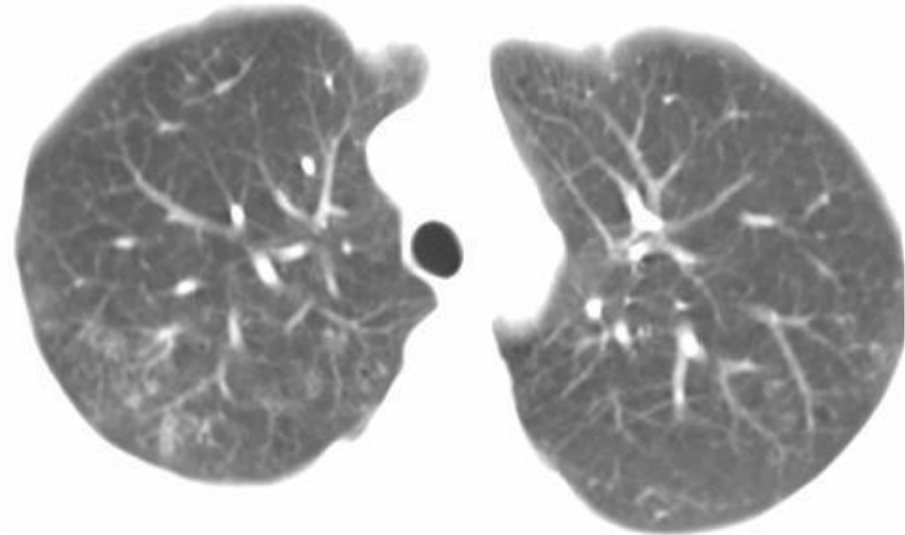
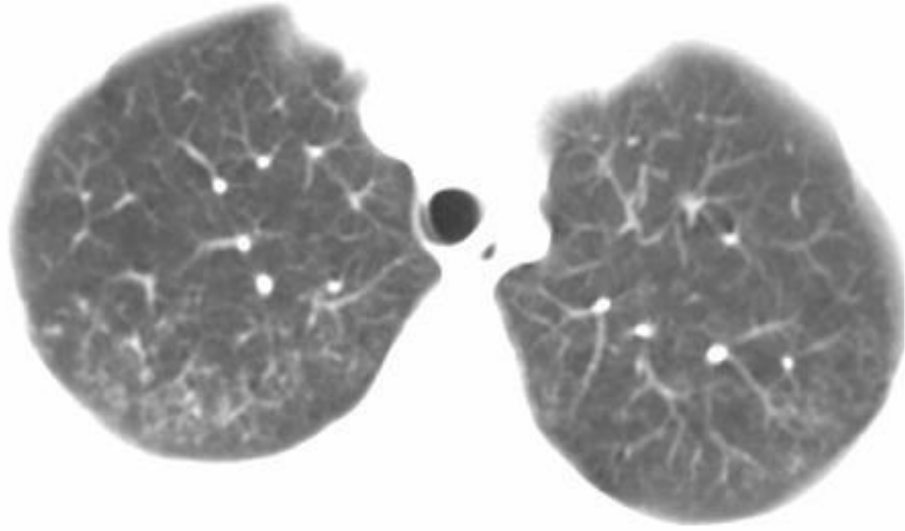
Dr.Selen Bayraktarođlu
Ege Üniversitesi Tıp Fakültesi
Radyoloji AD,İZMİR
selenb2000@gmail.com

SUNUM PLANI

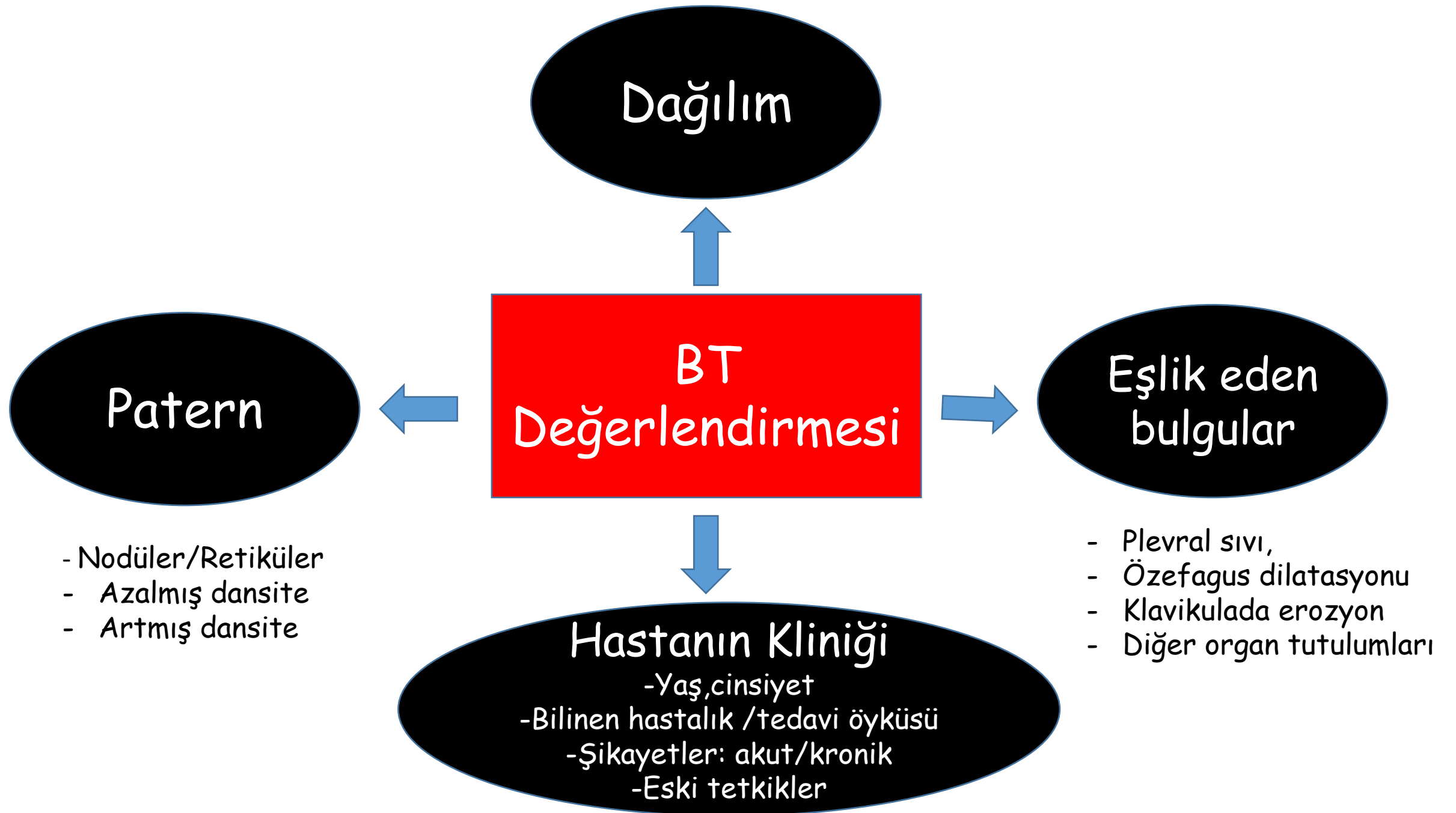
- Teknik ile ilgili önemli noktalar
- BT deęerlendirmede izledięim yol
- Olgu örnekleri ile dominant paternlere göre ayırıcı tanı

TEKNIK



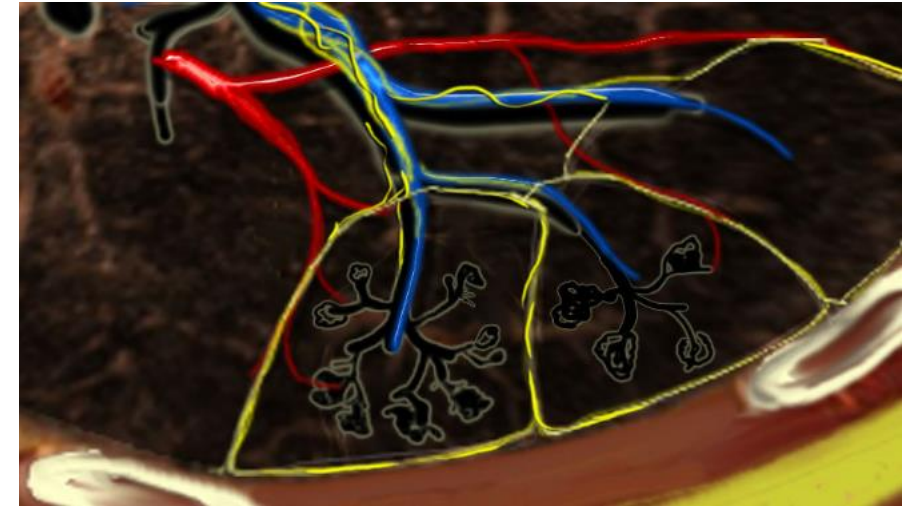
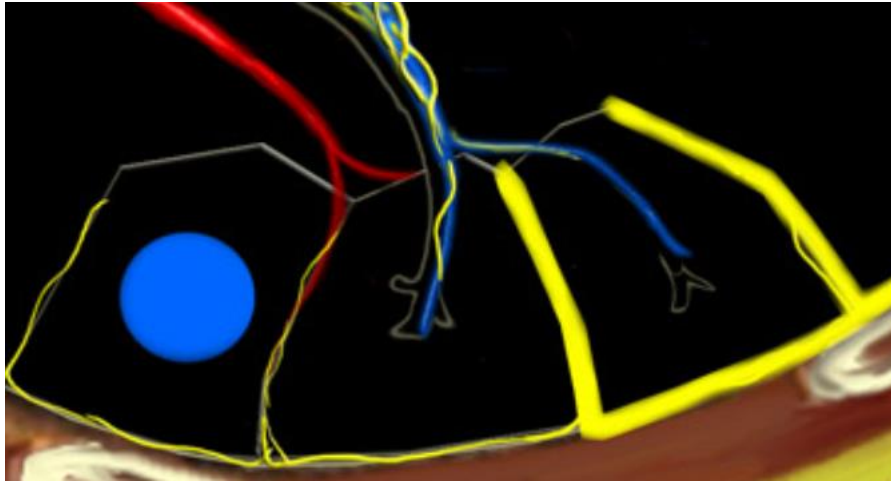
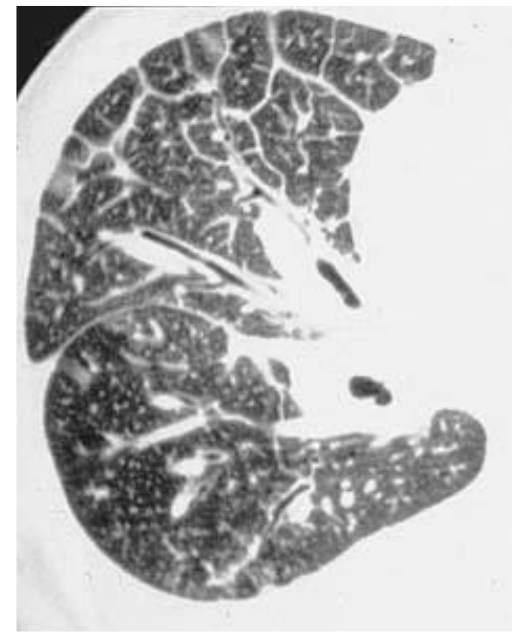
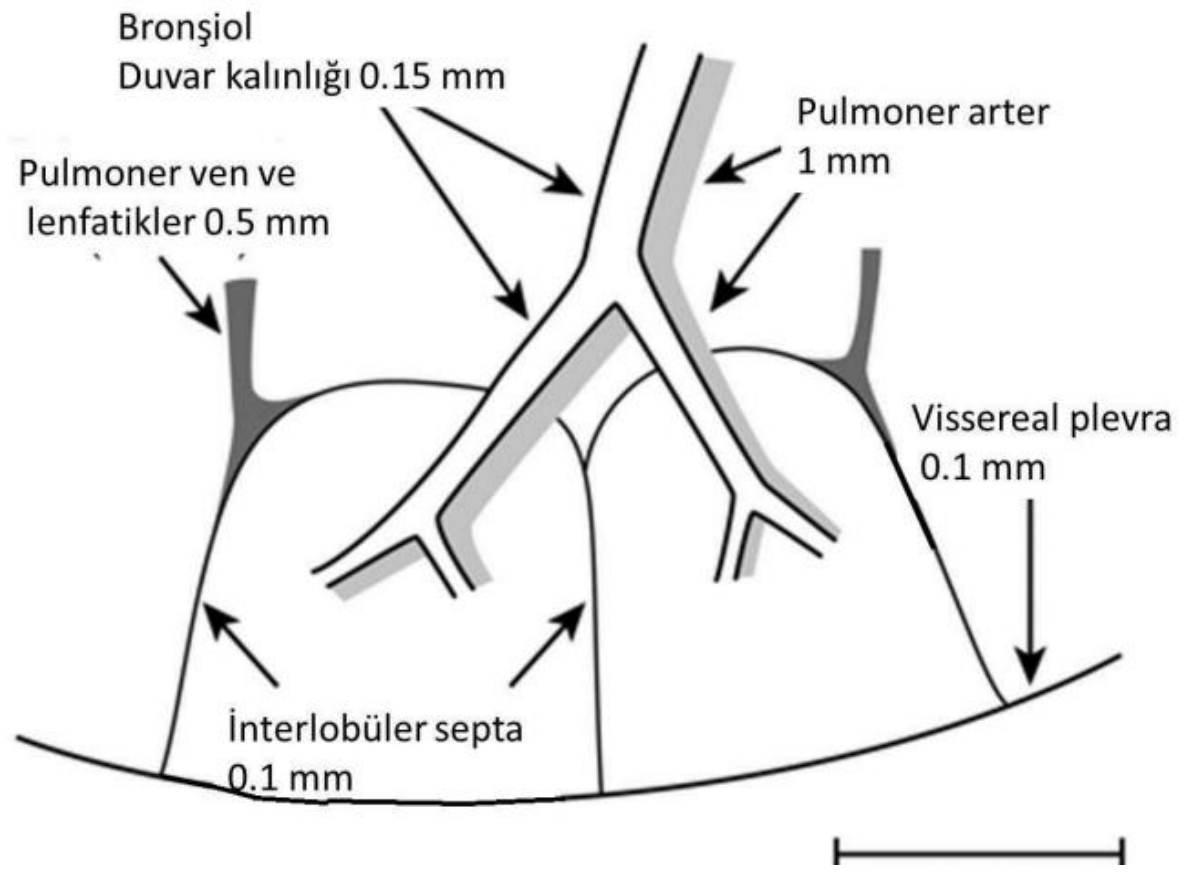


**Kesit kalınlığı ≤ 1.5 mm/ YÇBT (Yüksek Çözünürlüklü BT)



Dominant patern nedir?

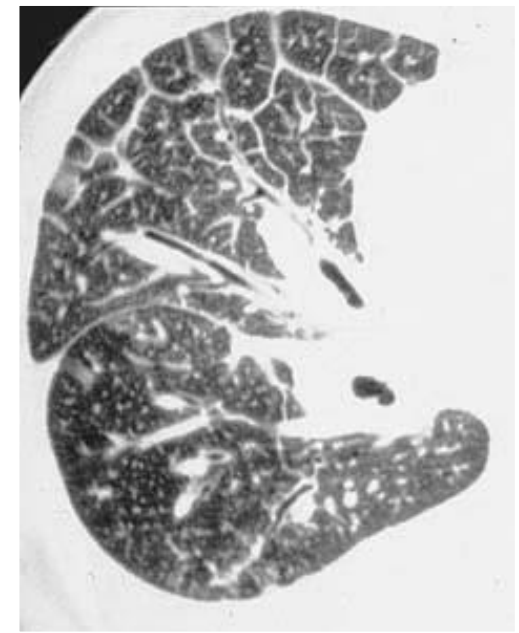
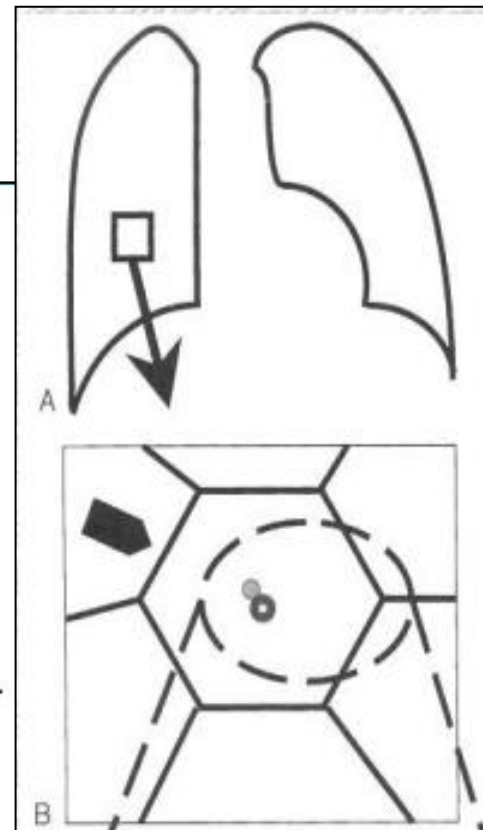
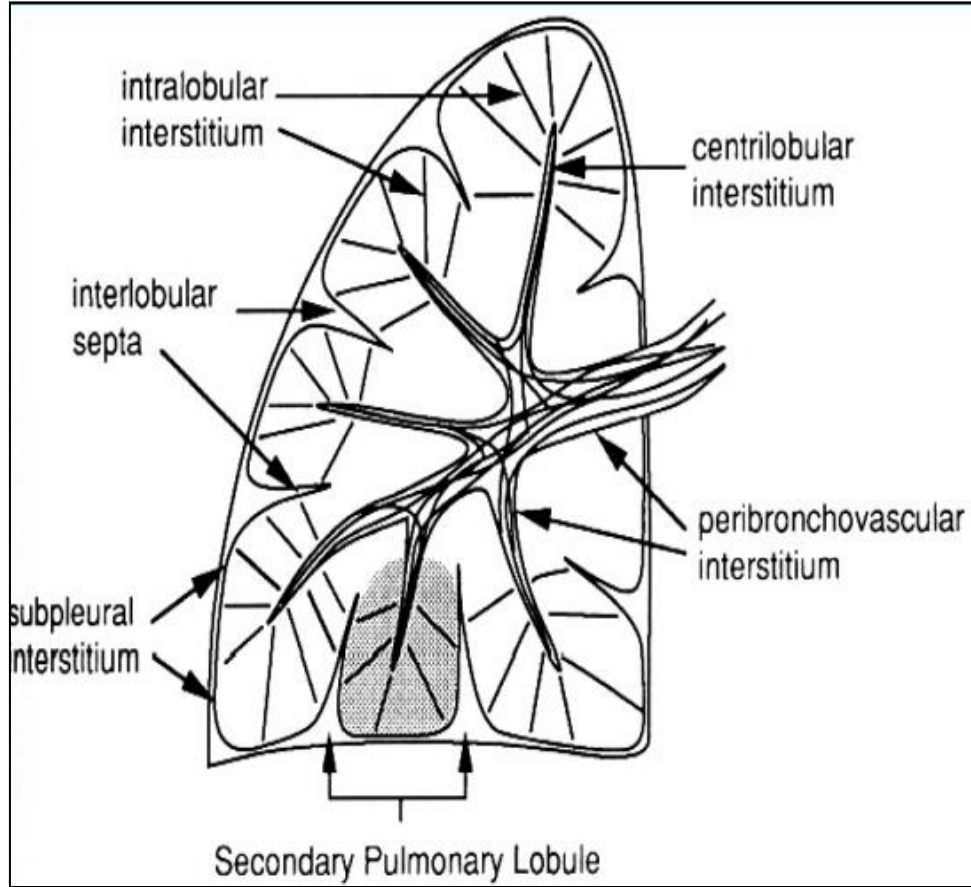
- İntertisyel Patern
- Nodüler patern
- Dansite
 - Artmış
 - Azalmış
- Farklı paternlerin kombinasyonları



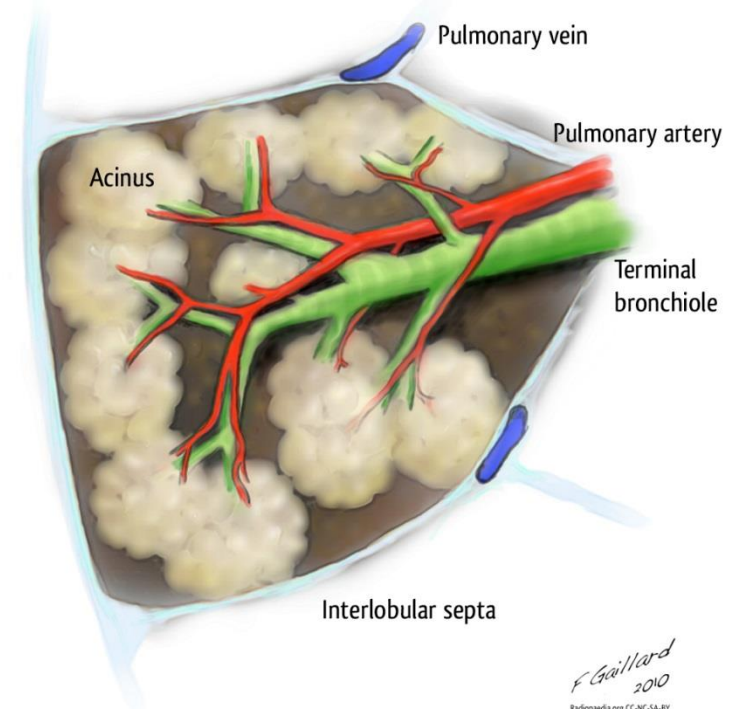
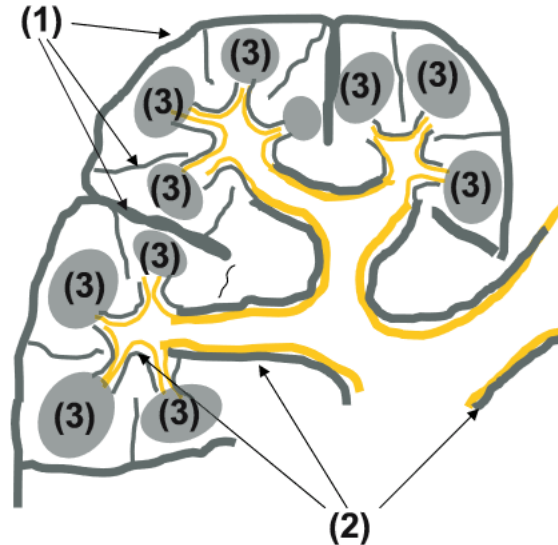
Sekonder pulmoner lobül

İNTERTİSYEL PATERN

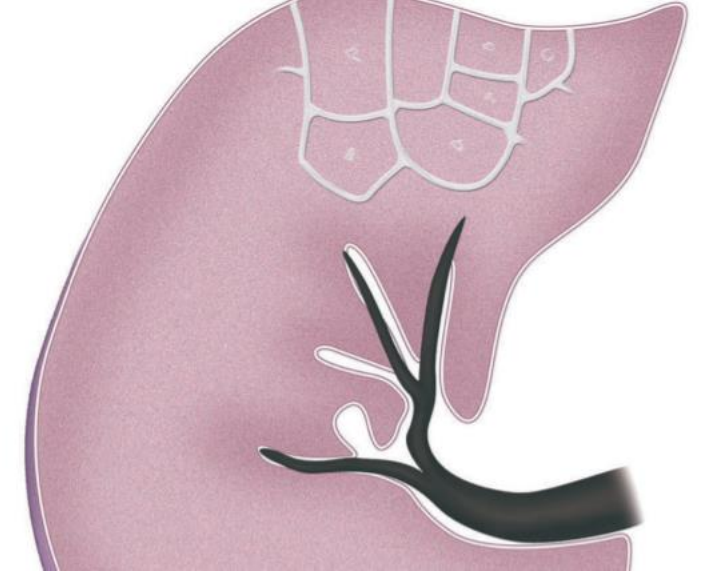
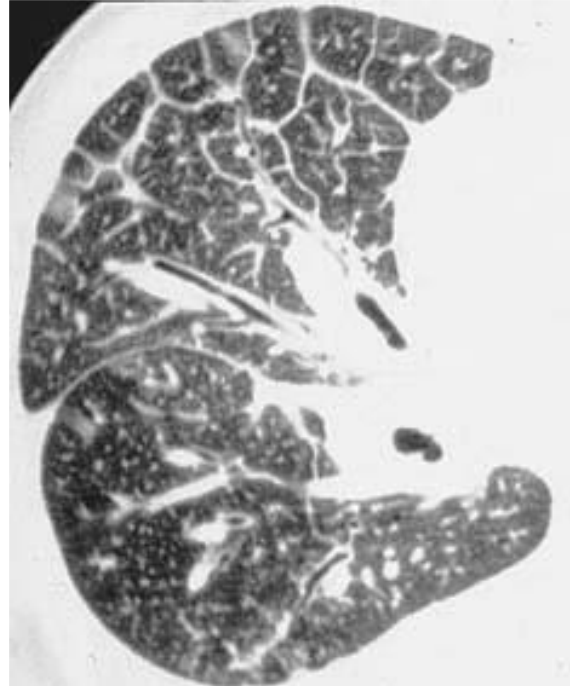
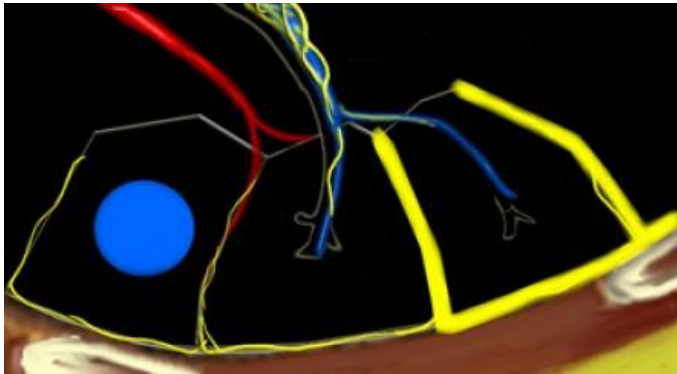
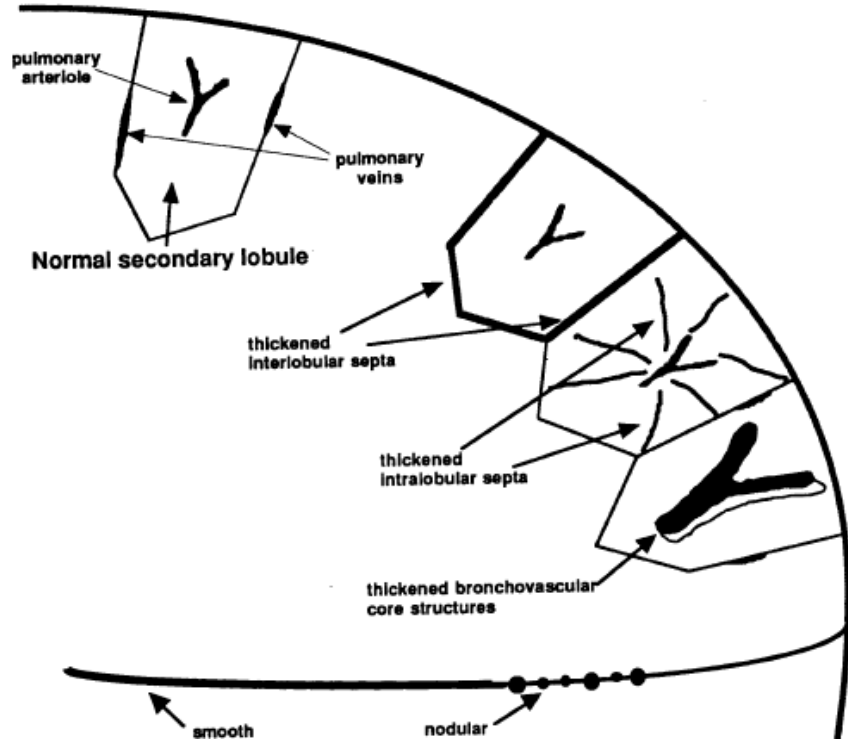
İntertisyum



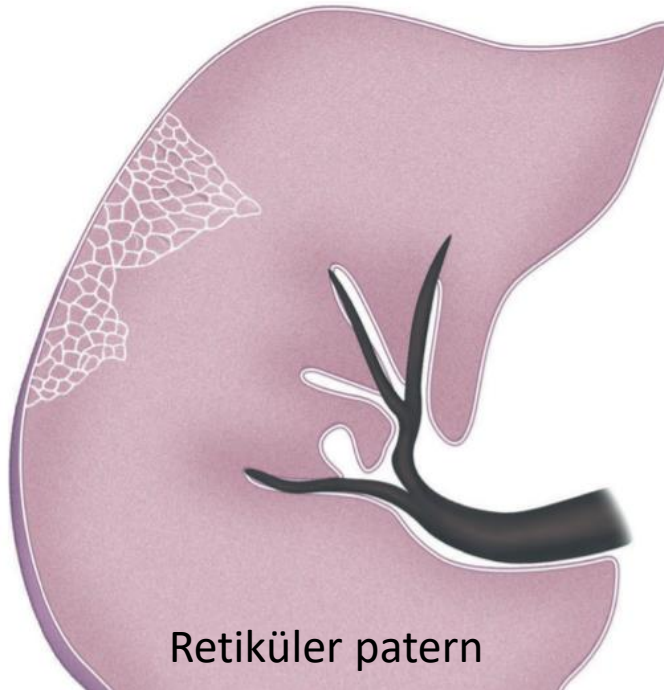
- Peribronkovasküler (aksiyal)
- Subplevral (periferik)
- İntرالobuler (alveoler)



İntertisyel kalınlaşma

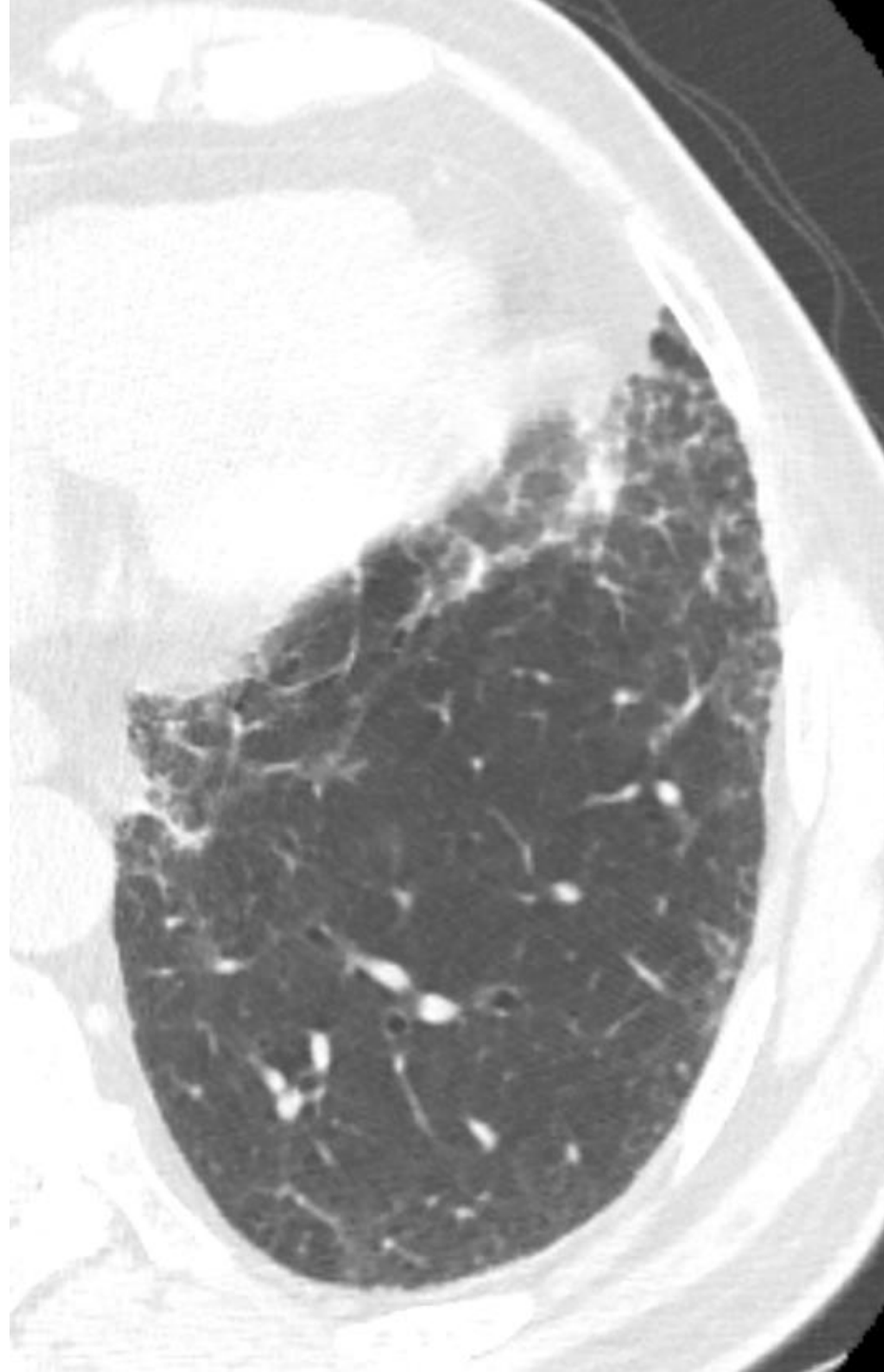
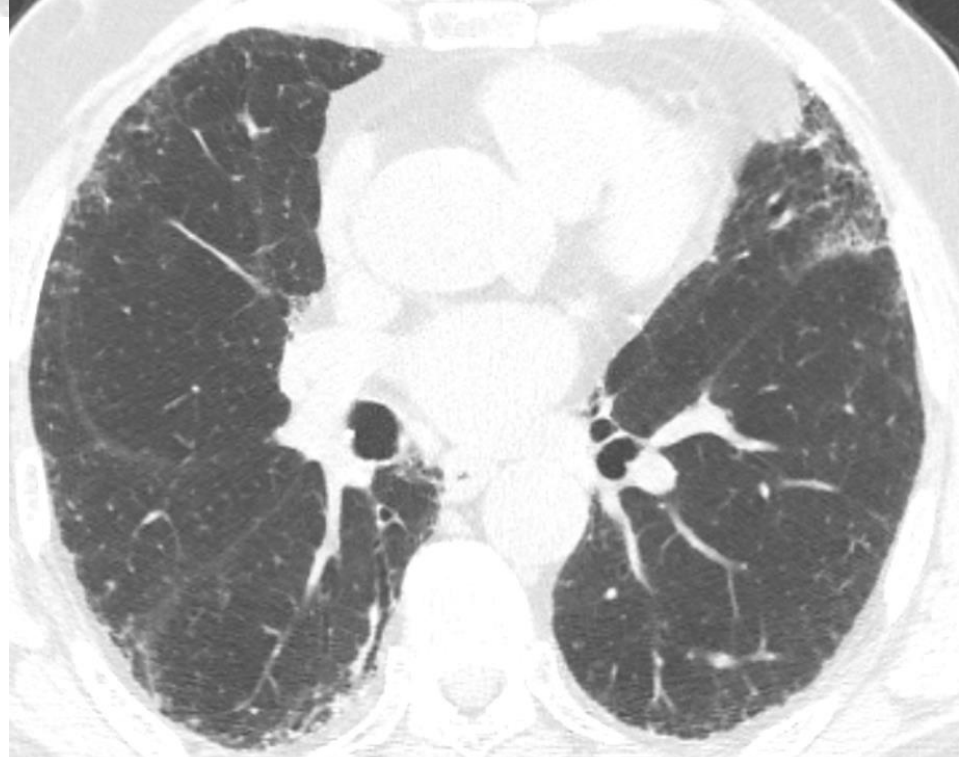
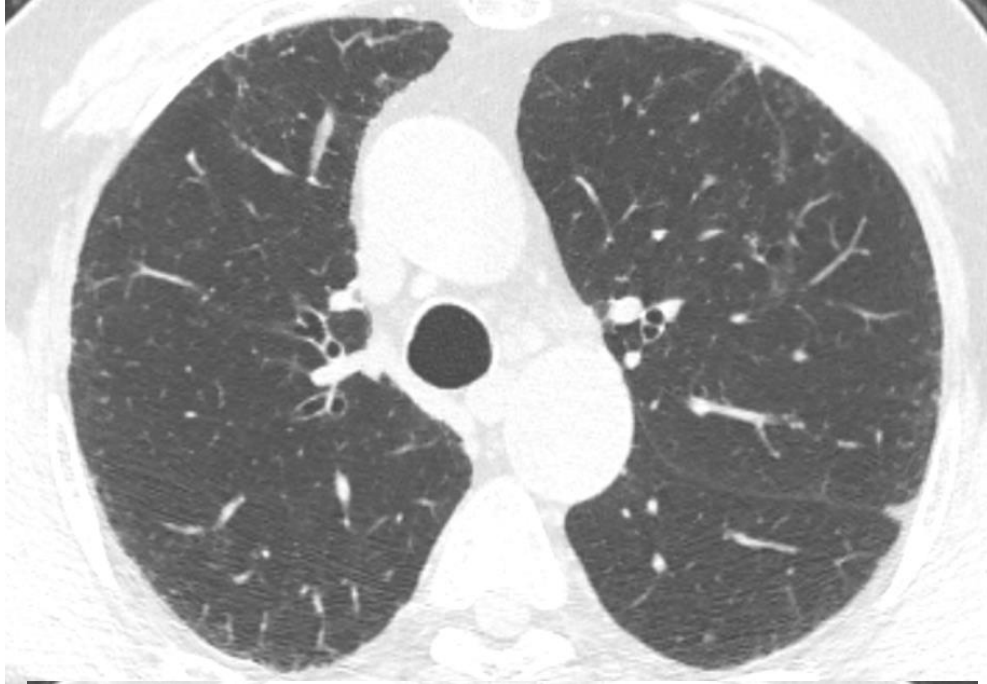


Septal pattern



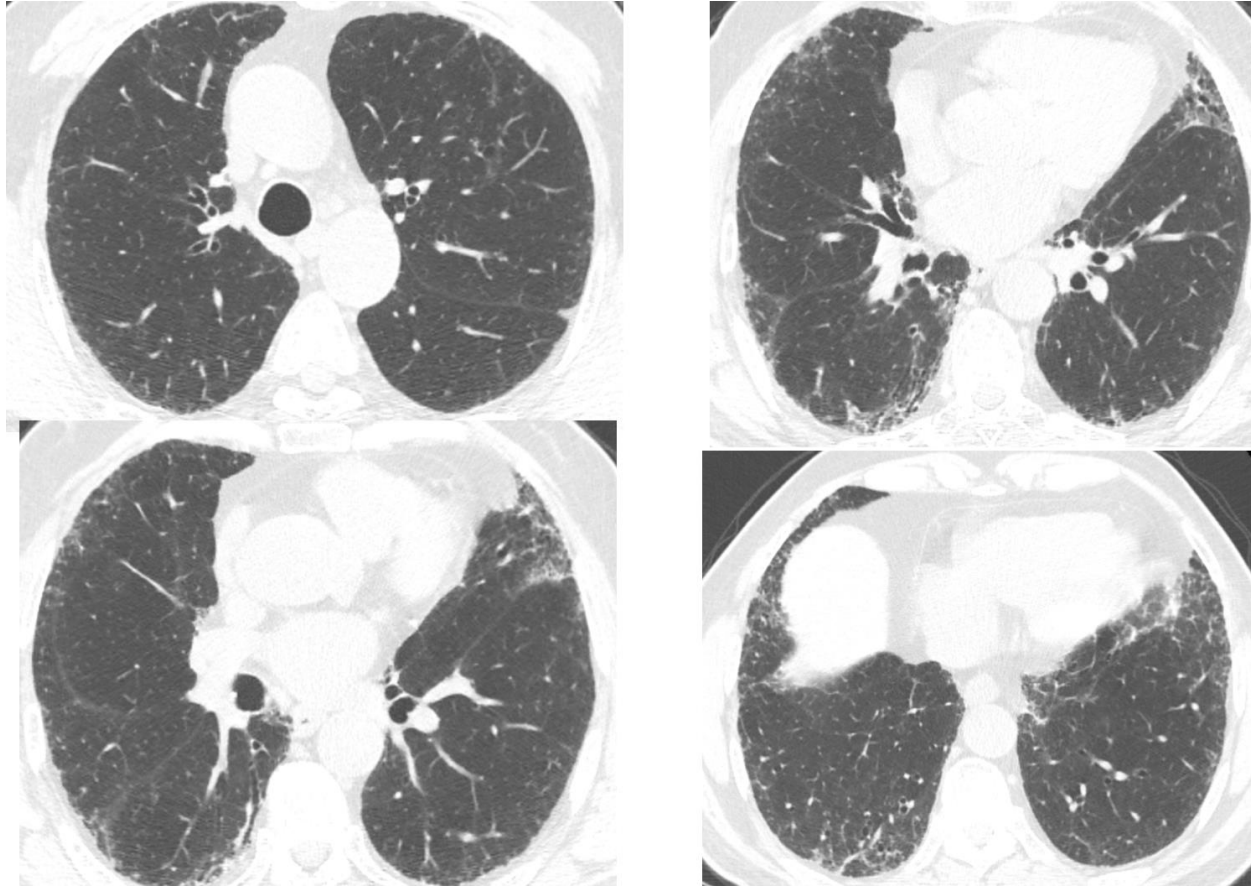
Retiküler patern





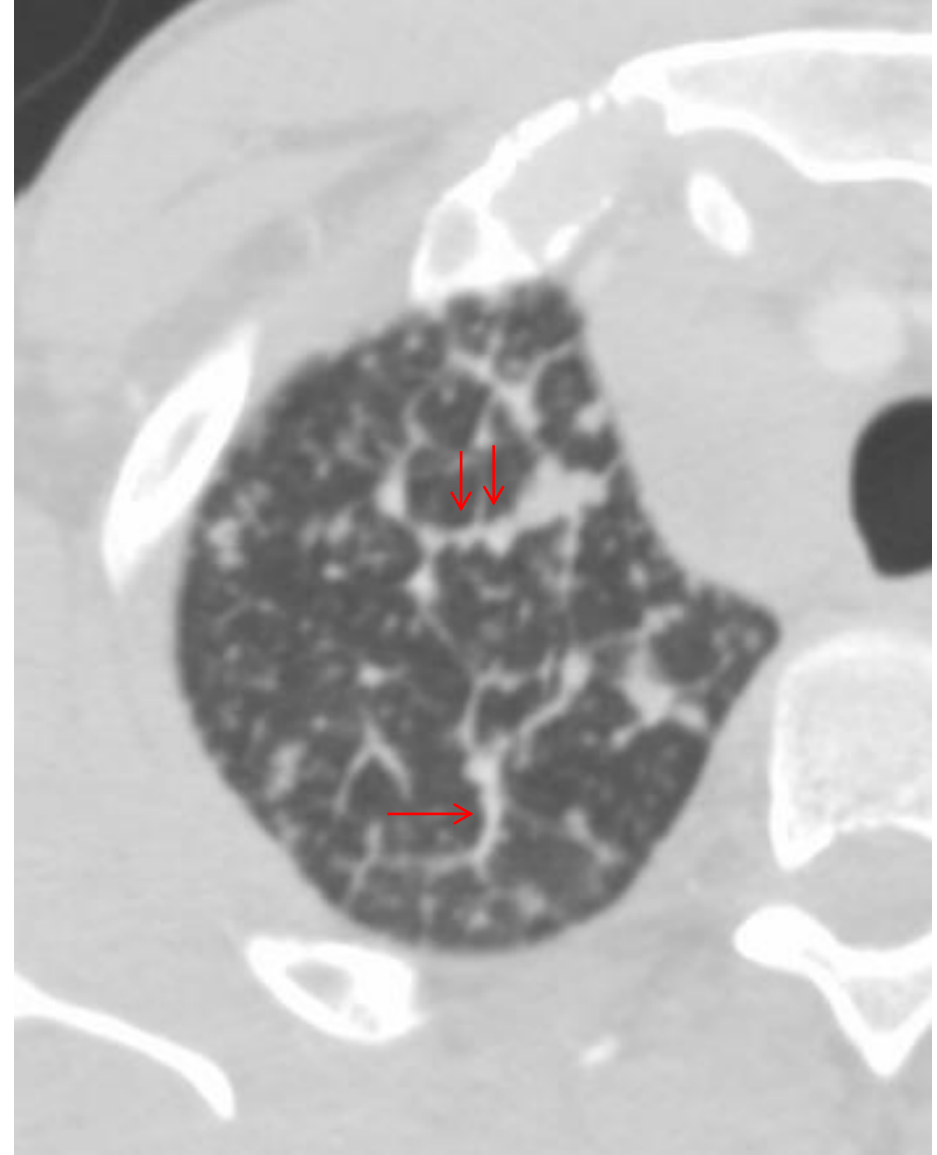
OLGU

72 y
Erkek
Nefes
Darlığı



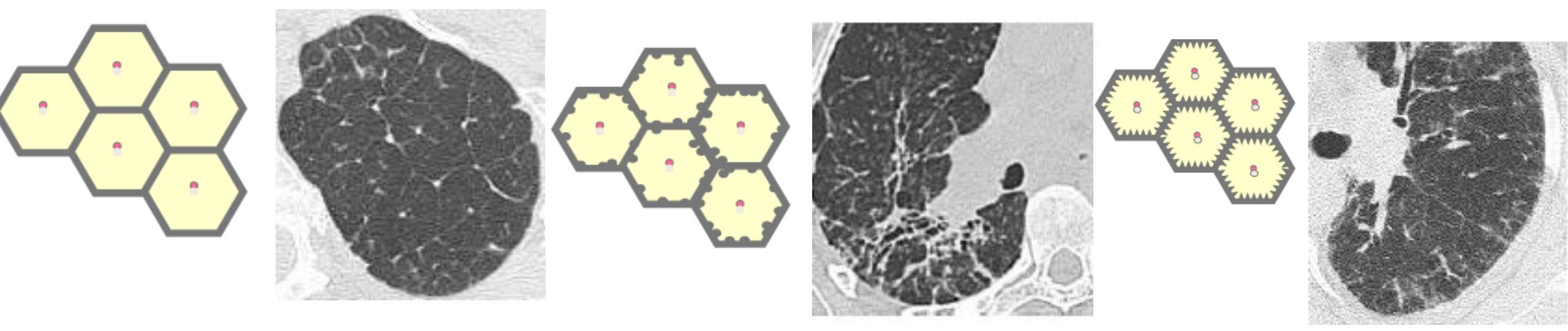
- 1.Hastaya ait bilgiler: 72 y, erkek
- Nefes darlığı
- 2.Dominant patern : İntertisyel-Retiküler deęişiklikler
- 3.Zonal tutulumu? Alt zon, periferik daęılım

TANI
OLASI UIP



Hematojen ve lenfanjitik metastaz

30 y, erkek, malign melanom (+), dispne



İnterlobüler septal kalınlaşma

➤ Düzgün:

- Pulmoner Ödem (İntertisyel)
- Alveoler Proteinozis
- Enfeksiyonlar(PJP)
- PVOH

➤ Nodüler veya düzensiz:

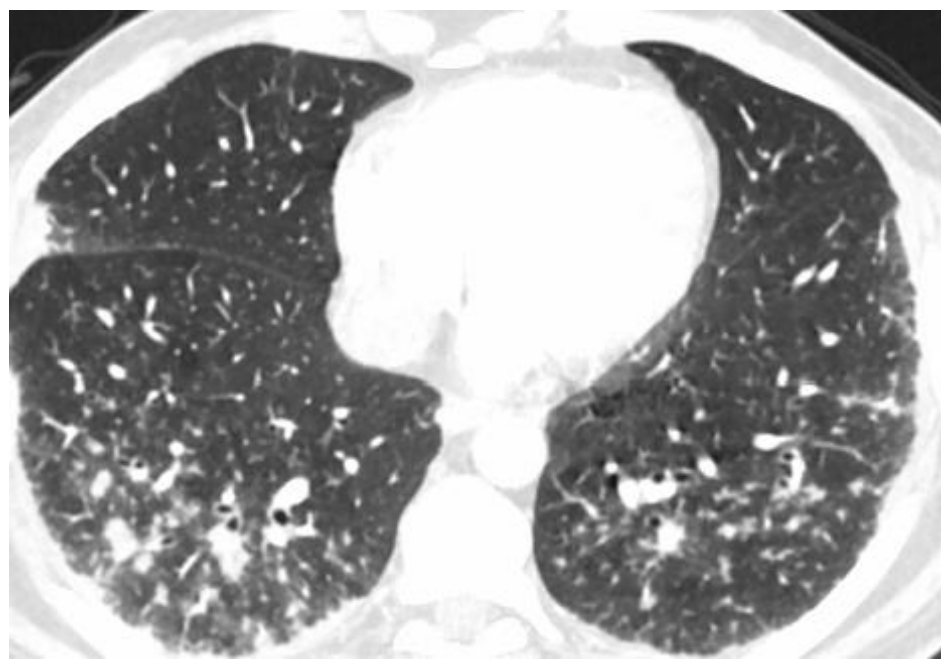
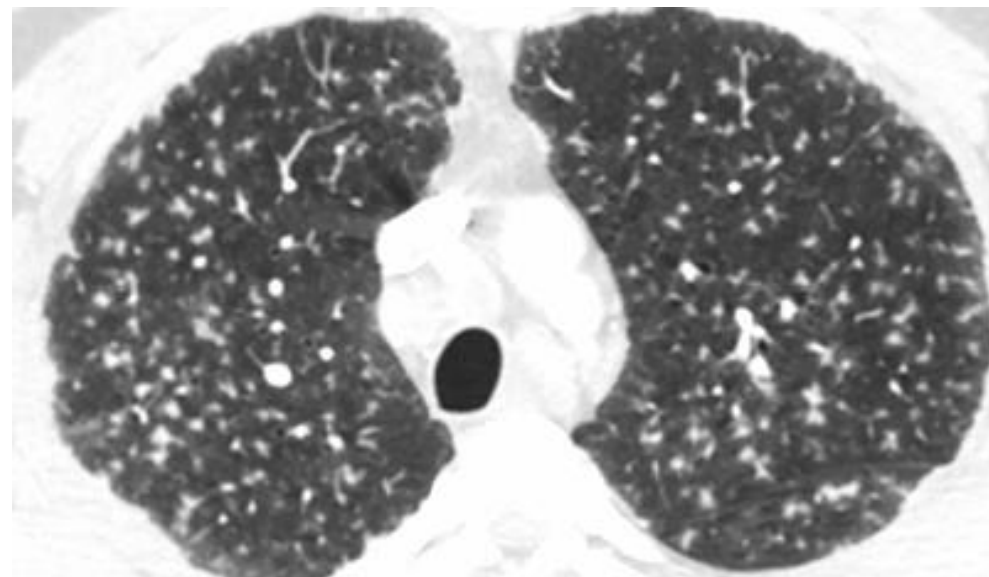
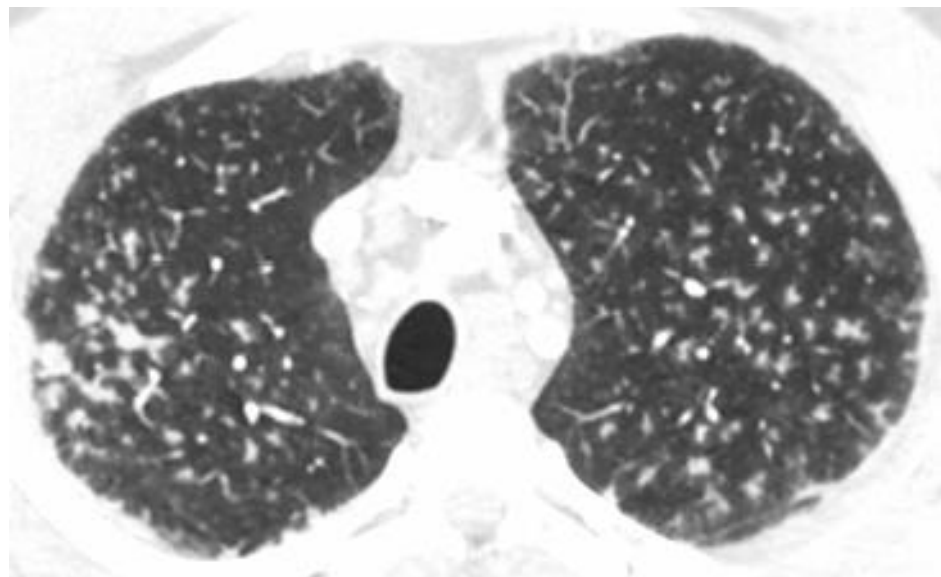
- Lenfanjitik yayılım
- Sarkoidoz
- Pnöмокonyozlar
- NSIP, UIP, Asbestozis

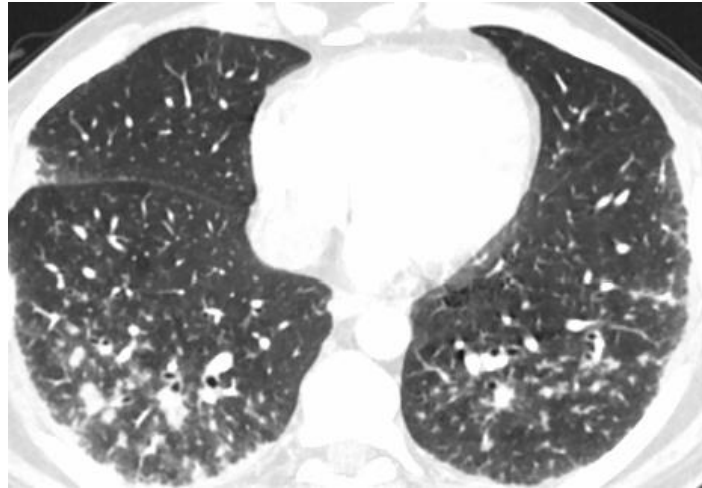
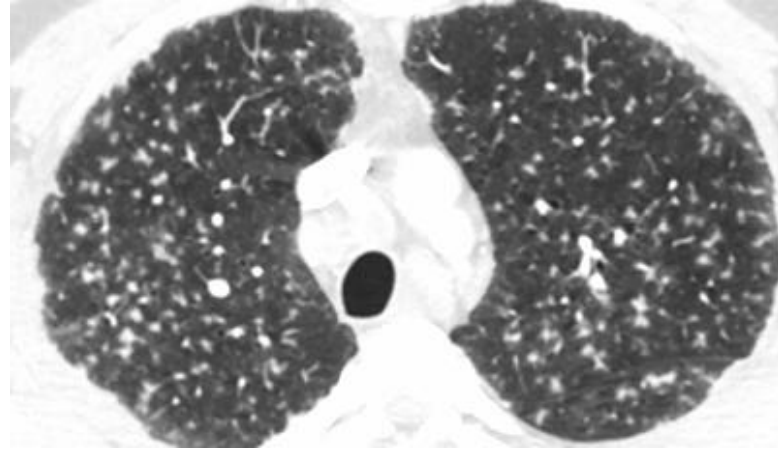
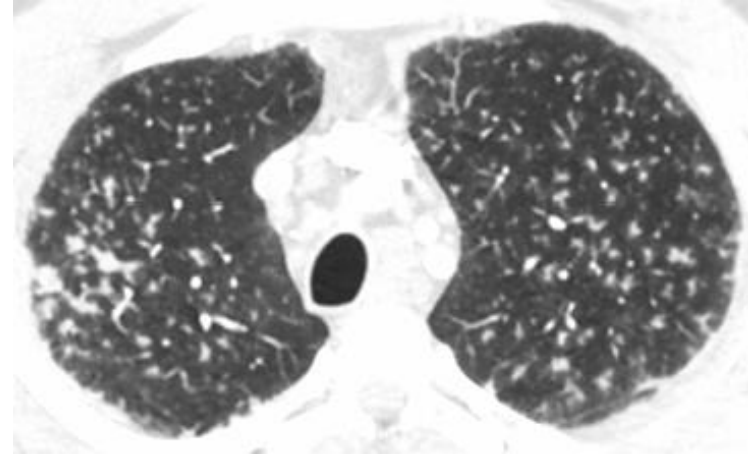
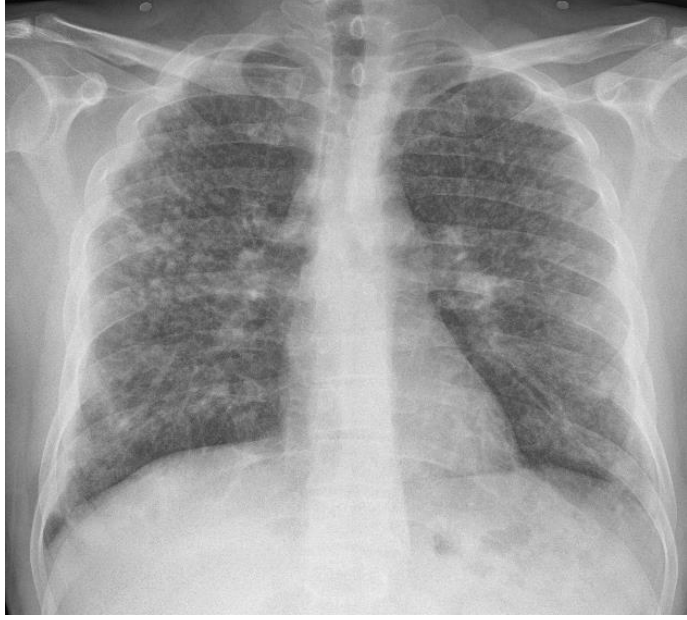
NODÜLER PATERN



OLGU

36 y, erkek
İş başvurusu
esnasında çekilen grafi

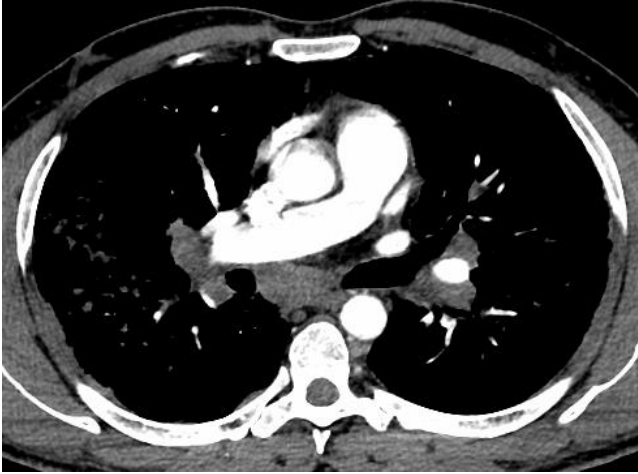




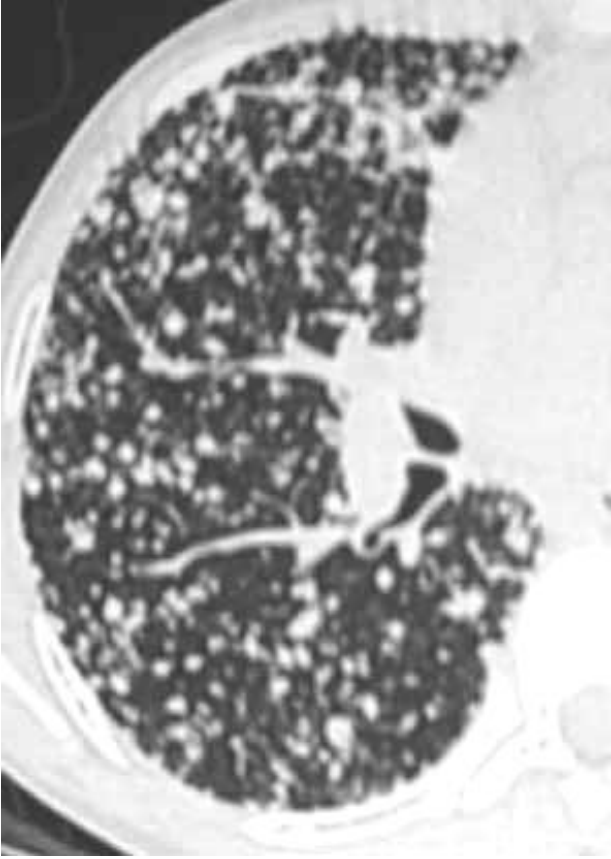
- 1.Hastaya ait bilgiler: genç , erkek, belirgin şikayet yok
- 2.Dominant patern :Nodüller
- 3.Zonal tutulumu? Üst zon
- 4.Eşlik eden bulgular: Hilar LAP

TANI?

SARKOİDOZ



Nodüllerin dağılımı nasıl ?



1

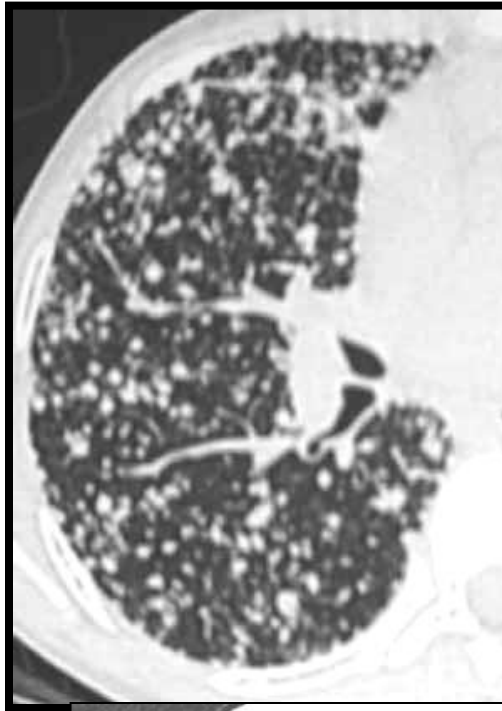
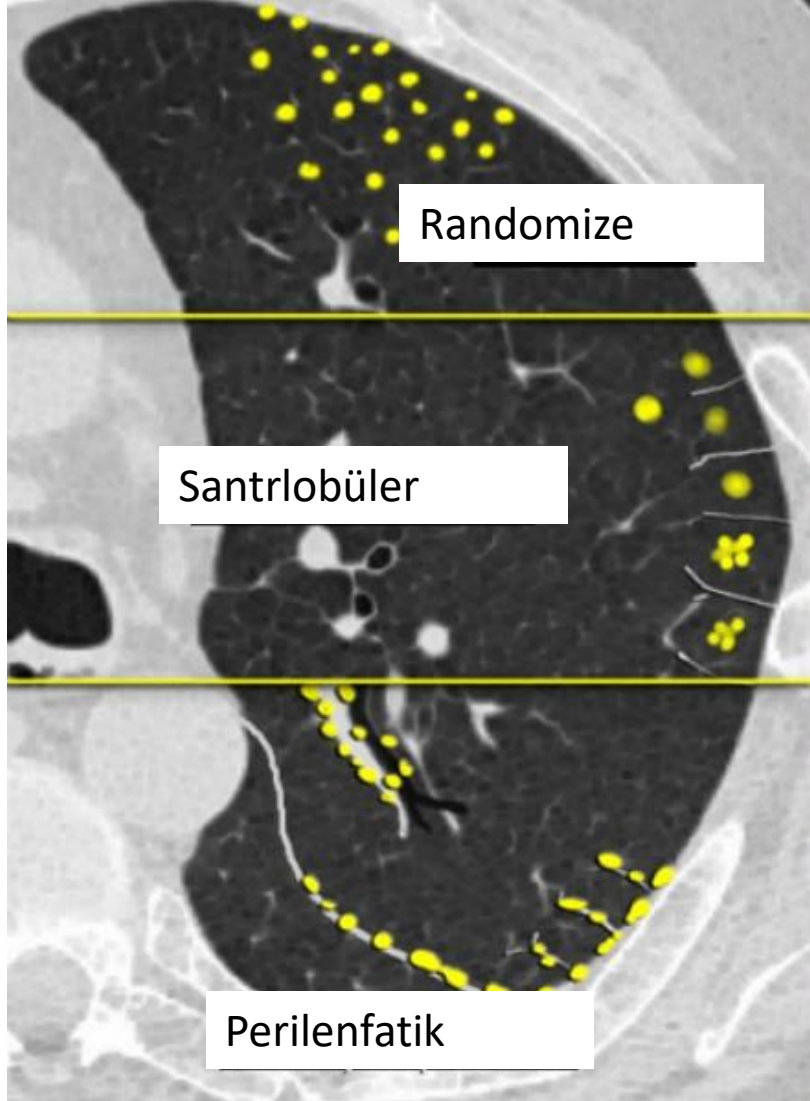


2



3

Nodüler Patern



1. Randomize (metastaz, hematojen yayımlı enfeksiyonlar)

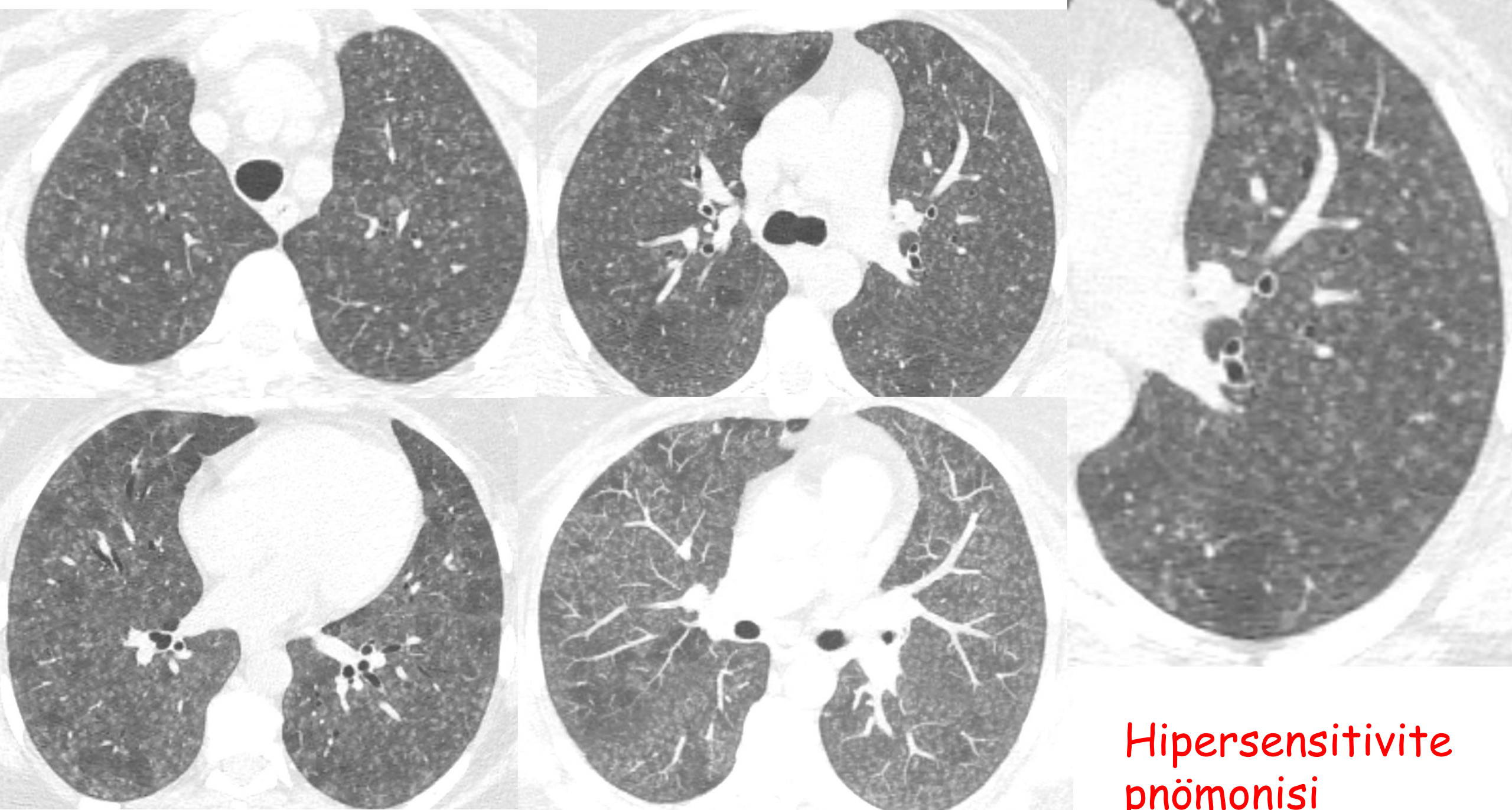


2. Santrlobüler
(HP, RB, LHH)

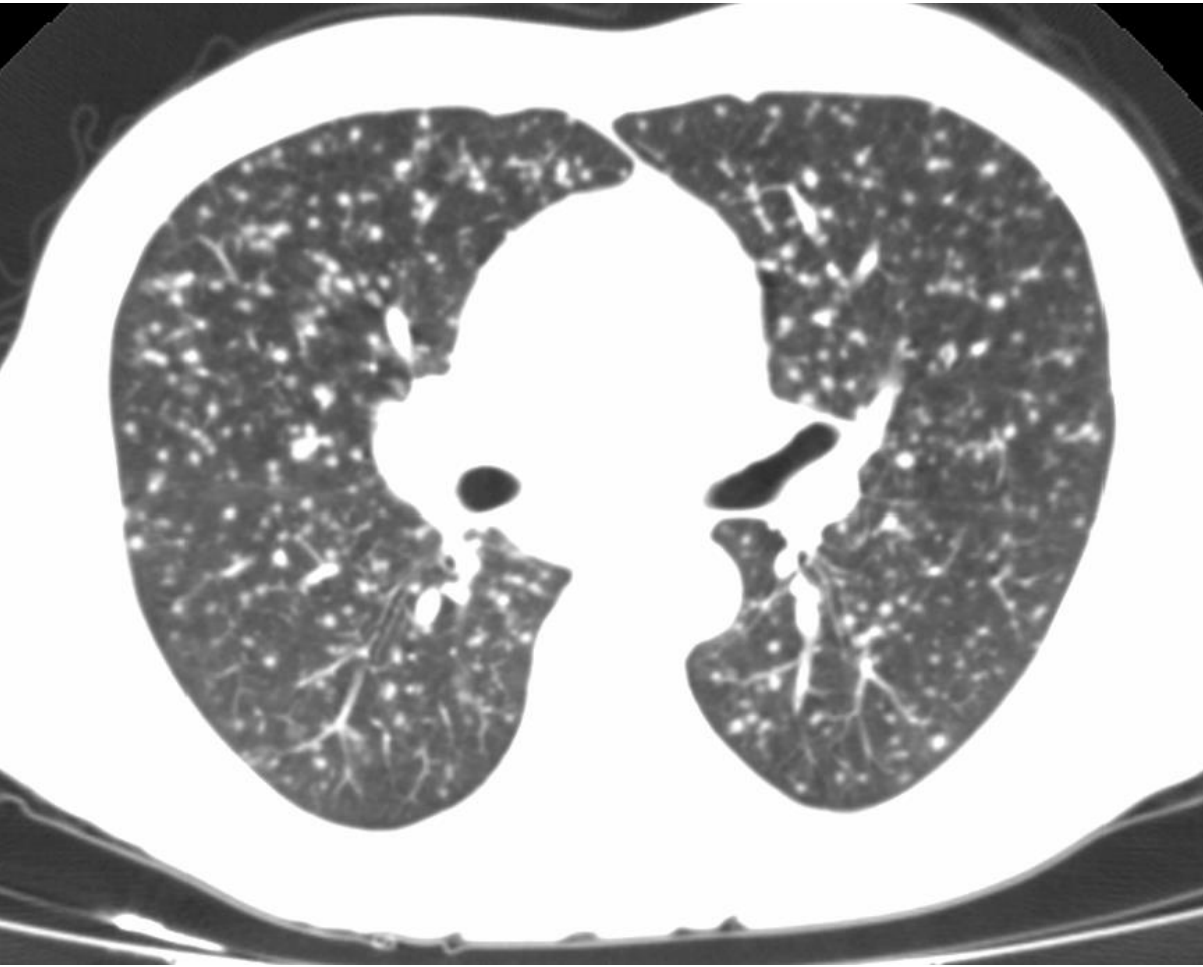
3. Perilenfatik

(Sarkoidoz, Silikozis, Lenfanjitik Metastaz)



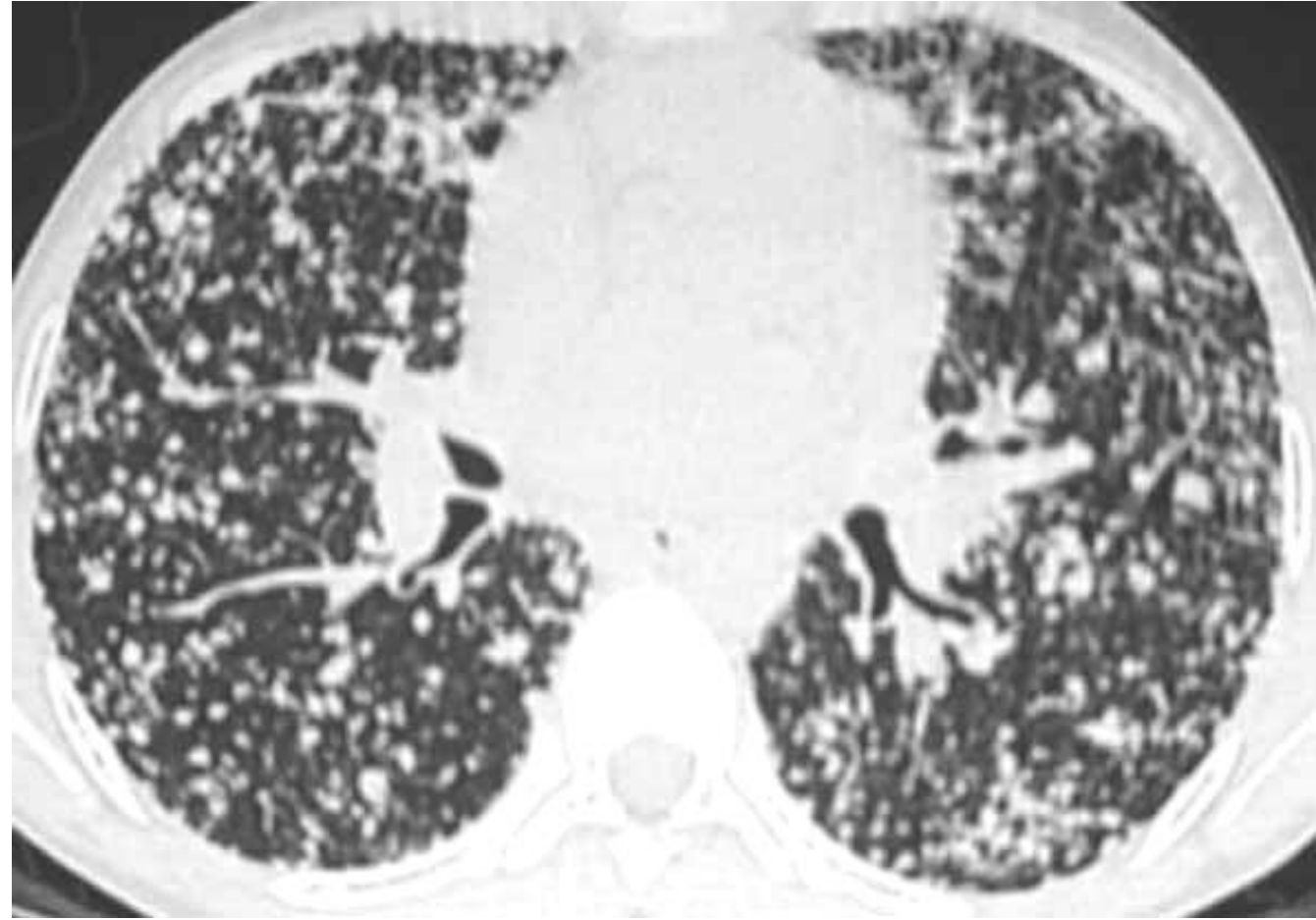


Hipersensitivite
pnömonisi



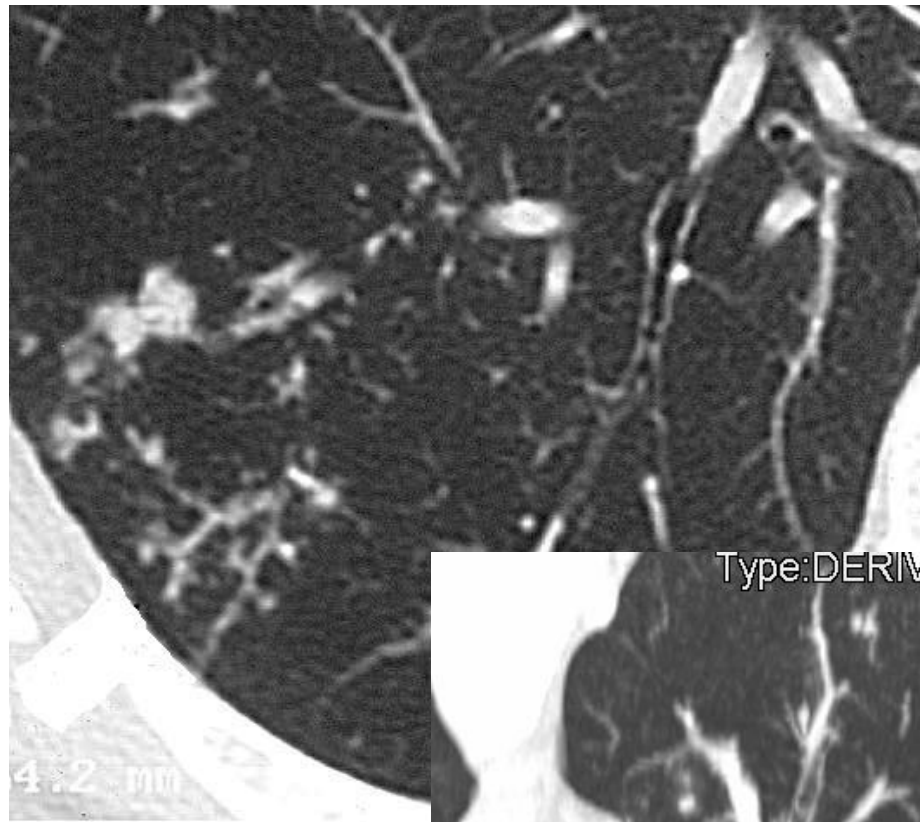
40 Y, immunsuprese , HIV(+) hasta

Milier tüberküloz

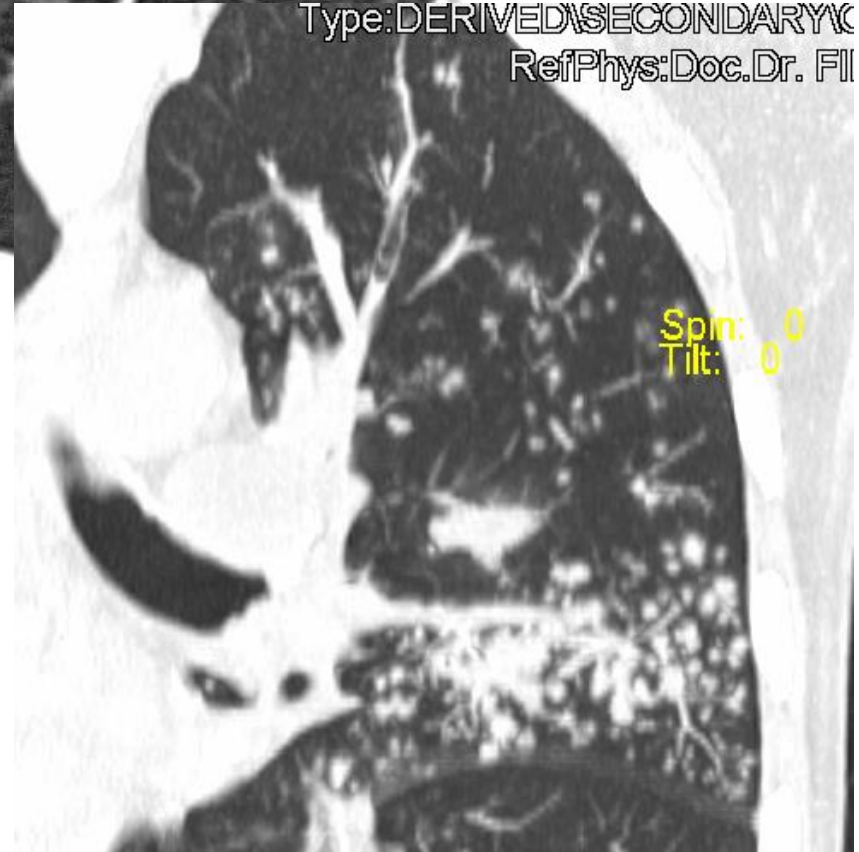


Tiroid kanseri akciğer metastazı

Rastgele dağılımlı nodüller



Type: DERIVED\SECONDARY\K
RefPhys:Doc.Dr. Fil



Tomurcuklanan Ağaç:

Hava yolu ilişkili

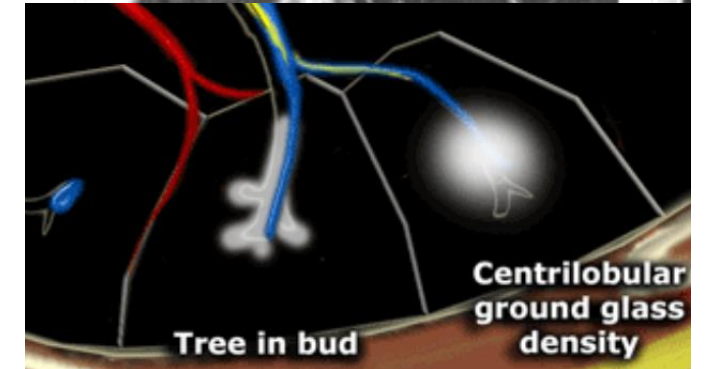
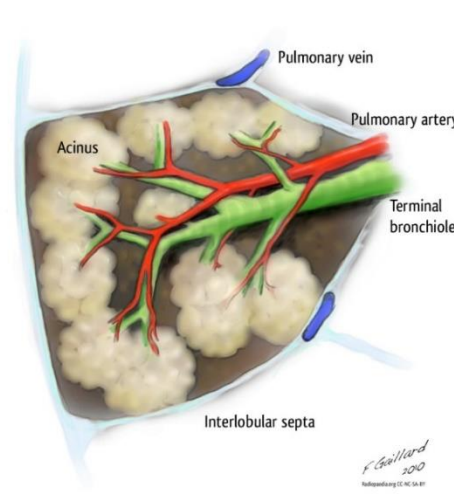
➤ Endobronşiyal yayılım gösteren enfeksiyonlar (Tüberküloz, Atipik Mikobakteriyel Enfeksiyonlar, Bronkopnömoniler, Enfeksiyöz bronşiolit)

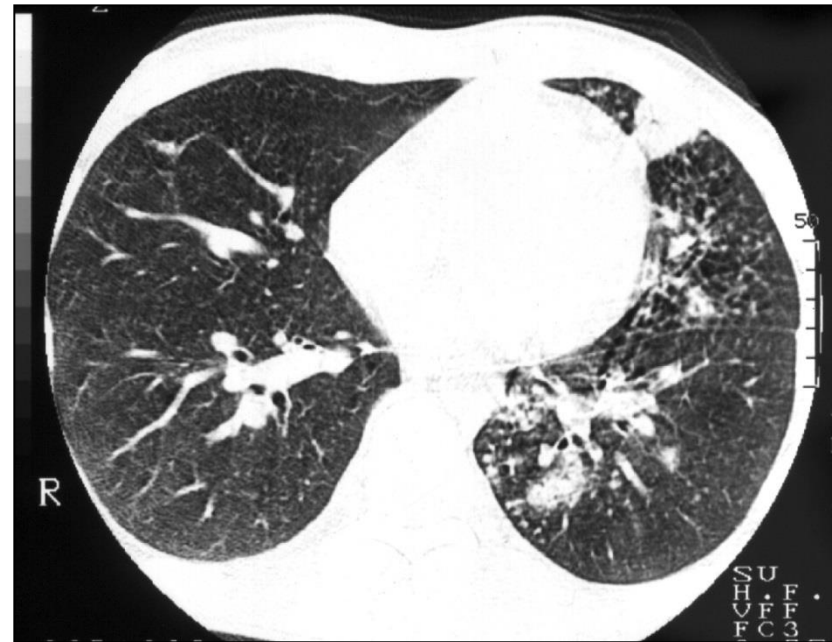
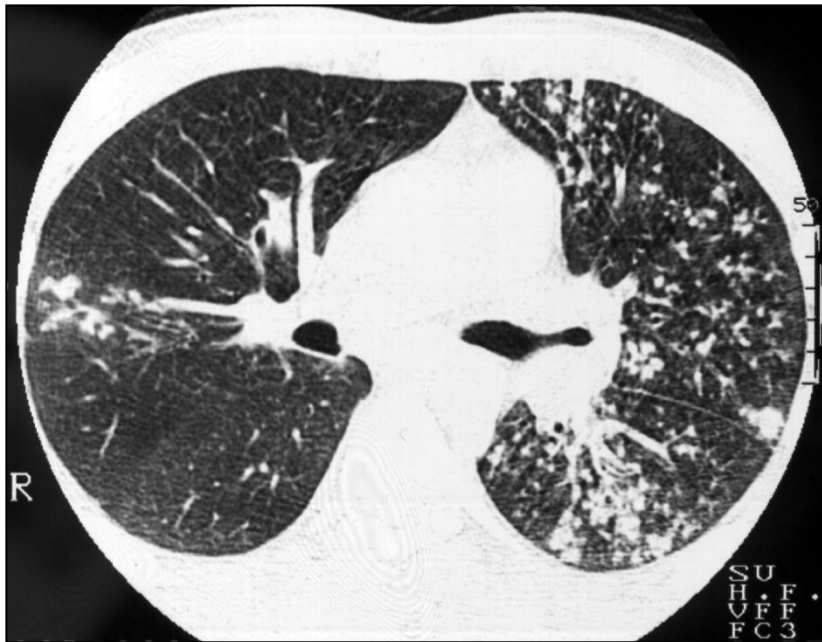
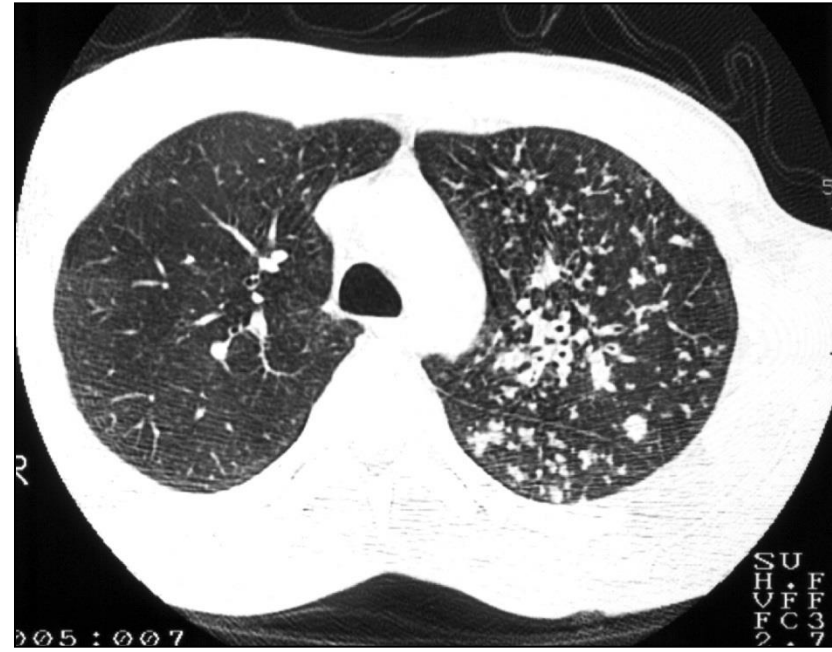
➤ Hava Yolu Hastalıkları (Kistik Fibrozis, Bronşektazi, ABPA)

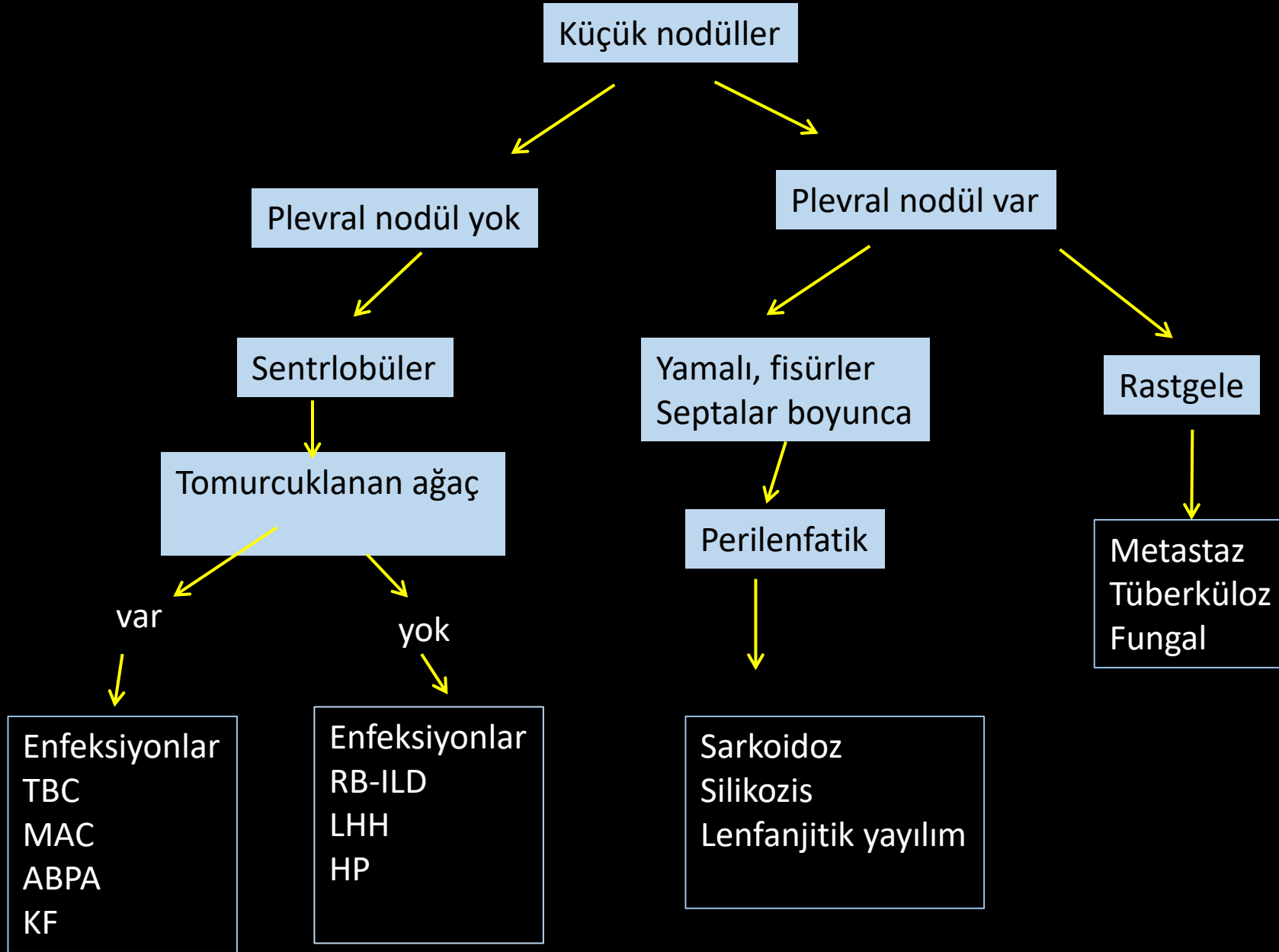
Vasküler nedenli

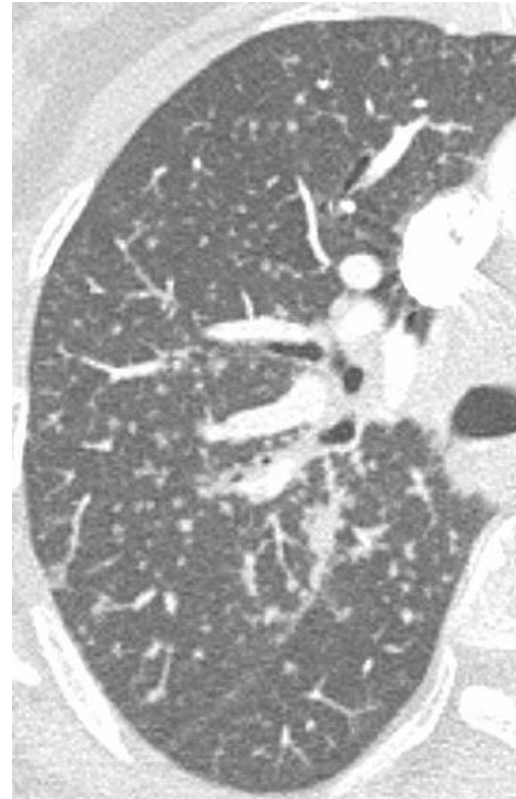
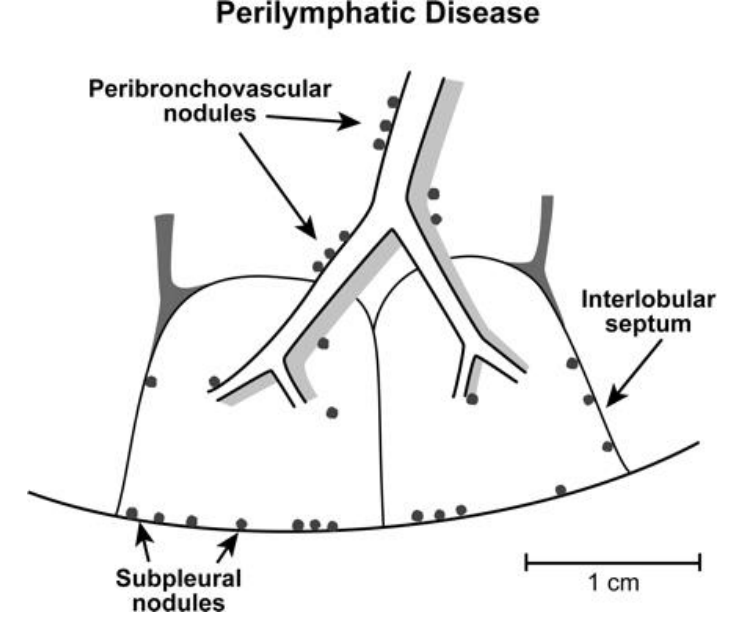
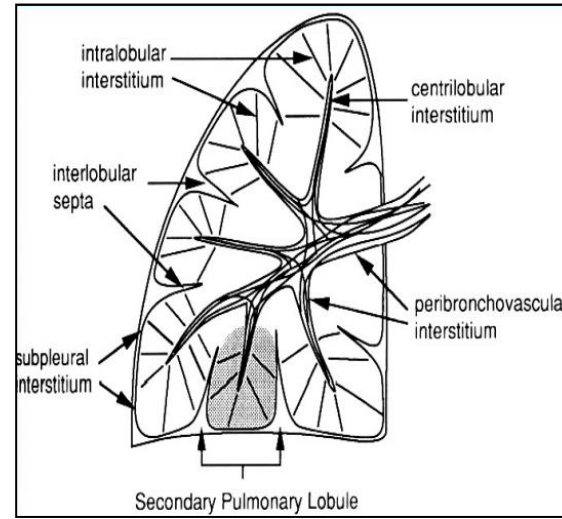
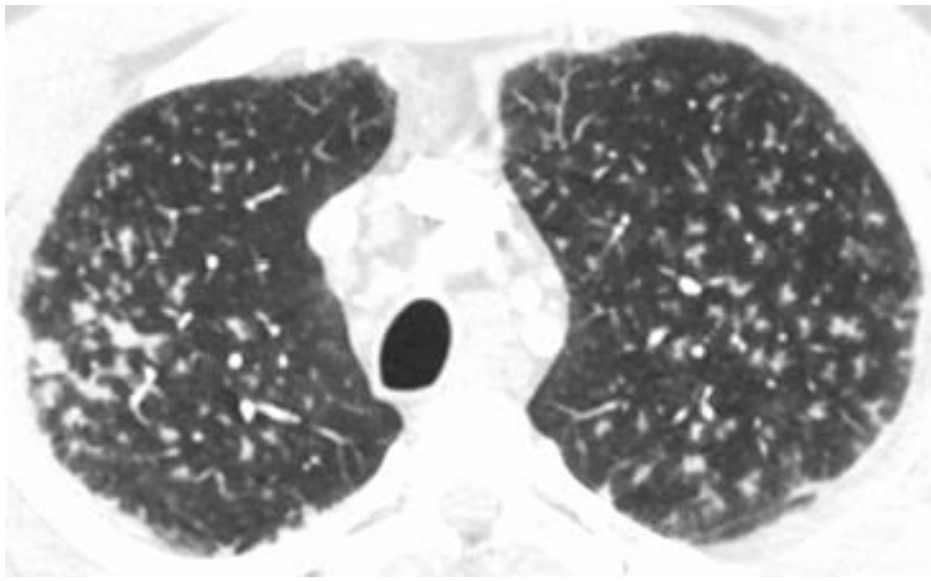
➤ İntravasküler metastaz (mide, meme ca)

➤ Vaskülitler



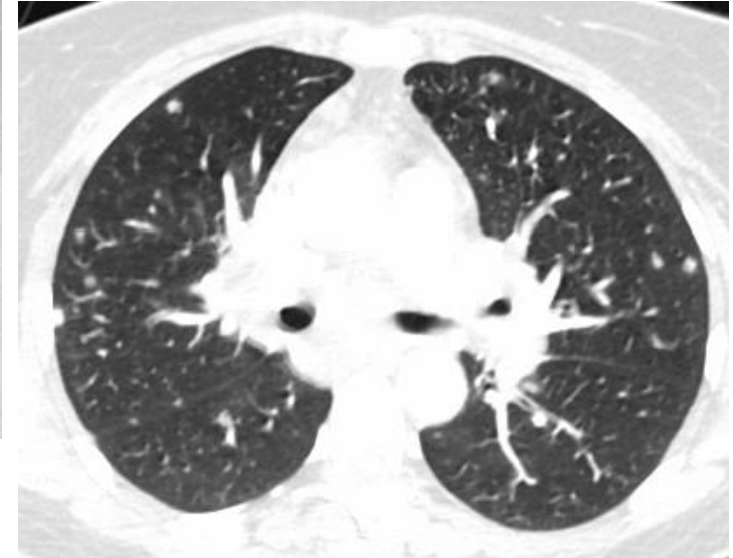
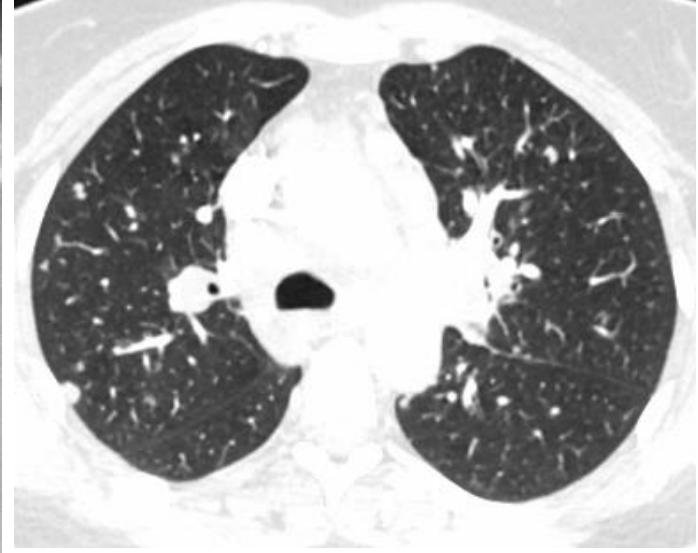
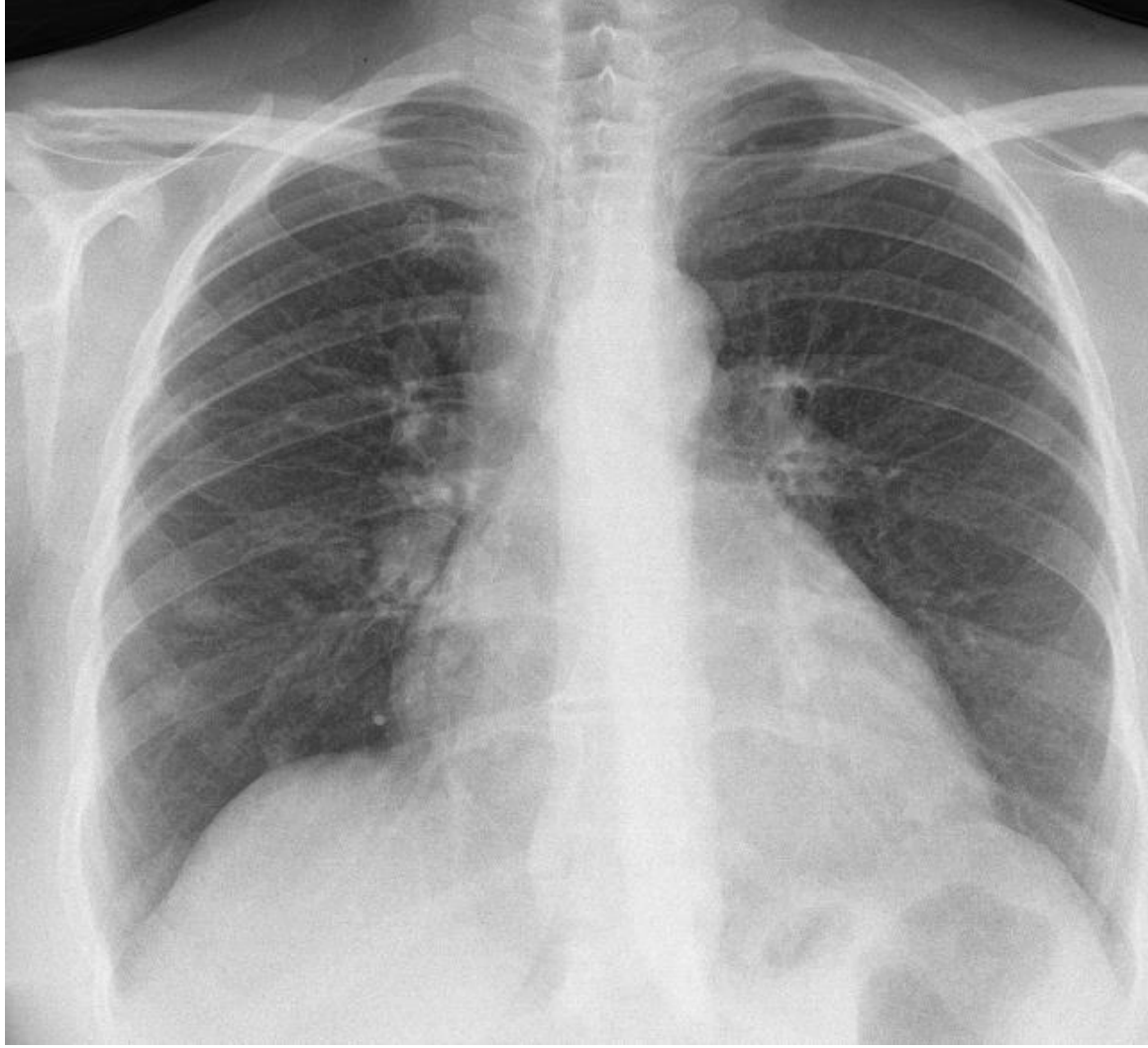




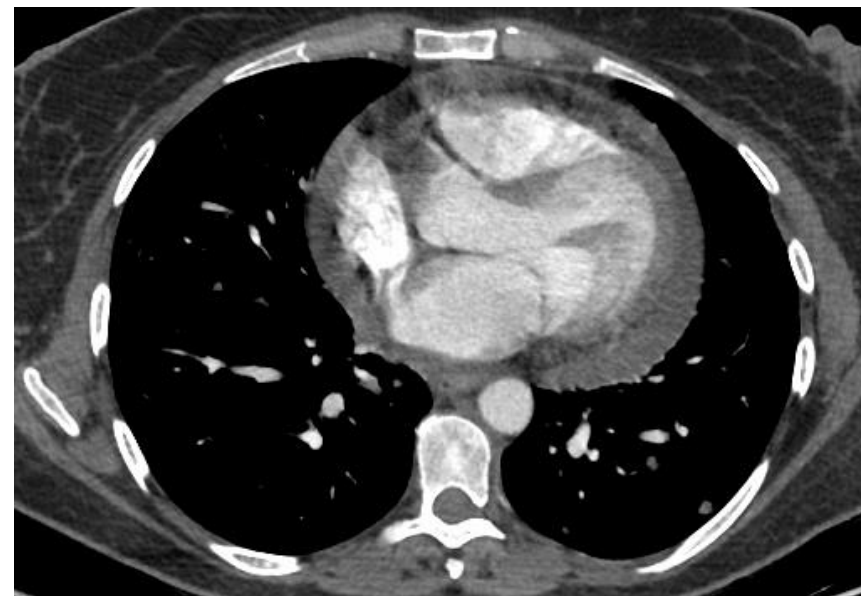
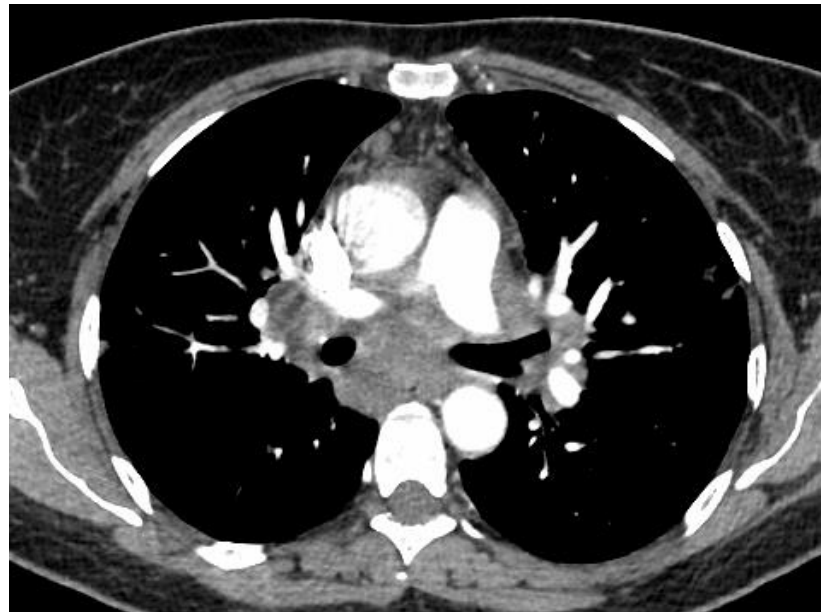
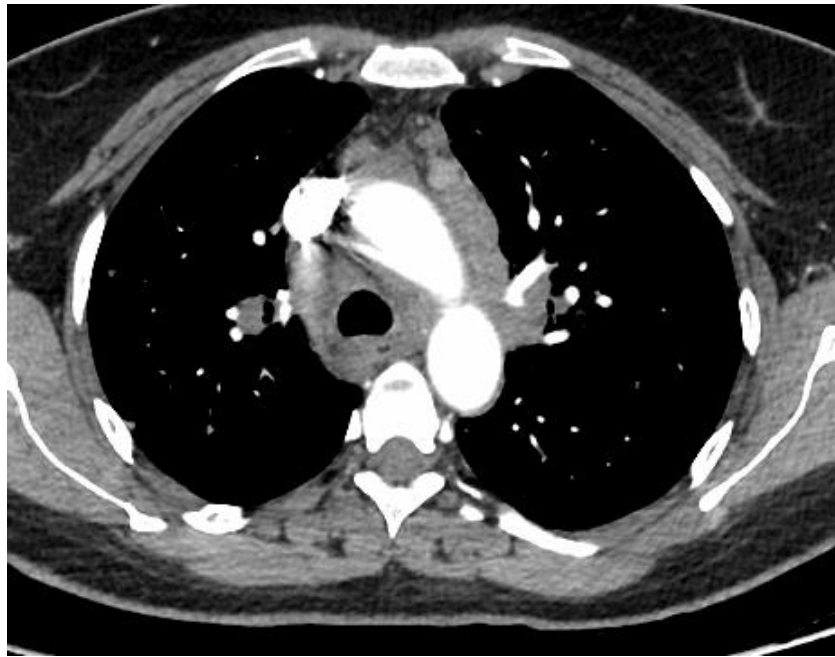


Sarkoidozda Nodüller

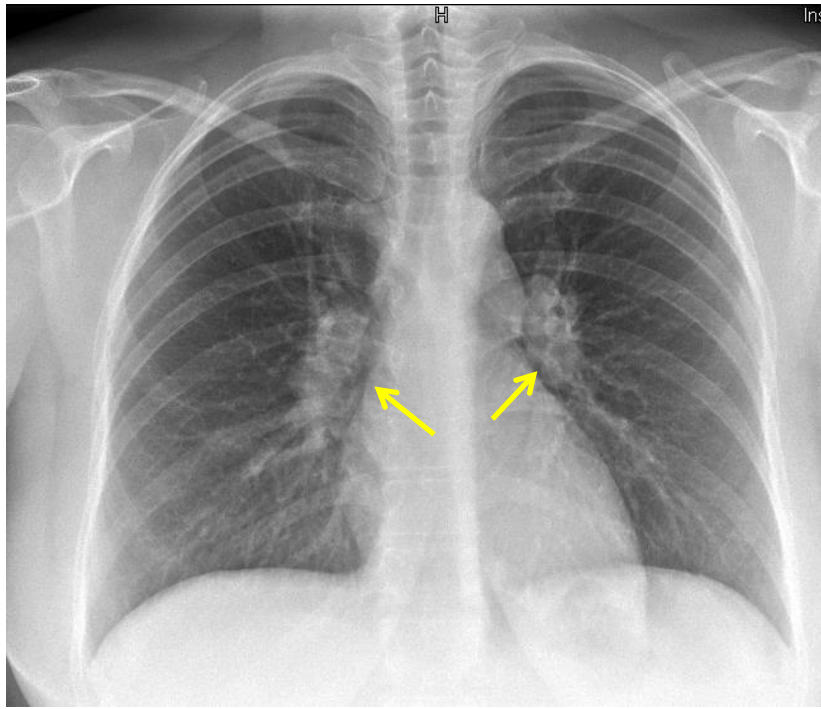
- ✓ Peribronkovasküler alanda
- ✓ İnterlobüler septalarda
- ✓ Fissürlerde
- ✓ Plevral yüzde
- ✓ Santrlobüler alanda



43 y, kadın hasta , sarkoidoz ön tanısı
ile göğüs hastalıklarına sevk ediliyor



Lenfoma

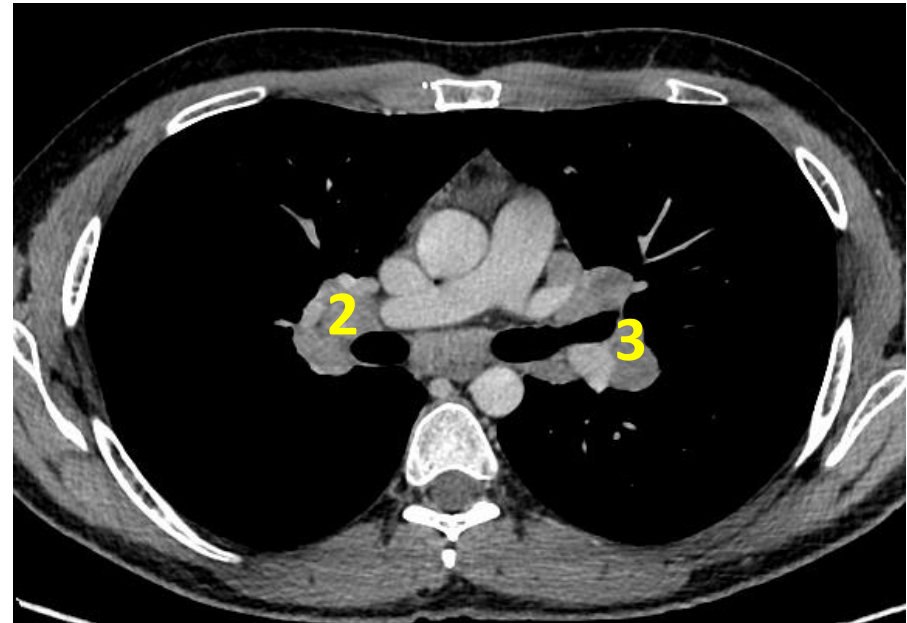
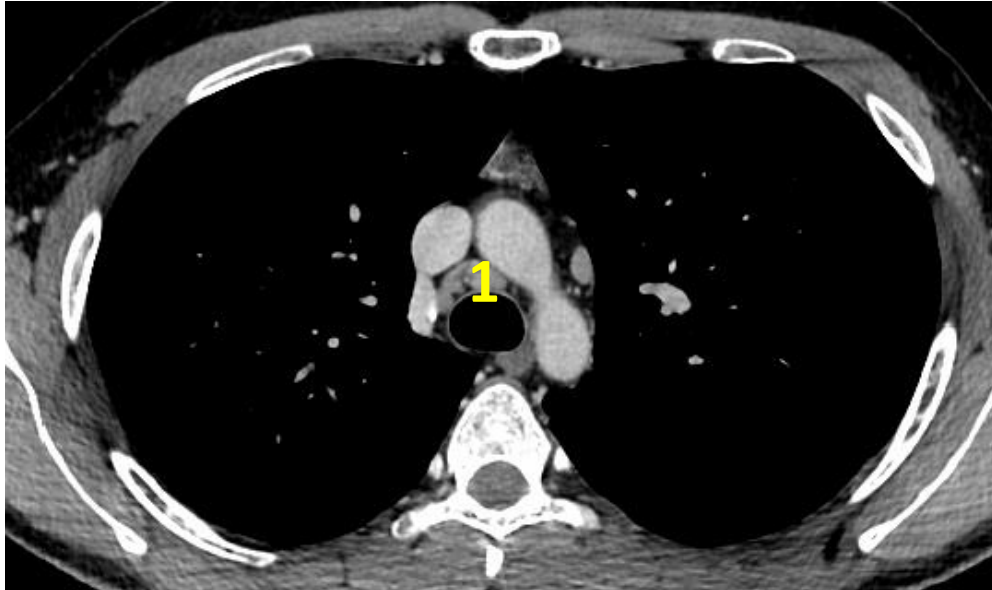


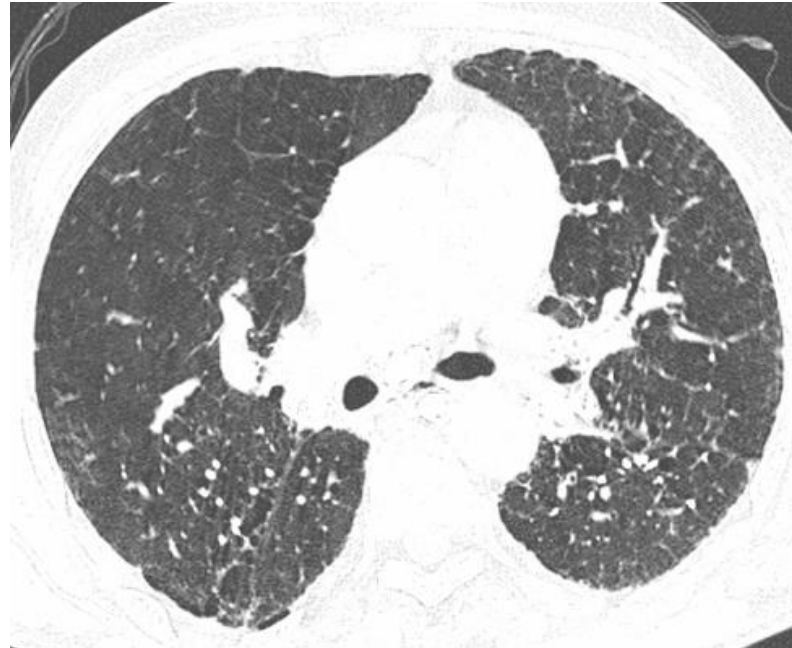
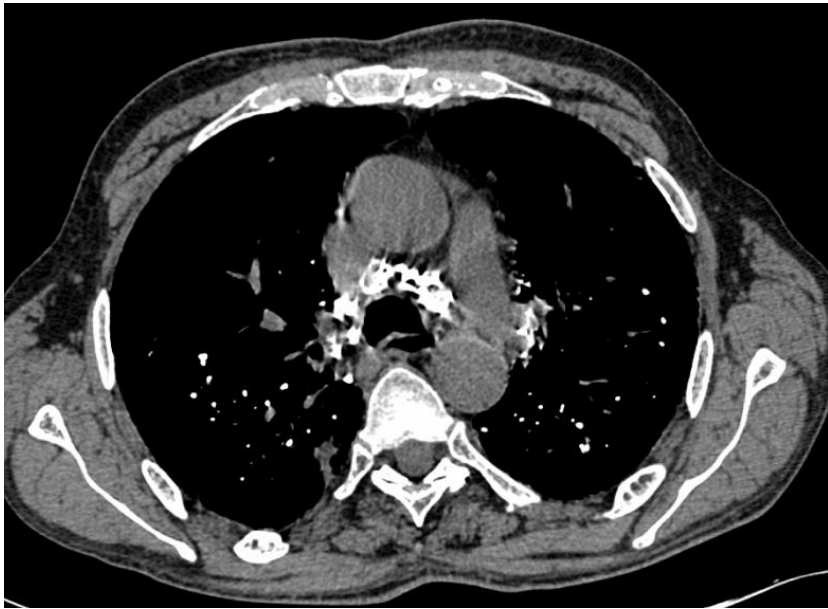
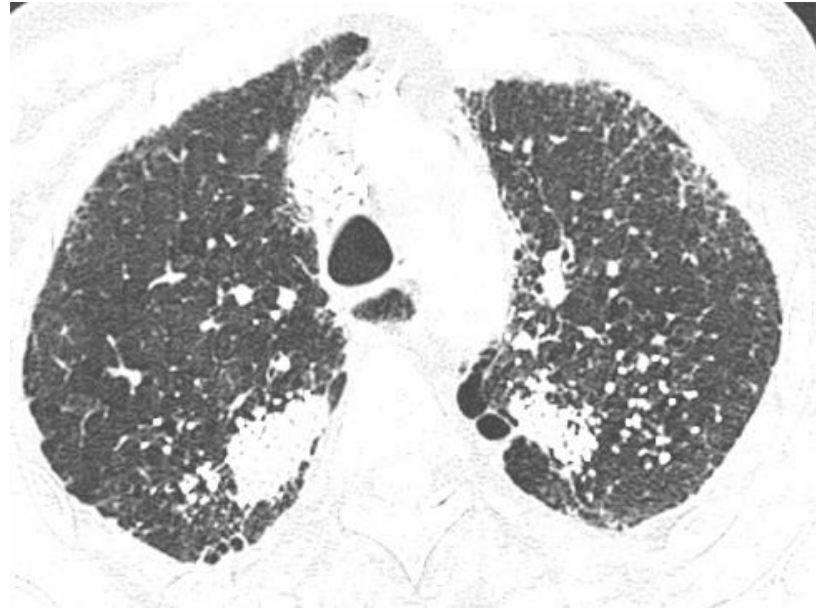
Sarkoidozda Adenopati

- ✓ Bilateral Hilar
- ✓ Sağ paratrakeal
- ✓ Subkarinal
- ✓ AP pencere

Daha Nadiren:

- ✓ Ön/Arka Mediaten
- ✓ Parakardiyak
- ✓ Retrokrural





Silikozis

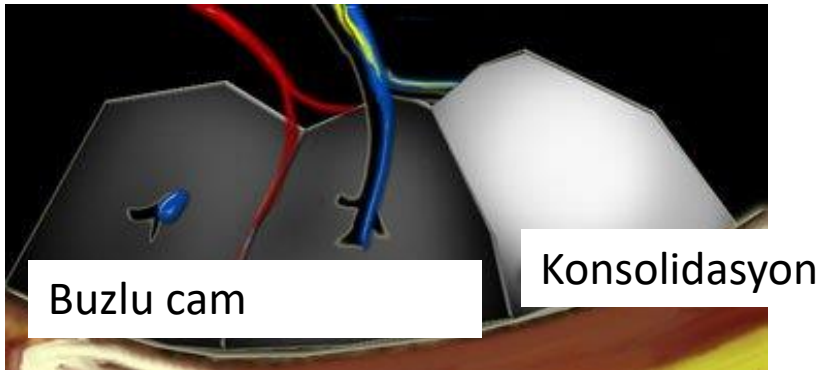
DANSITE

Dansite

Artmış Dansite

Azalmış Dansite

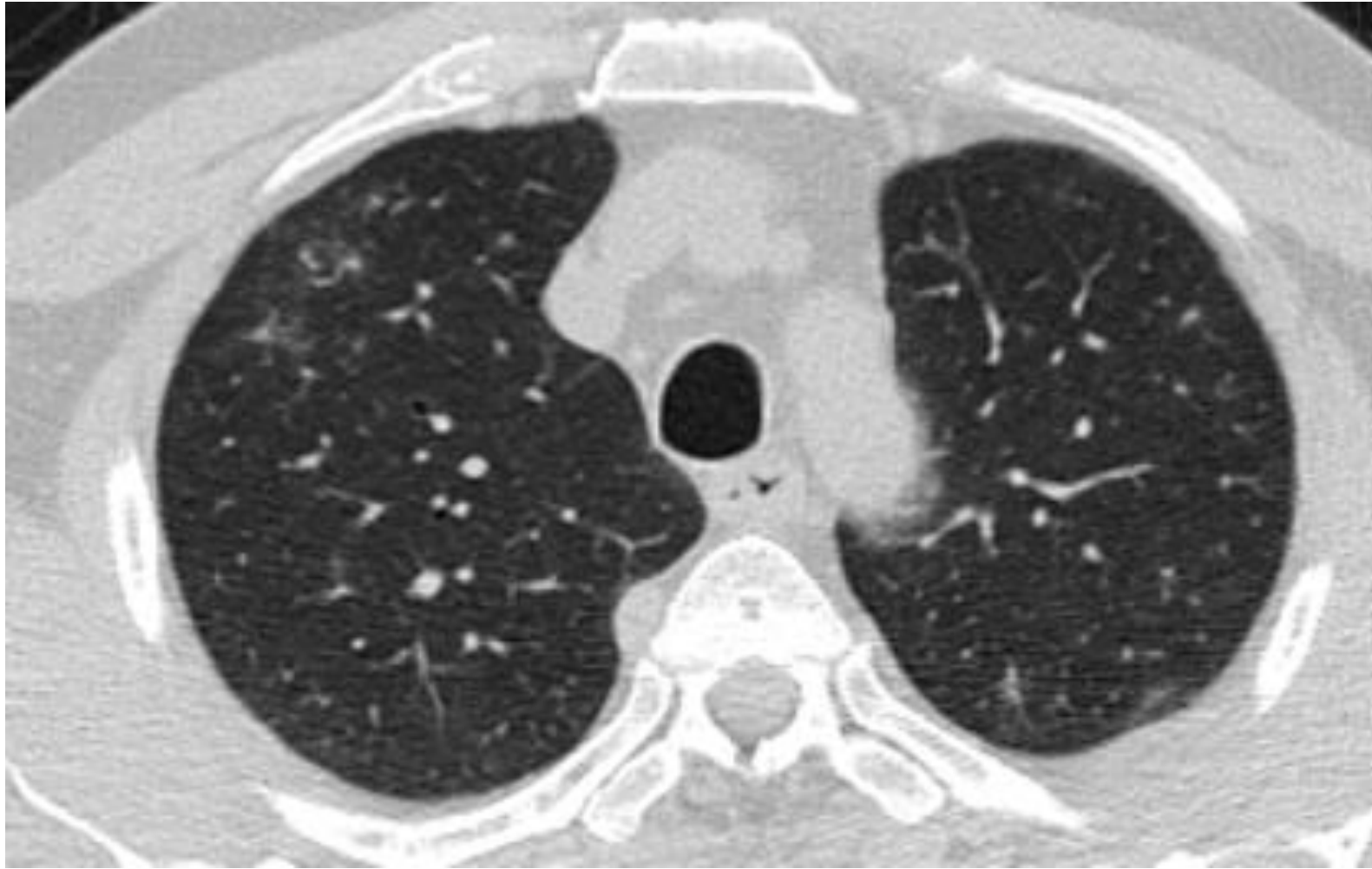
- Konsolidasyon
- Buzlu Cam



OLGU

61 y, erkek
Öksürük, balgam,
nefes darlığı,
Pnömoni tedavisi
almış

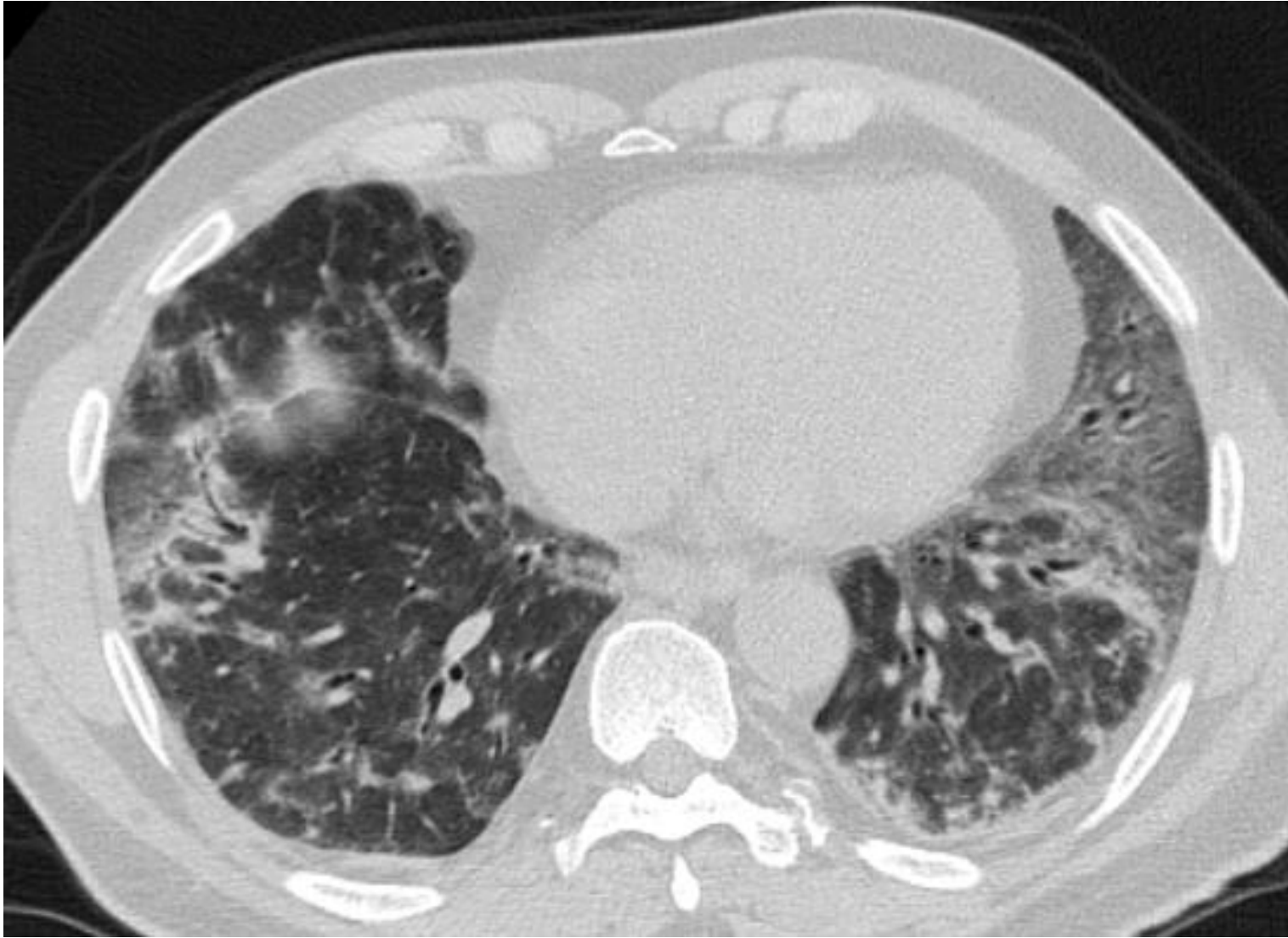










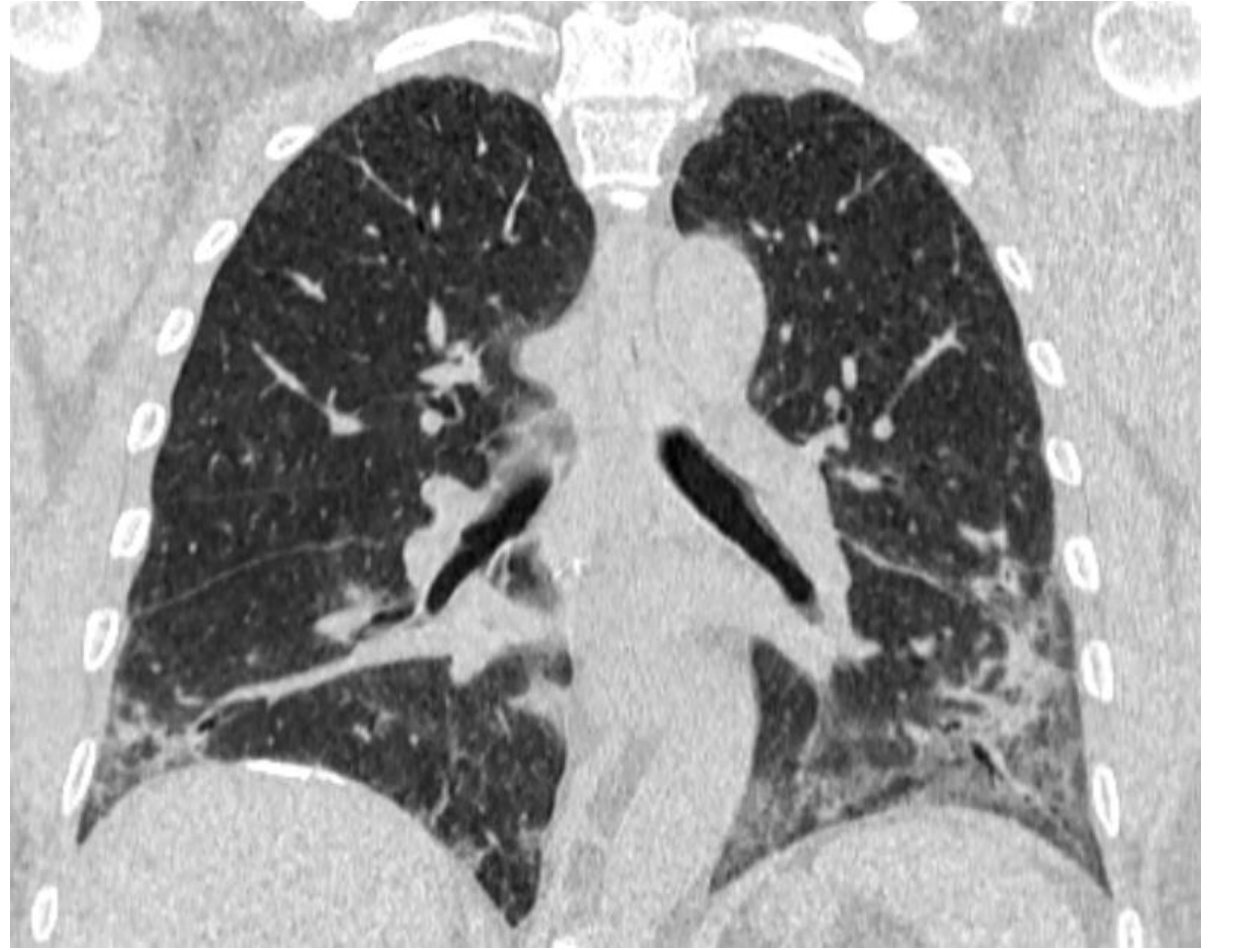








Tanı?



- 1.Hastaya ait bilgiler: 61 y, erkek
- Öksürük, balgam, öyküde pnömoni tedavisi
- 2.Dominant patern : buzlu cam
- 3.Zonal tutulumu? Alt zon, periferik dağılım

Buzlu Cam Alanları

AKUT

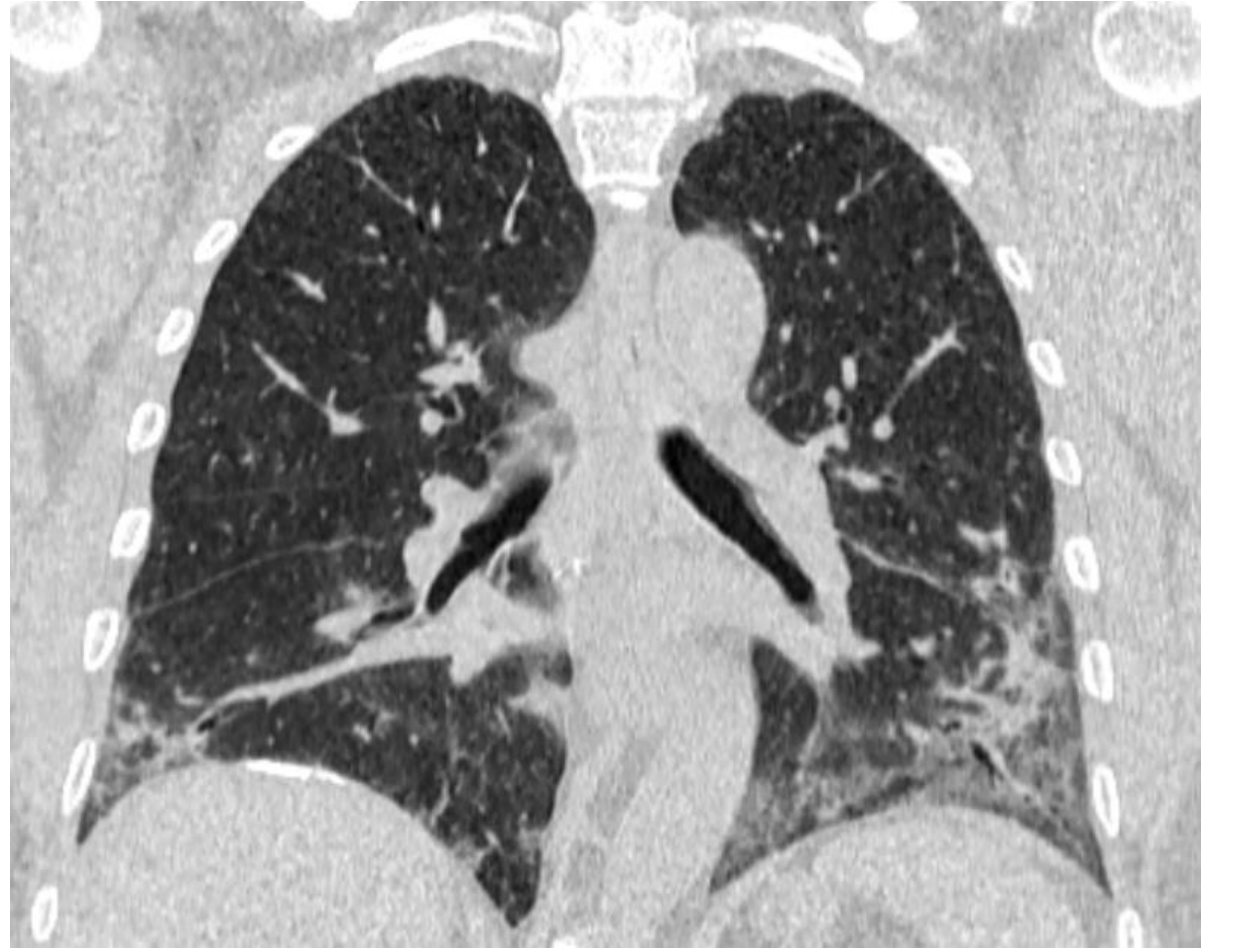
- Pulmoner Ödem
- Enfeksiyonlar
- Alveoler Hemoraji
- Akut Hipersensitivite Pnömonisi

SUBAKUT/KRONİK

- NSIP
- DIP
- PAP
- Kronik HP
- Organize Pnömoni
- Adenokanser



Tanı?
NSIP

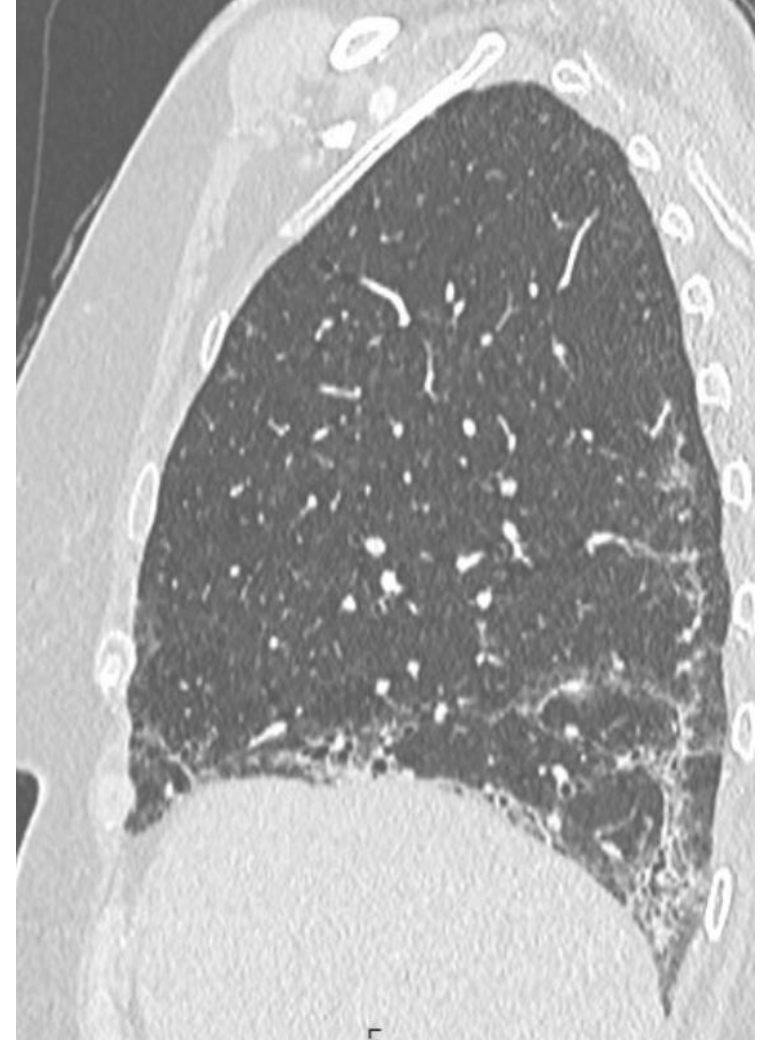
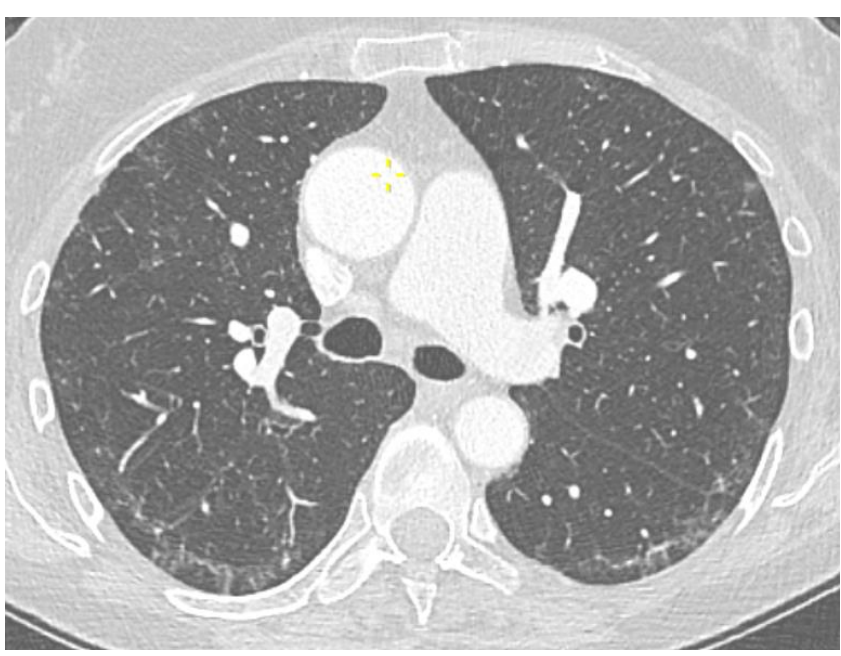


- 1.Hastaya ait bilgiler: 61 y, erkek
- Öksürük, balgam, öyküde pnömoni tedavisi
- 2.Dominant patern : buzlu cam
- 3.Zonal tutulumu? Alt zon, periferik dağılım

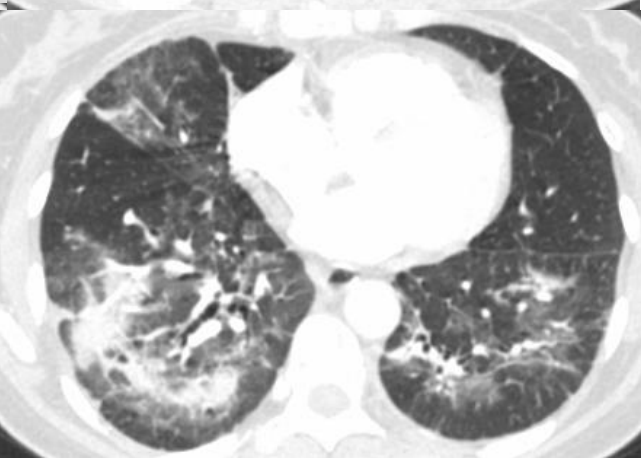
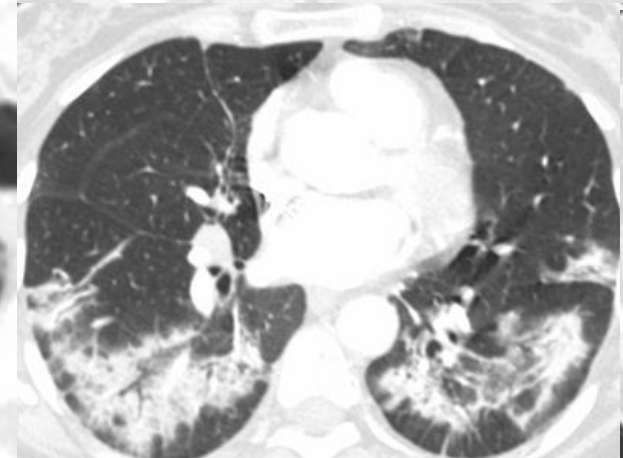
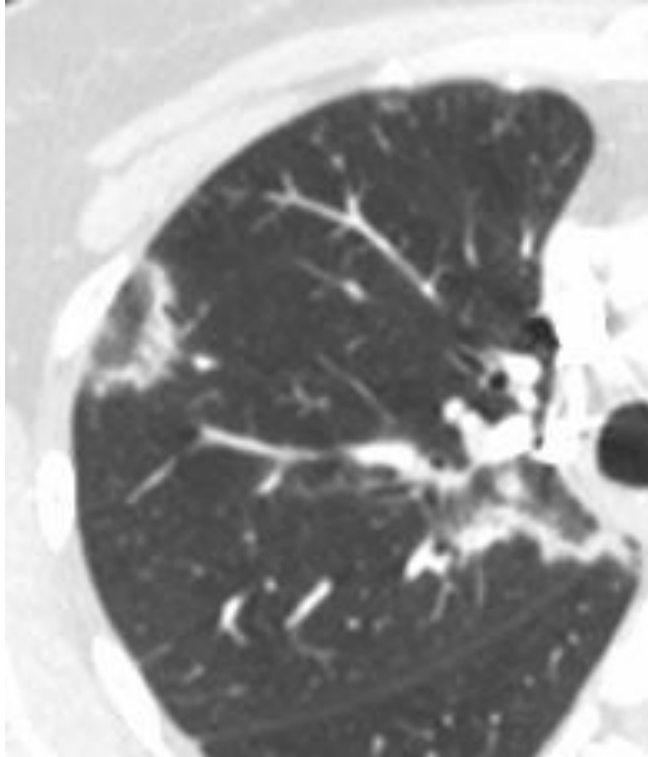
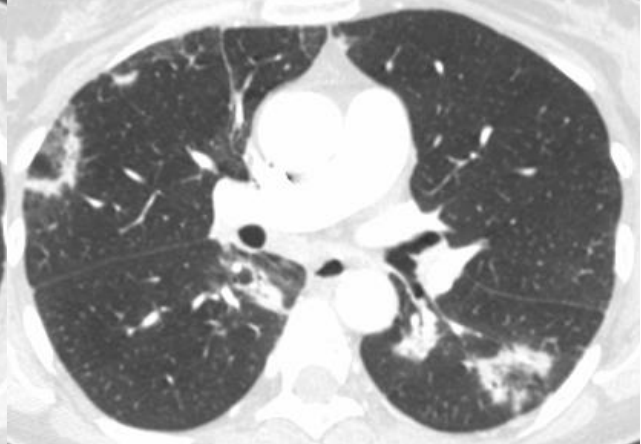
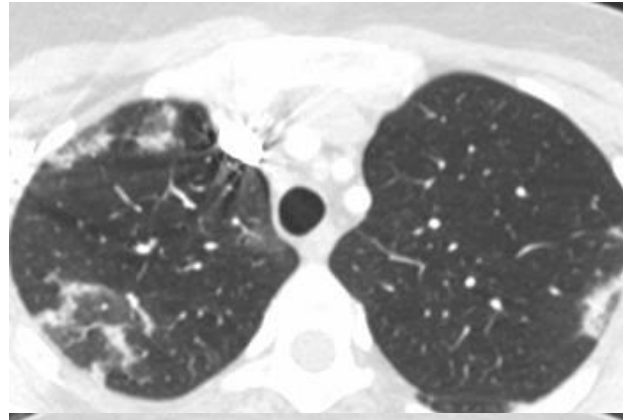
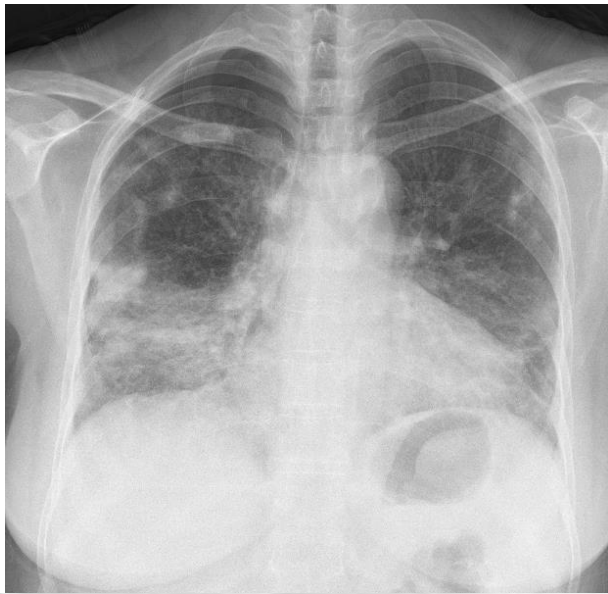
Nonspesifik İntertisyel Pnömoni(NSIP)

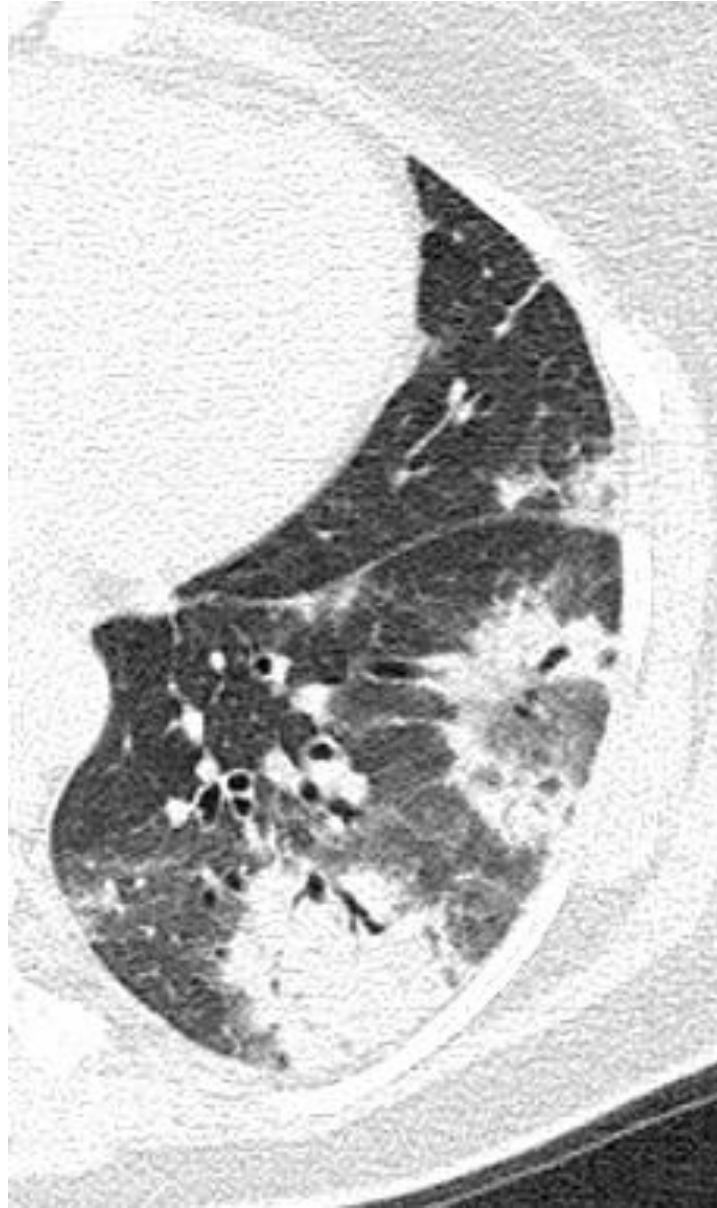
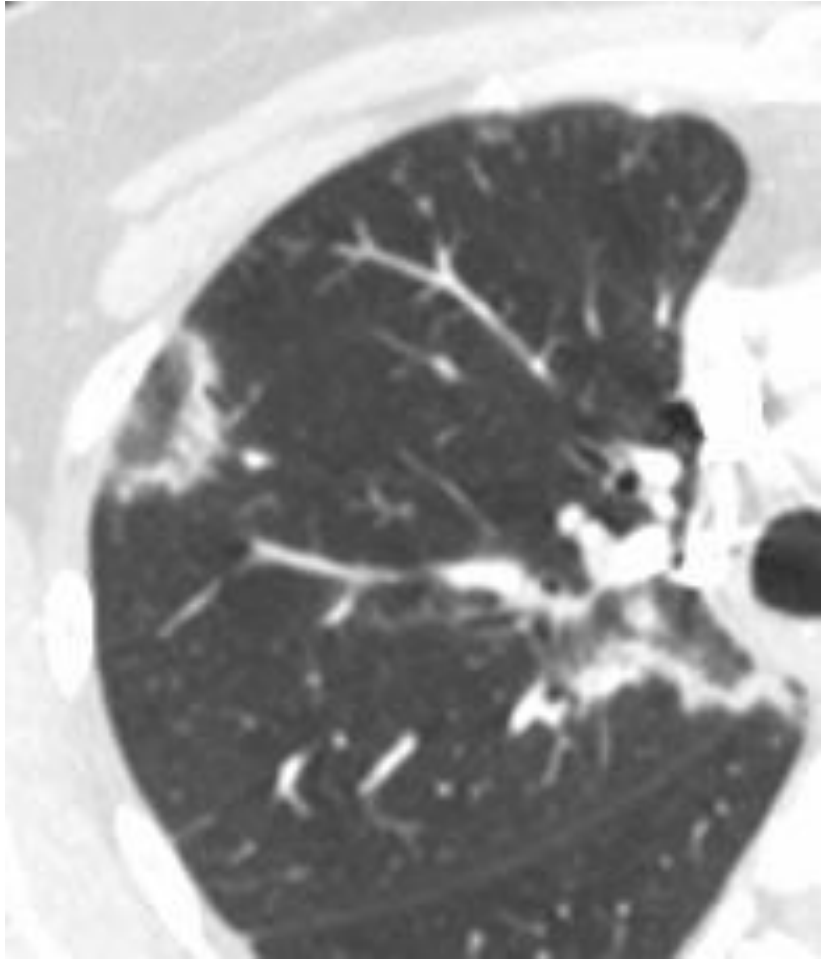
- İki tip: Selüler/Fibrotik
HRCT paterni
- Bilateral homojen , buzlu cam alanları
- Retikülasyonlar
- Traksiyon bronşektazileri ve Bronşiolektazileri
- Mikronodularite
- Subplevral alanın korunması
- Balpeteği az ya da yok





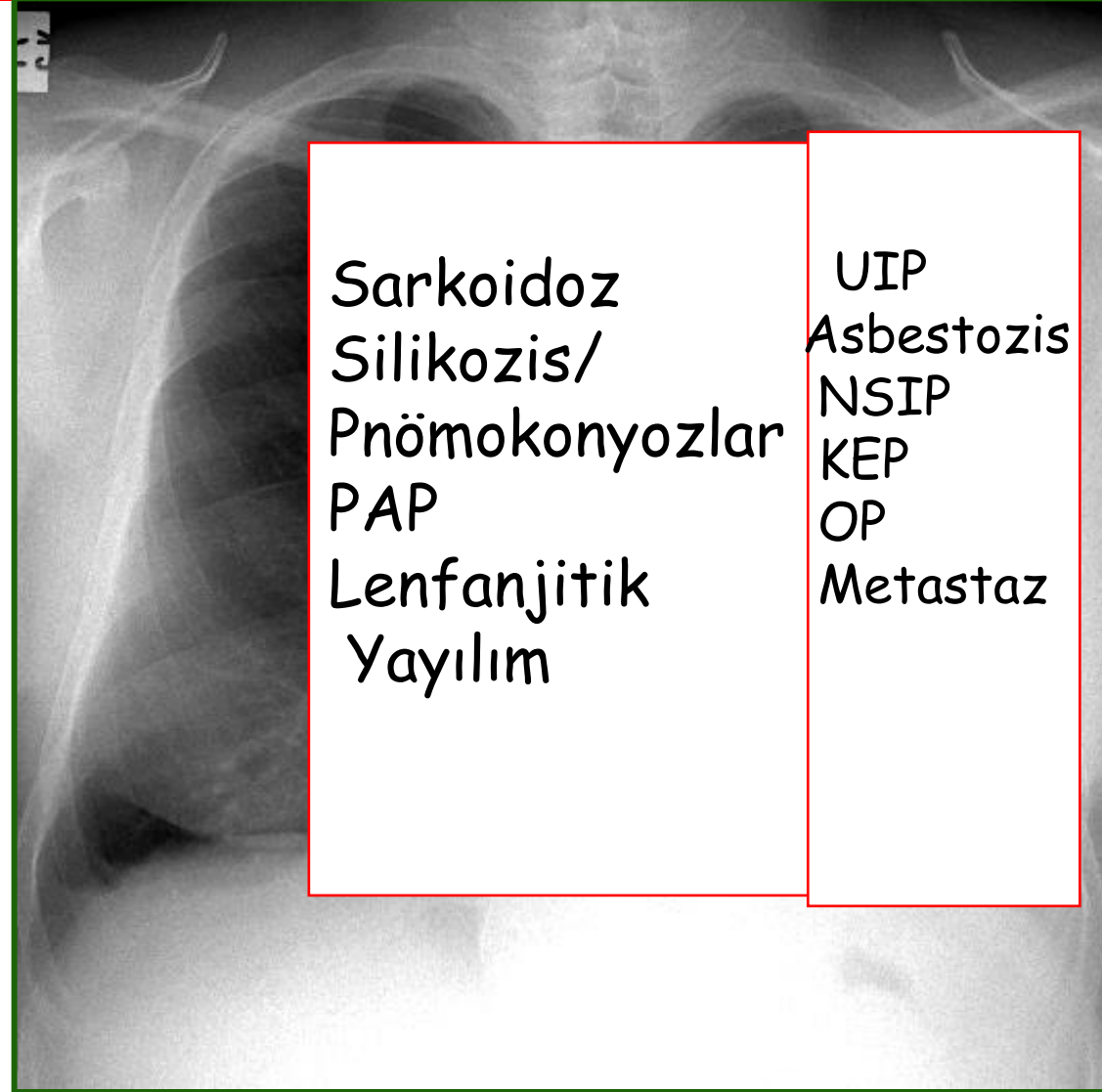
60 yaş Kadın
SLE tanısı mevcut
NSIP
*Subplevral korunma





Ters Halo
işareti/
Atol işareti

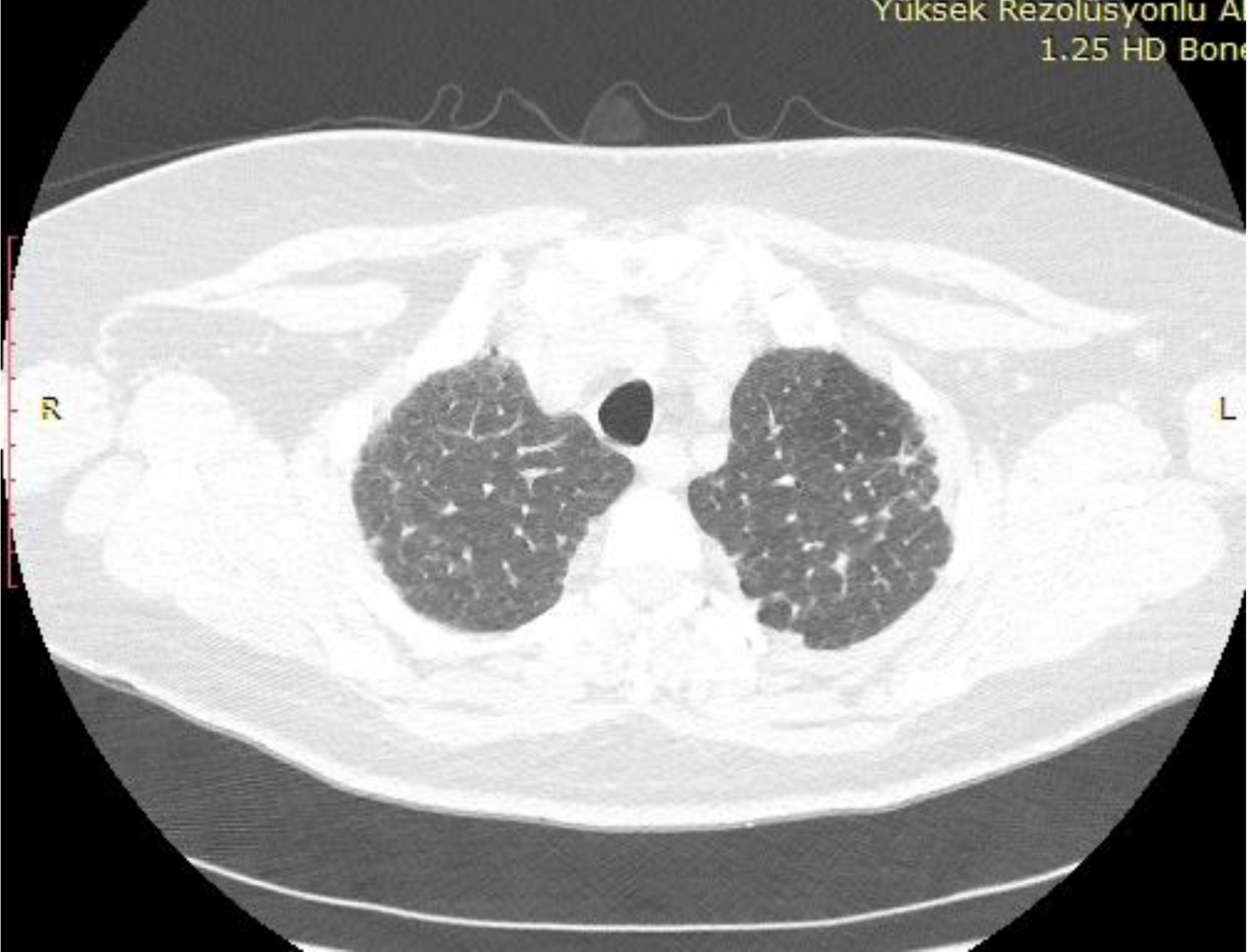
AKCIĐER SANTRALİNİ/PERİFERİNİ TUTAN HASTALIKLAR



OLGU



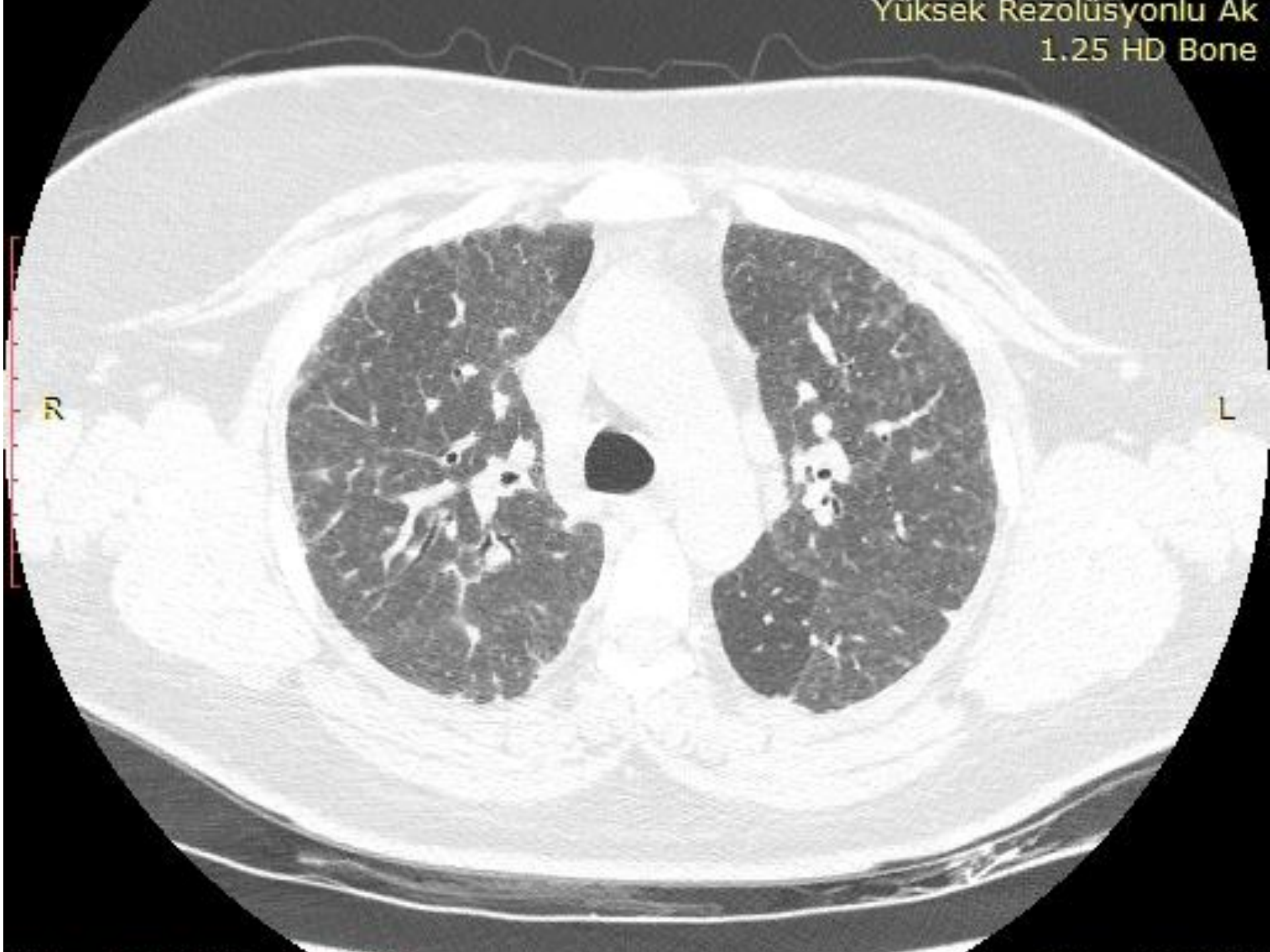
43 y, Kadın,
Son 1 yıldır belirginleşen nefes darlığı, öksürük



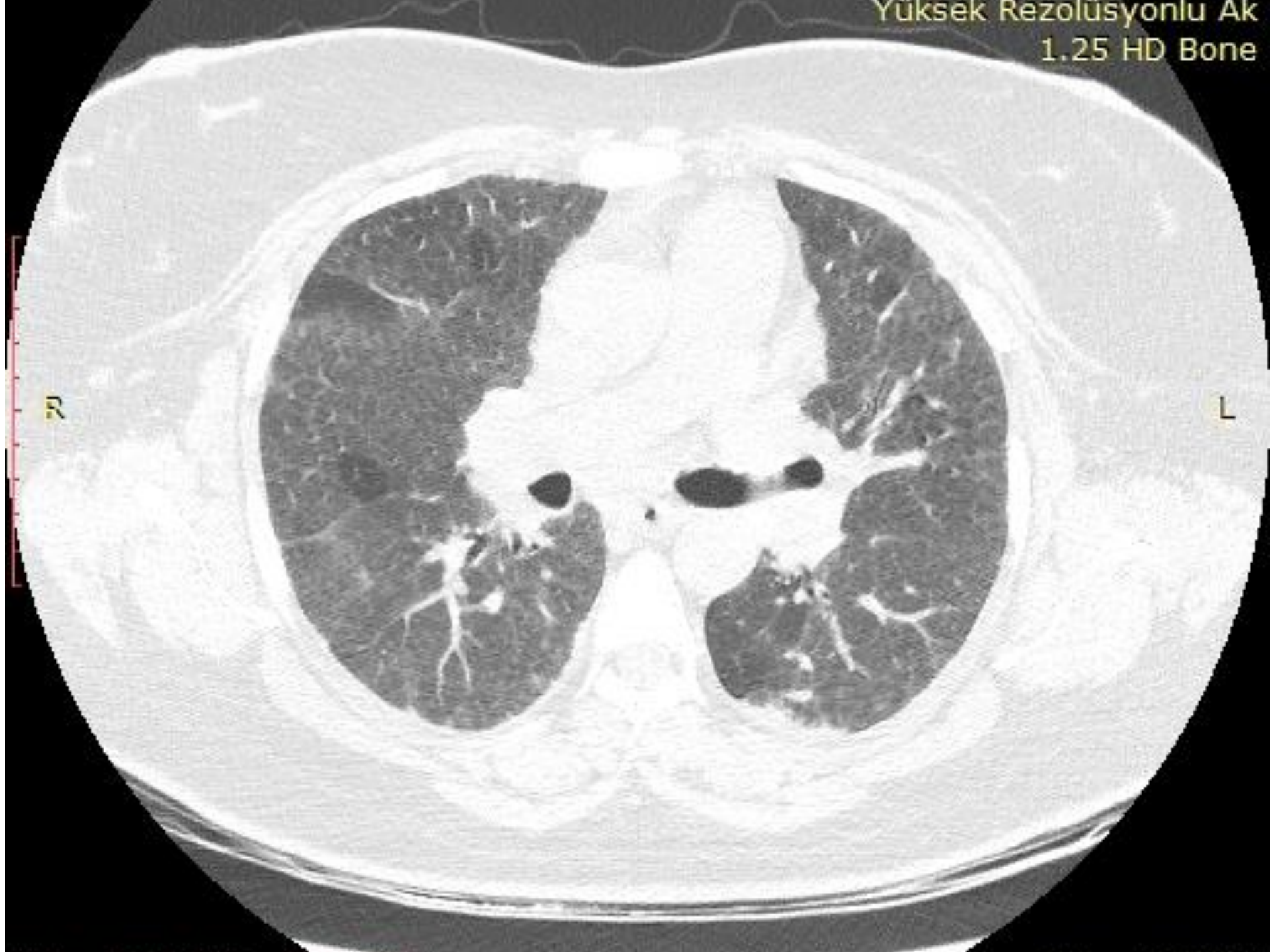
Yüksek Rezolüsyonlu Ak
1.25 HD Bone

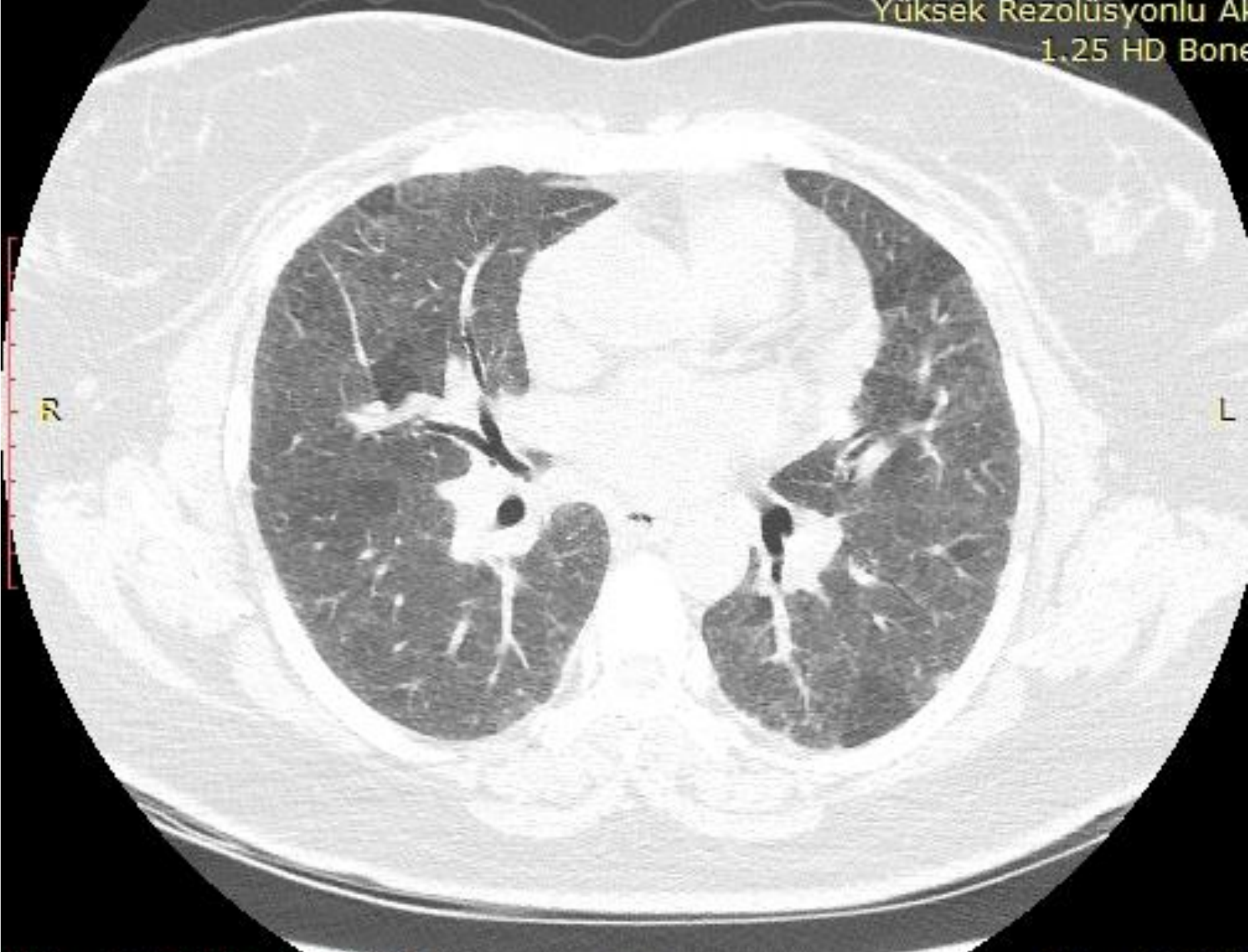


Yüksek Rezolüsyonlu Ak
1.25 HD Bone



Yüksek Rezolüsyonlu Ak
1.25 HD Bone

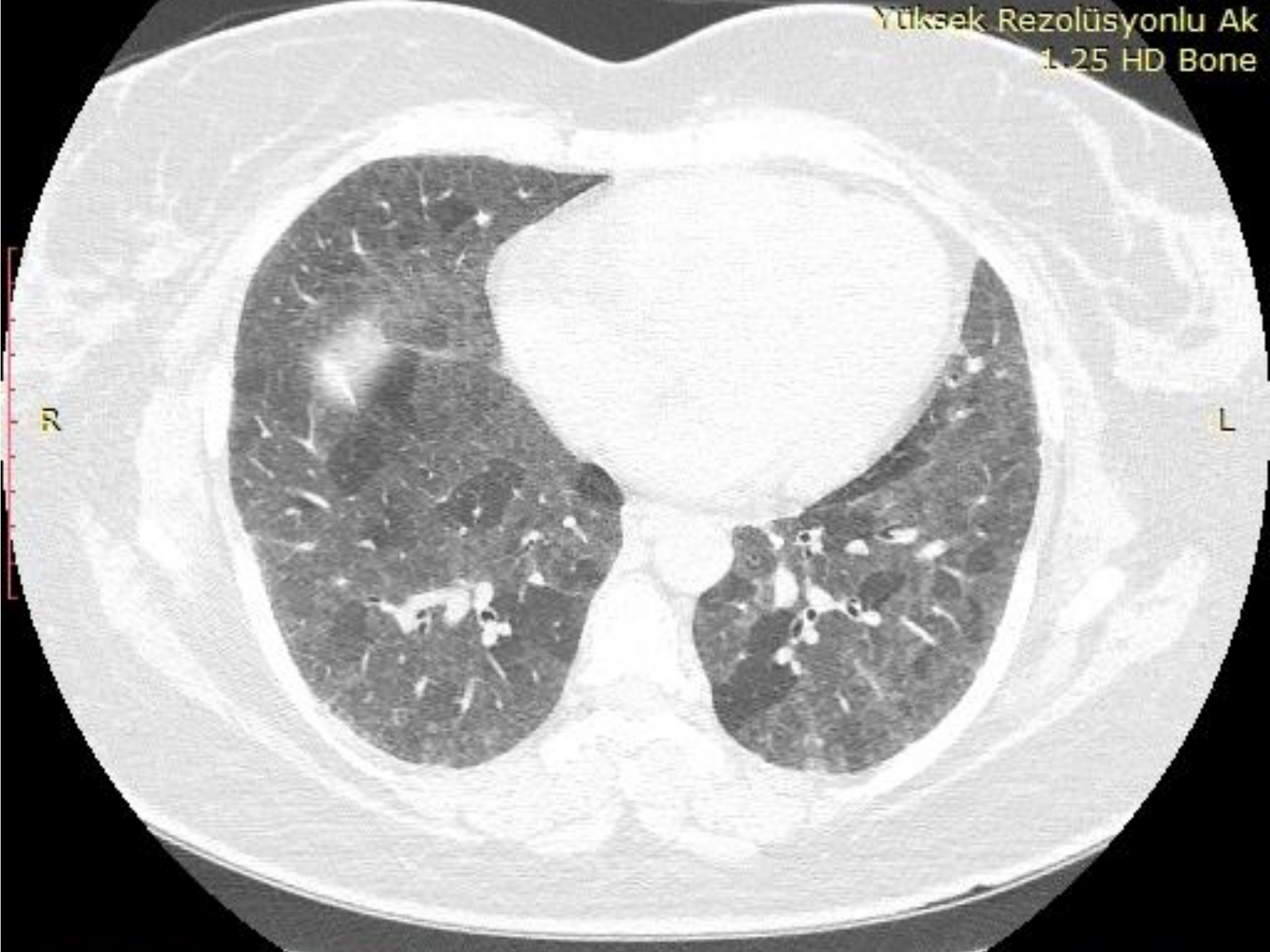




Yüksek Rezolüsyonlu Ak
1,25 HD Bone



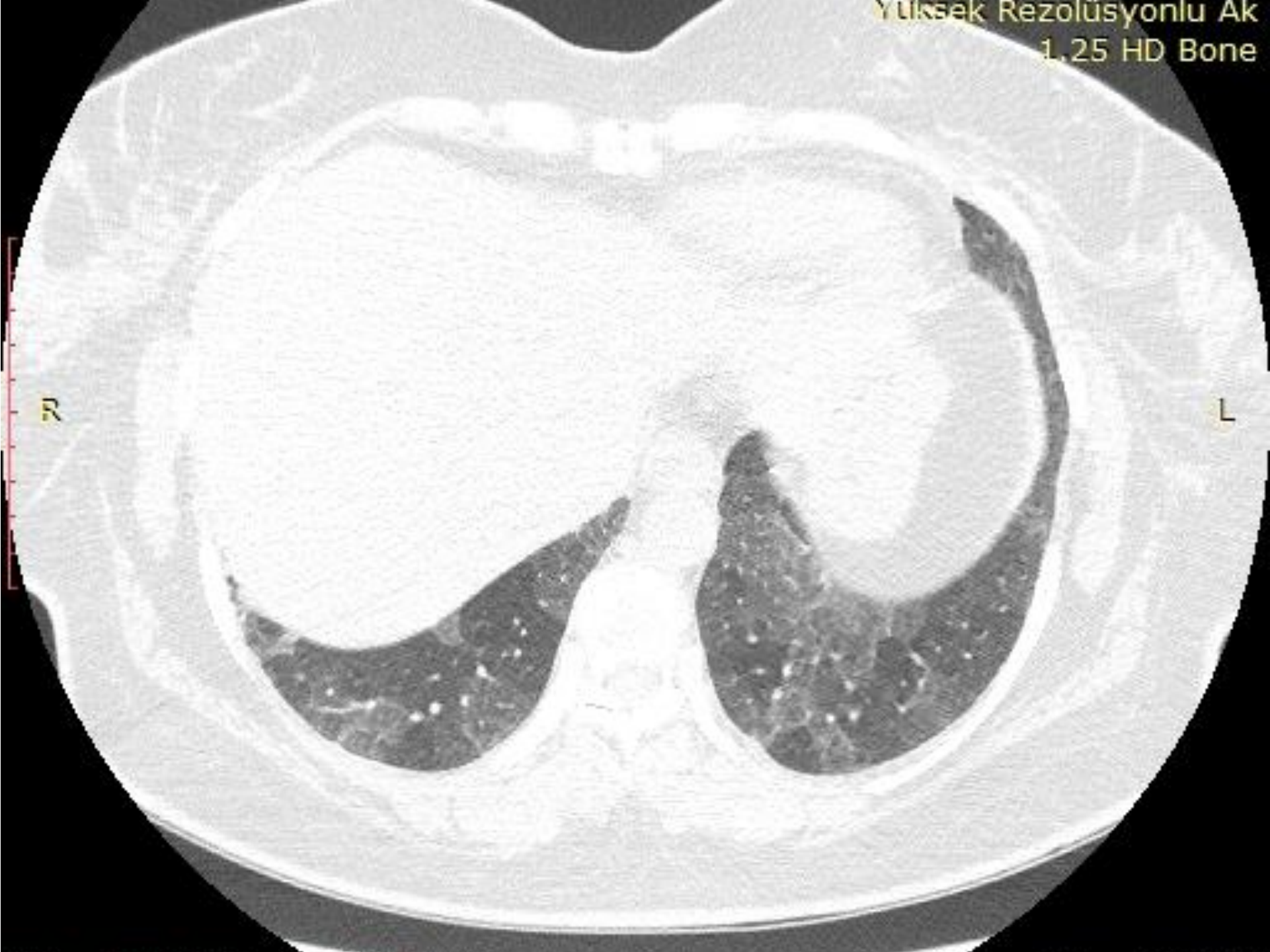
Yüksek Rezolüsyonlu Ak
1.25 HD Bone



Yüksek Rezolüsyonlu Ak
1.25 HD Bone



Yüksek Rezolüsyonlu Ak
1,25 HD Bone



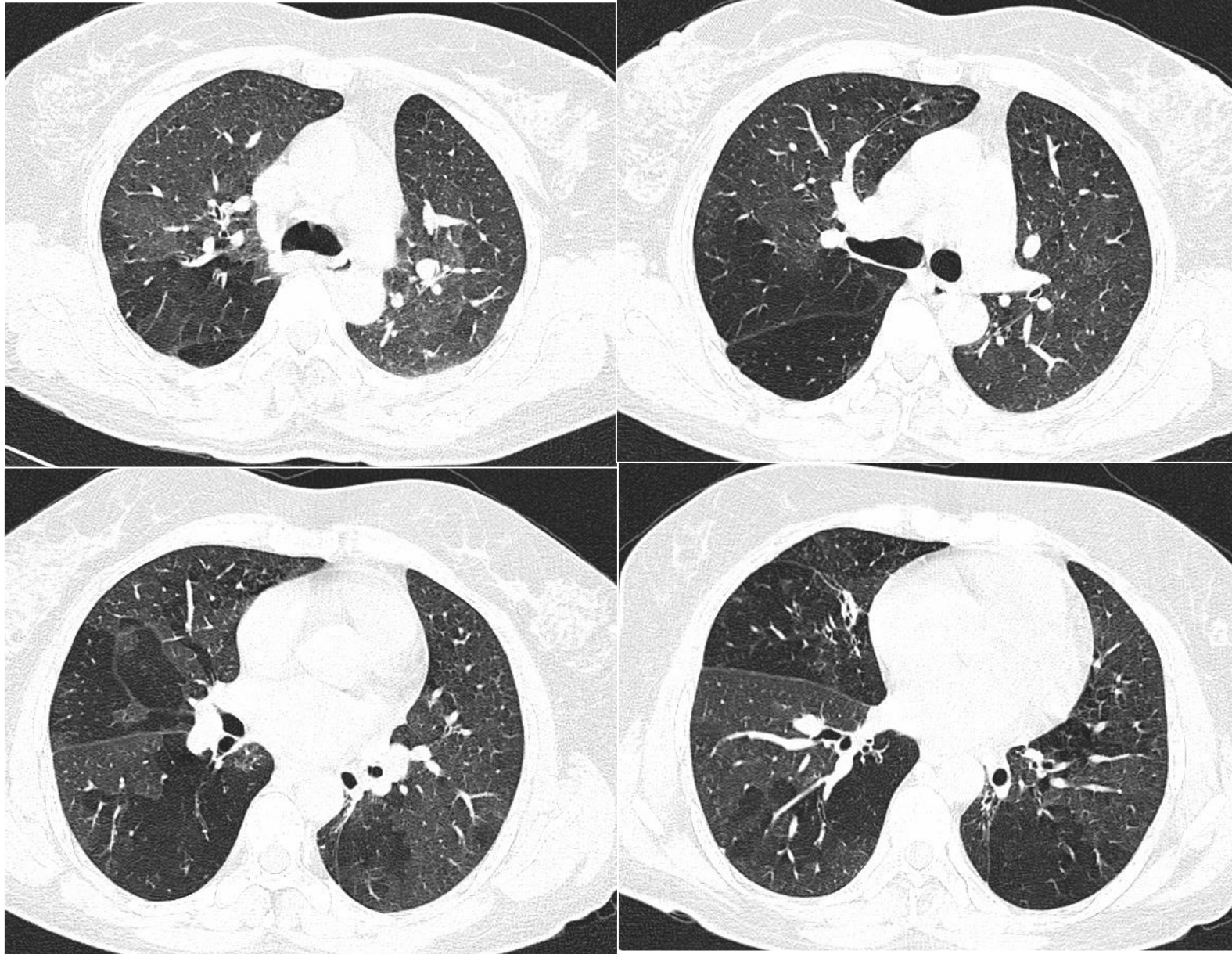
- Mozaik Atenüasyon

- ✓ Buzlu cam

- ✓ Mozaik Perfüzyon

- Mozaik Perfüzyon (oligemi)

Buzlu cam mı? Mozaik Perfüzyon mu?



Damarlara
dikkat!!!!

Mozaik Perfüzyon

Hava Yolu Hastalığı
mi?

Vasküler Hastalık mı?



İnspiriyum/ Ekspiriyum
HRCT



Hava Hapsi

VAR

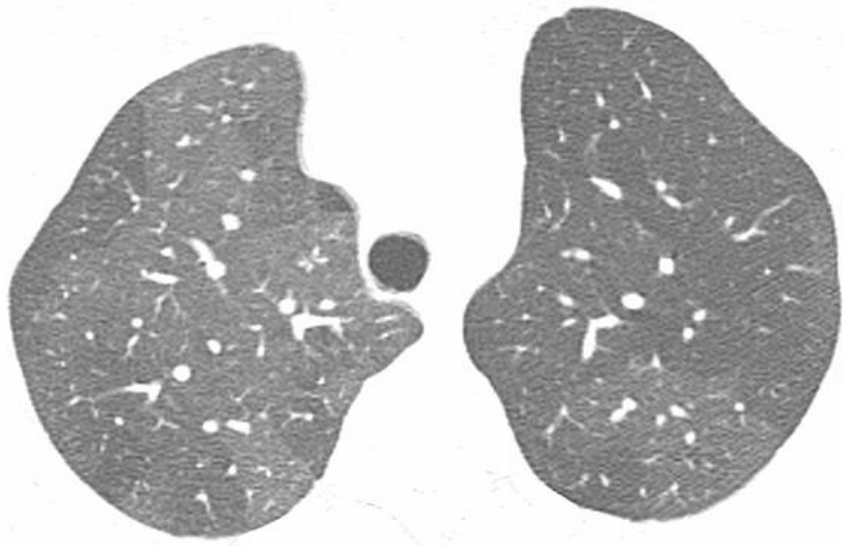


Hava yolu hastalığı

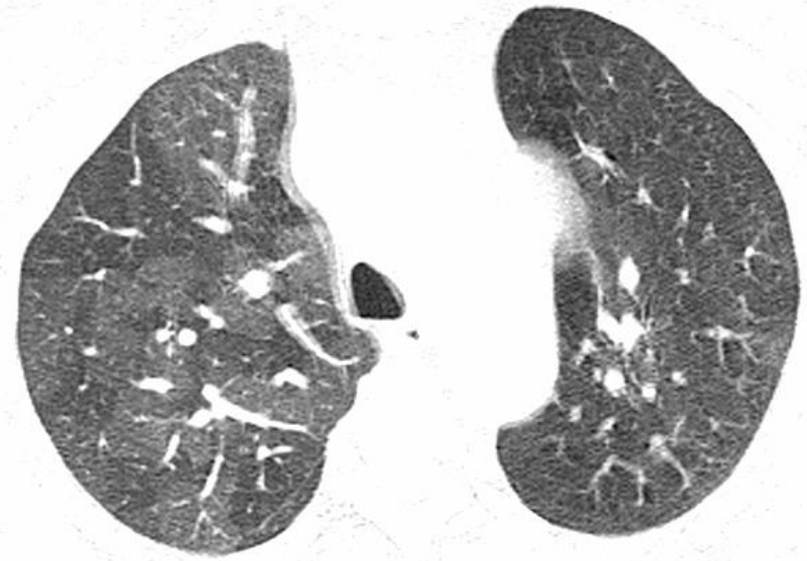
YOK



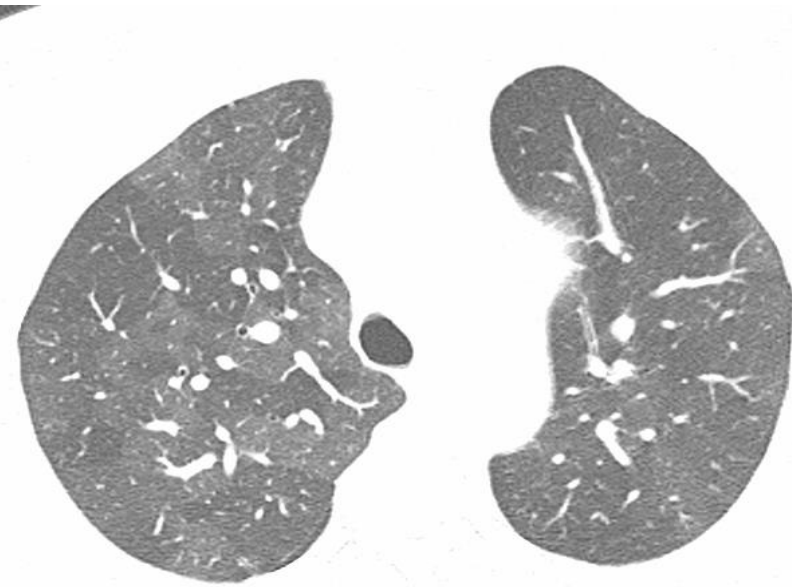
Vasküler hastalık

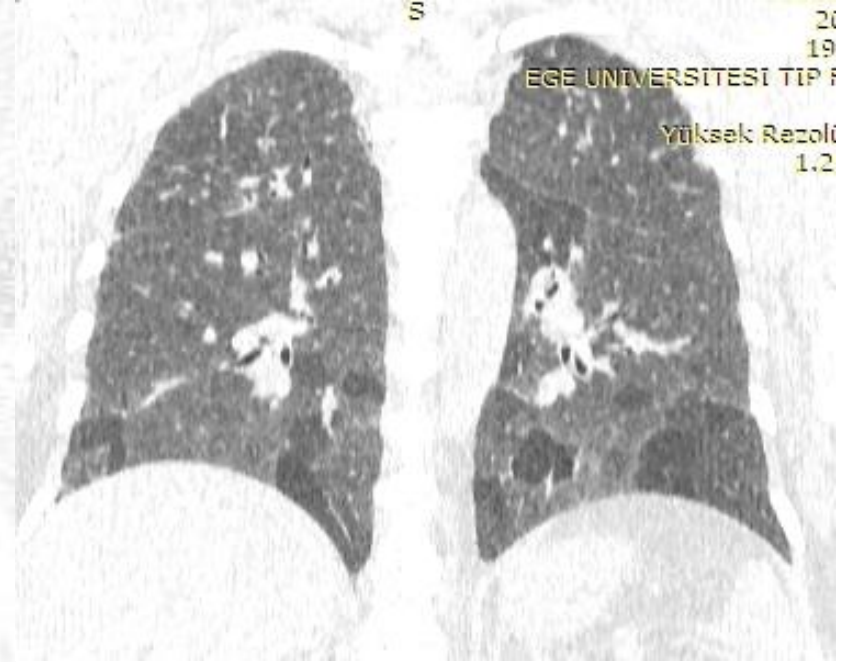
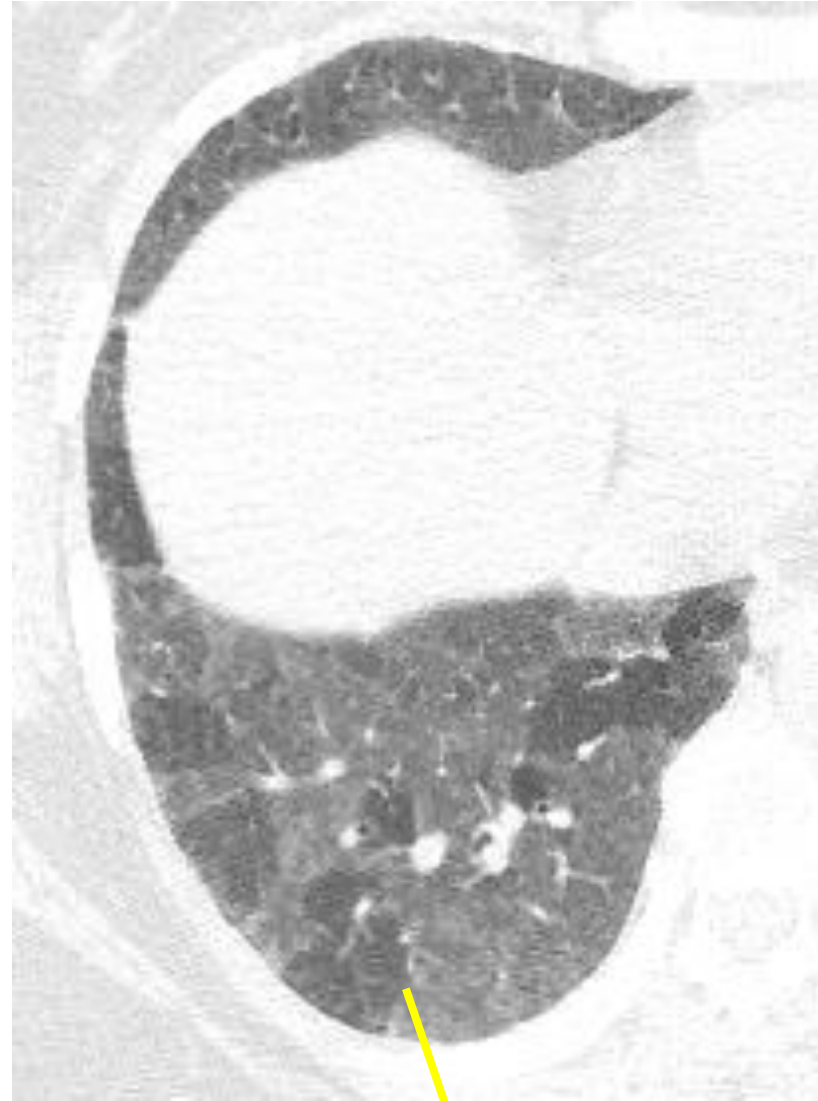
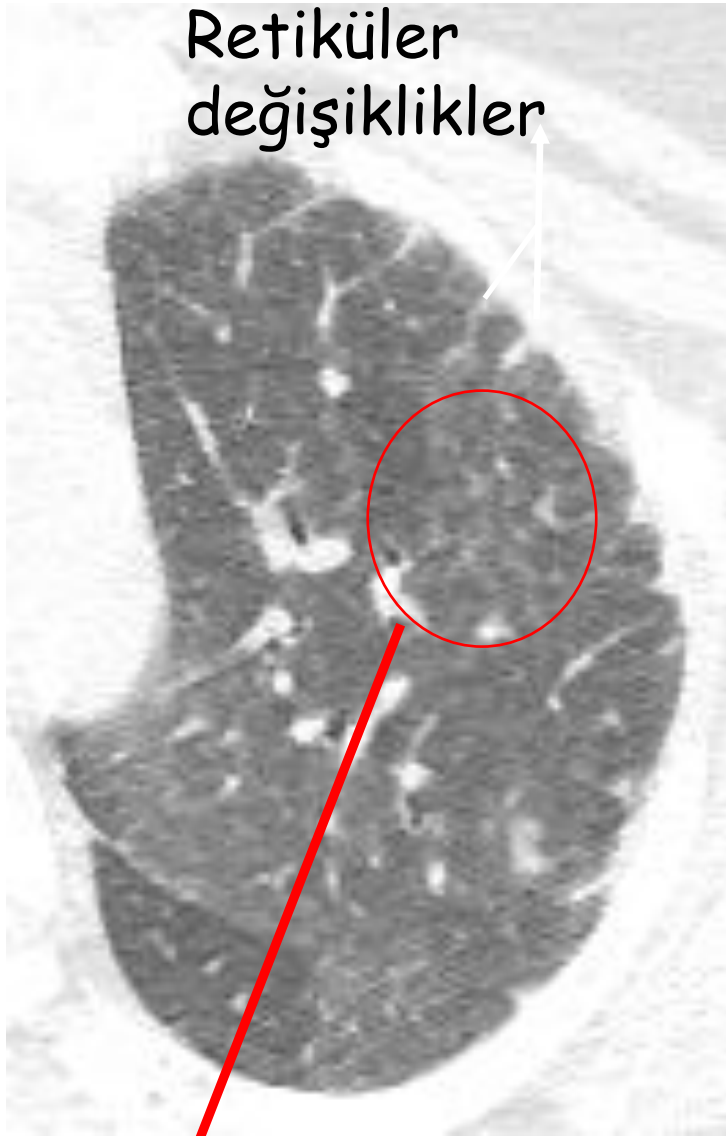


inspiriyum

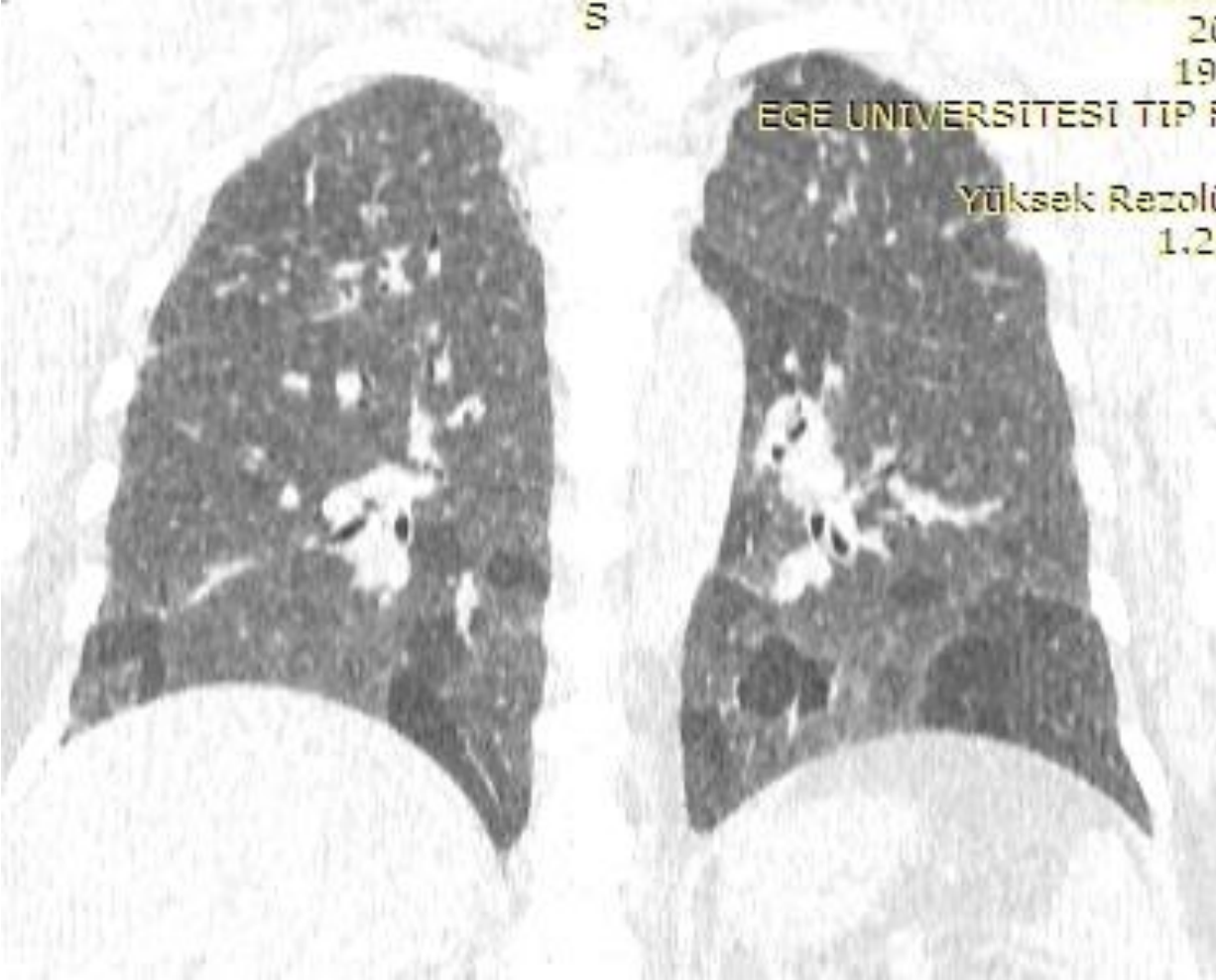


ekspiriyum





Tanı?



1. Hastaya ait bilgiler: 43 y, Kadın, son 1 yıldır belirginleşen nefes darlığı
2. Dominant patern : üst loblarda silik santrobüler nodüller, ince retiküler değişiklikler, alt loblarda mozaik perfüzyon

Hastada sorgulanınca öyküde;
evde 3 adet muhabbet kuşu (+)

Presipitan antikorlar

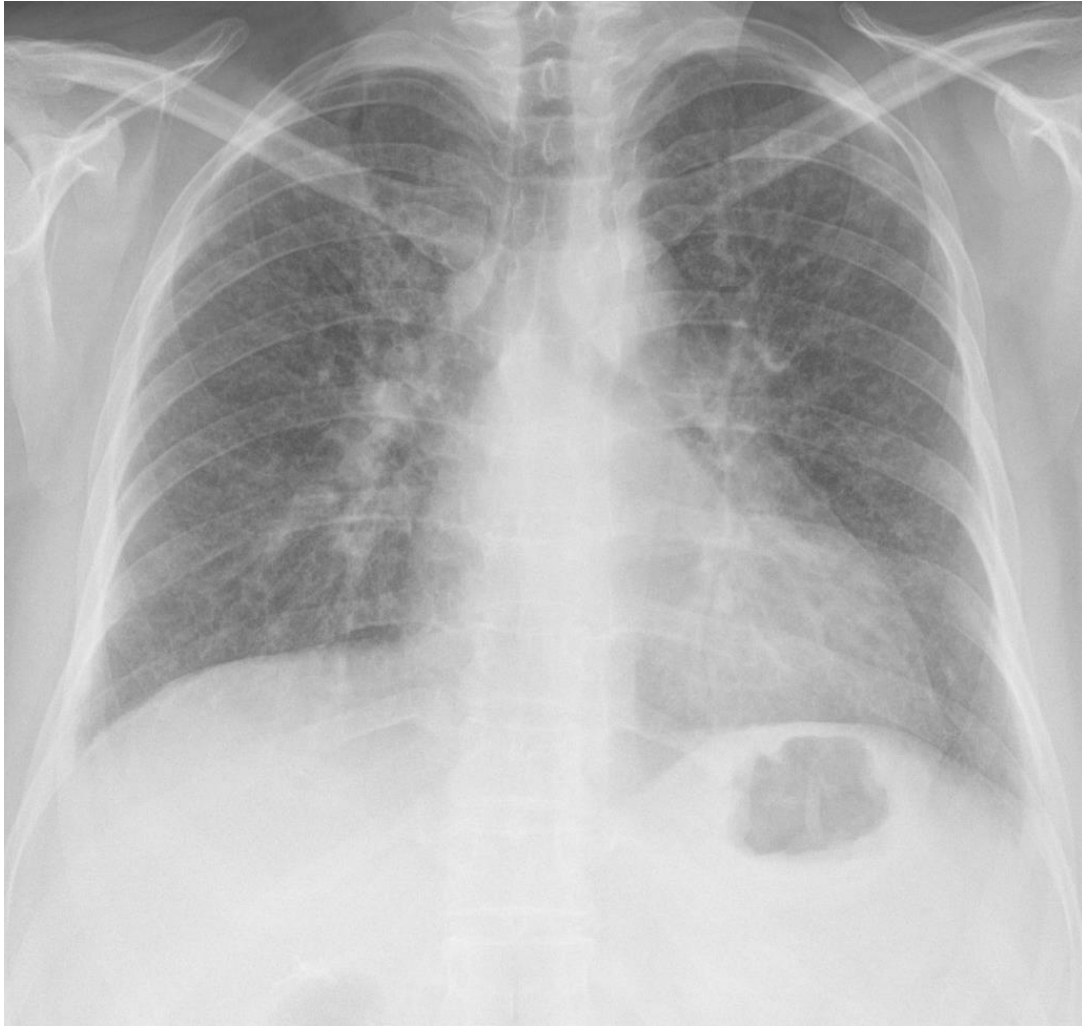
- **Güvercin** 95 mg/l (0-38)
- **Muhabbet kuşu** 136 mg/l (0-8)



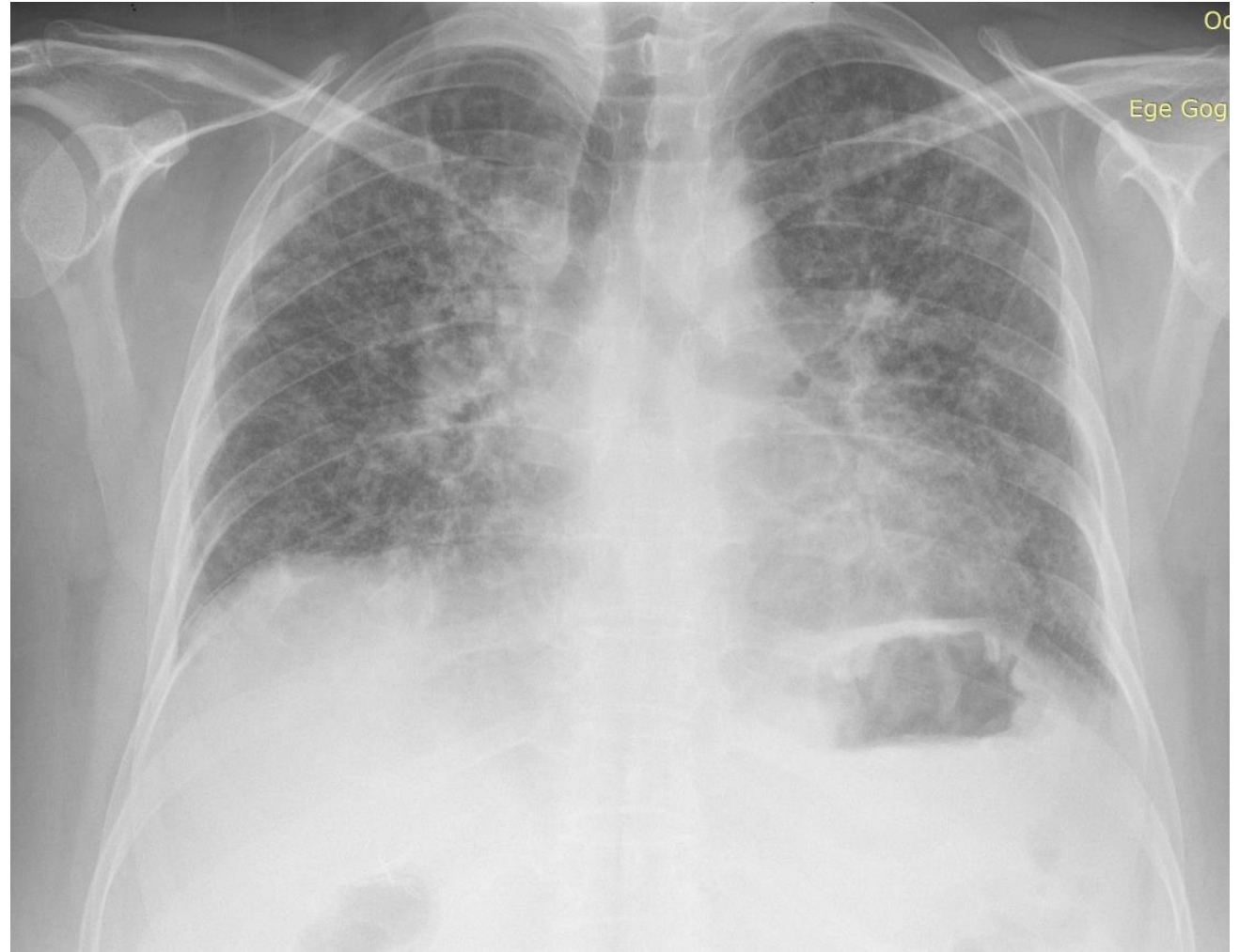
- ✓ Antijen maruziyeti öyküsü
- ✓ Nefes darlığı, öksürük semptomları
- ✓ Efor ile artan hipoksemi
- ✓ HRCT'de interstisyel kalınlaşmalar ve eşlik eden mozaik atenüasyon bulguları
- ✓ BAL hücre sayımında lenfositoz



**HİPERSENSİTİVİTE
PNÖMONİSİ**



11.10.2016



17.01.2018

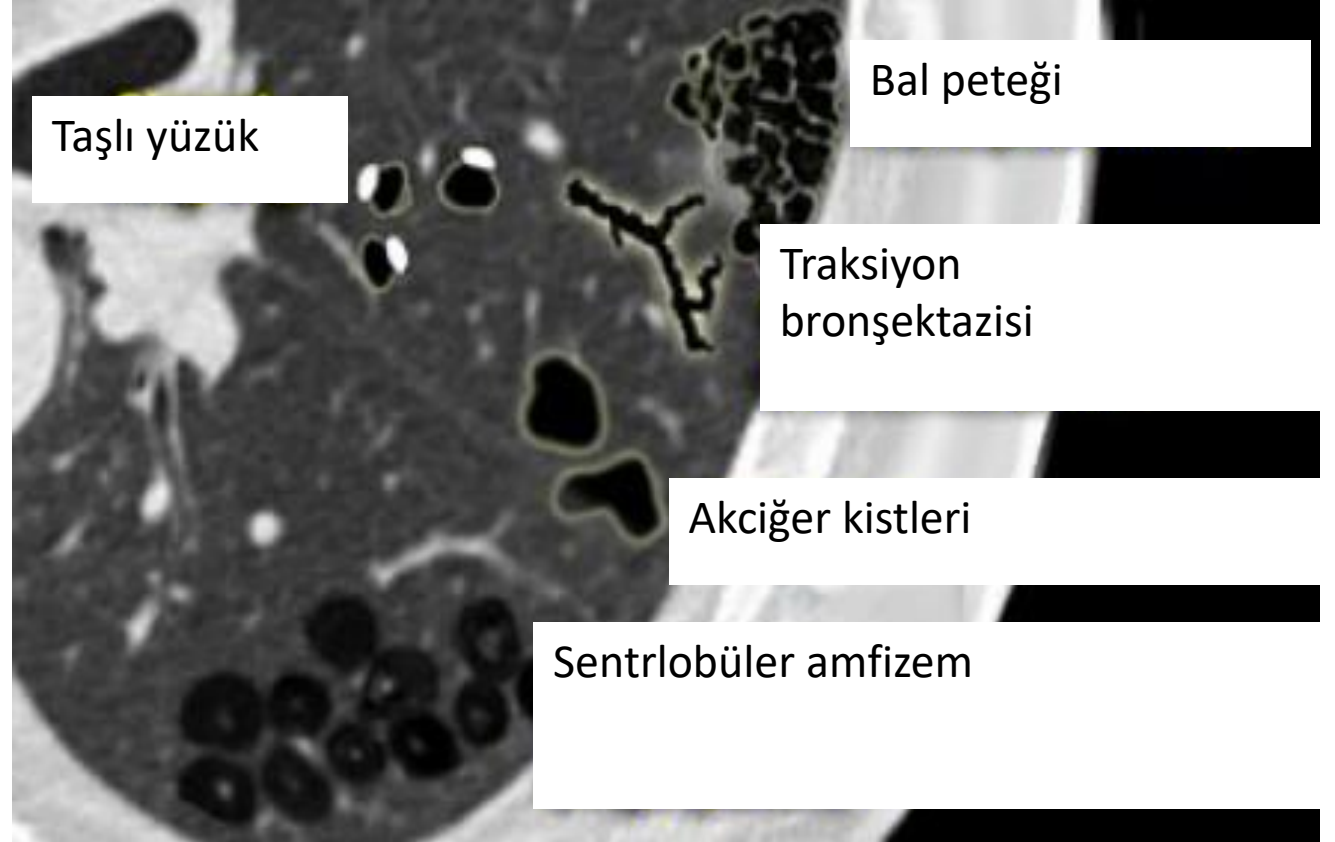
DANSİTE

Artmış Dansite

Azalmış Dansite

Azalmış Dansite

- Mozaik Perfüzyon
- Kistler,
kist benzeri
lezyonlar
- Amfizem



OLGU

- 40 yaş, kadın olgu
- Solunum sıkıntısı ile Acil Servise başvuruyor.





Type: ORIGINAL
RefPhys: D

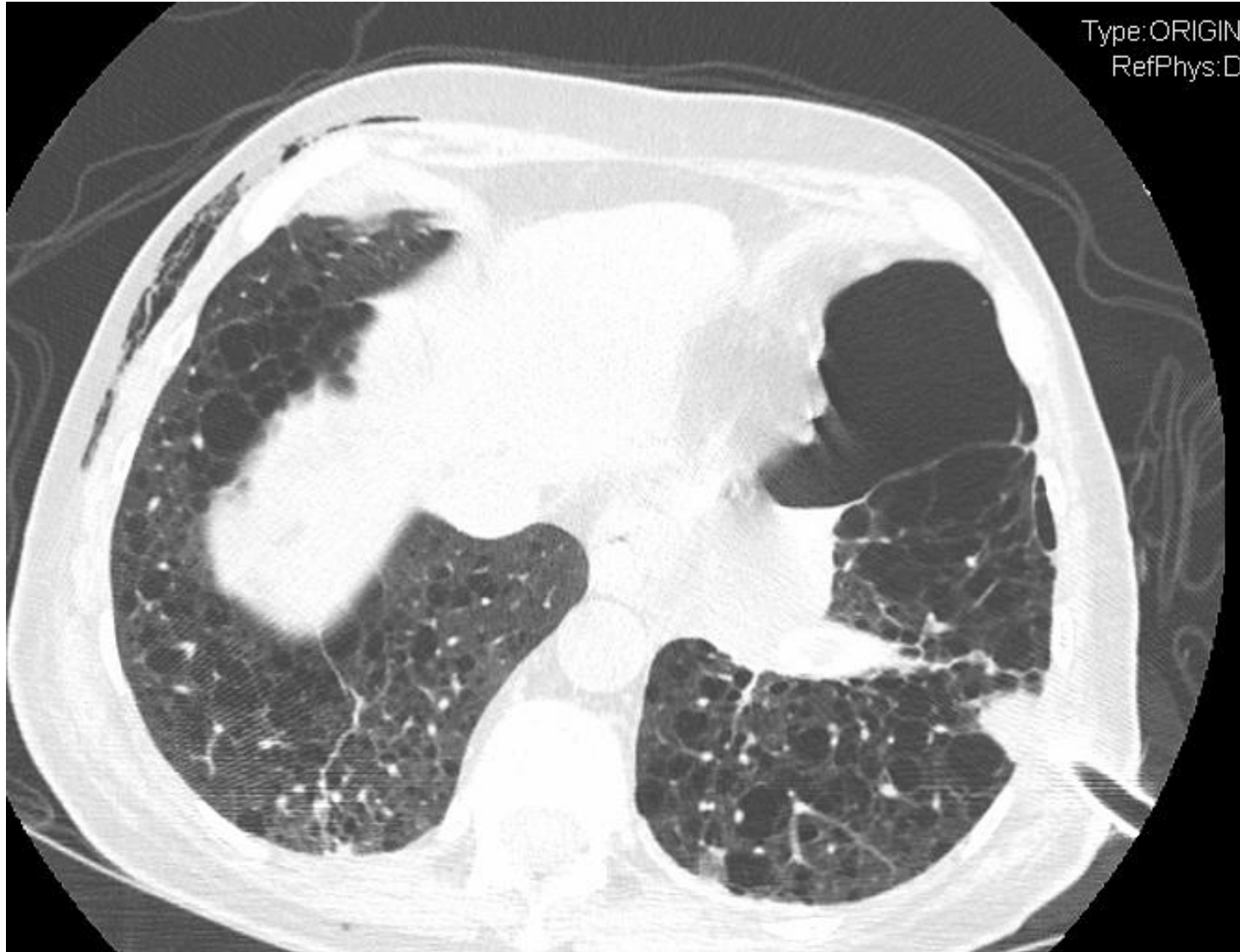




Type: ORIGINAL
RefPhys: Dr. D

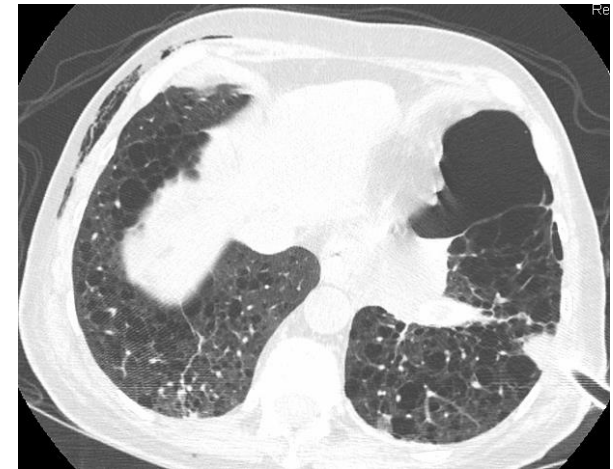
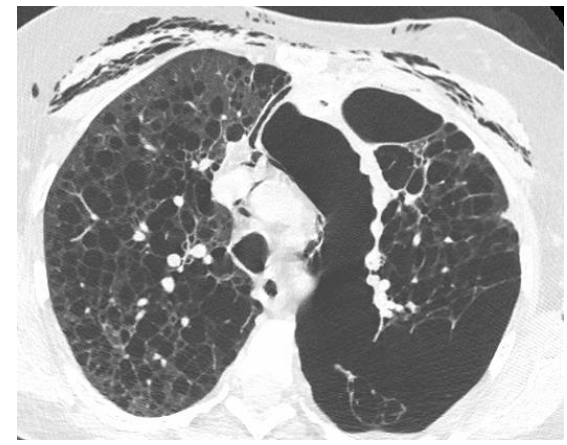


Type: ORIGIN
RefPhys: D



Tanı?

- A) Langerhans Hücreli Histiyoitozis
- B) Lenfanjiyoleyomiyomatozis
- C) Amfizem
- D) Lenfositik intertisel pnömoni



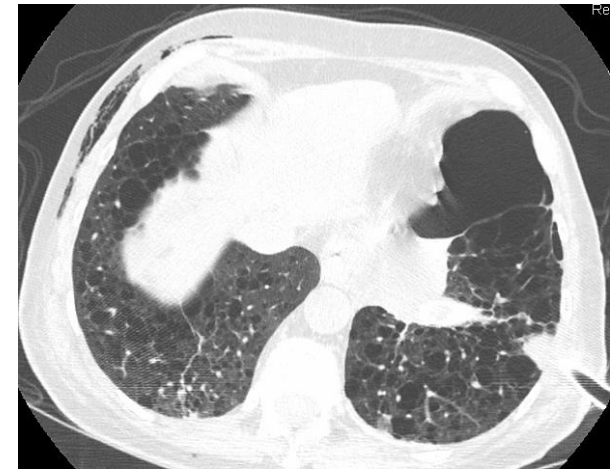
Tanı?

A) Langerhans Hücreli
Histiyoitozis

B) Lenfanjiyoleyomiyomatozis

C) Amfizem

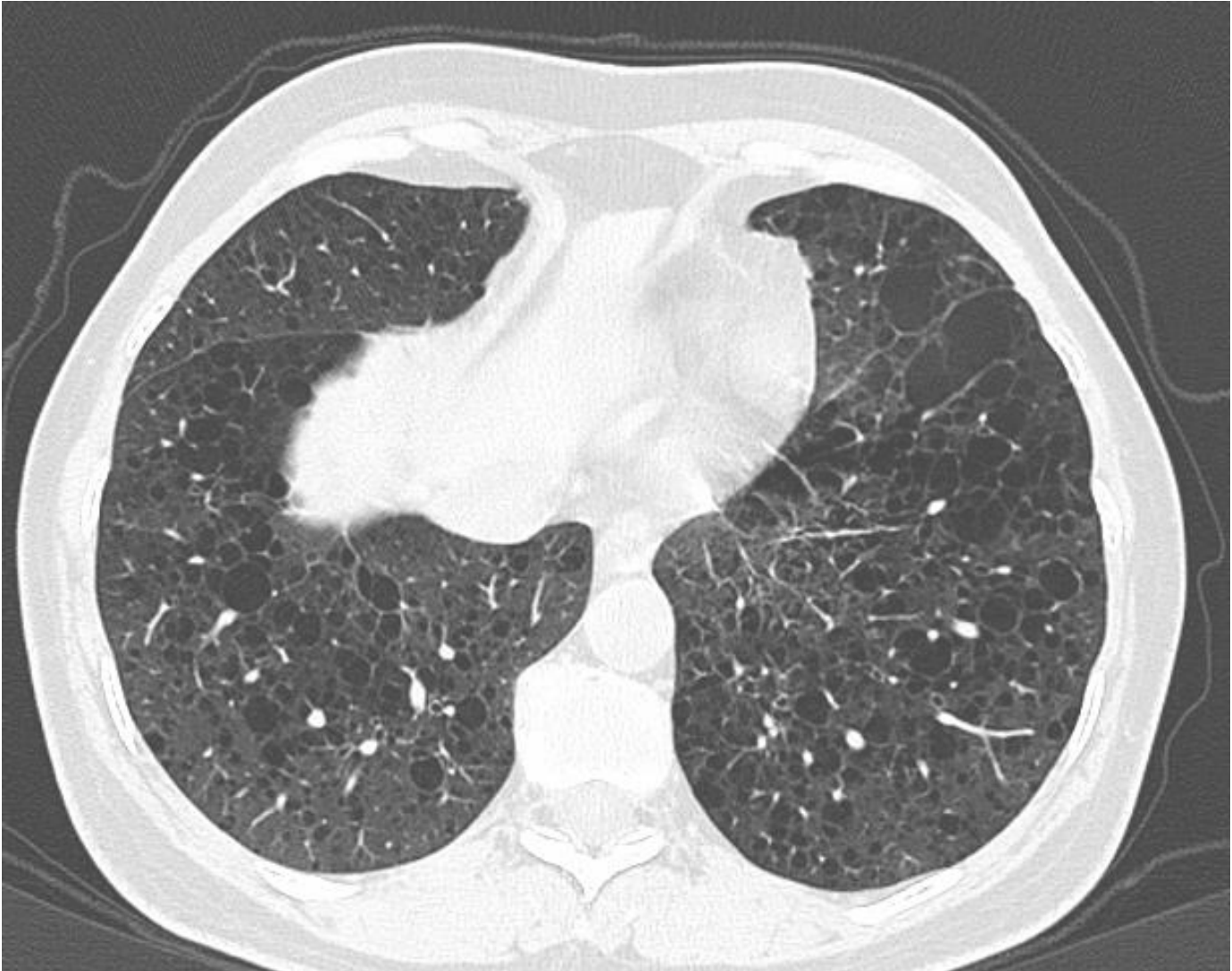
D) Lenfositik intertisel pnömoni





Eski BT / 2002

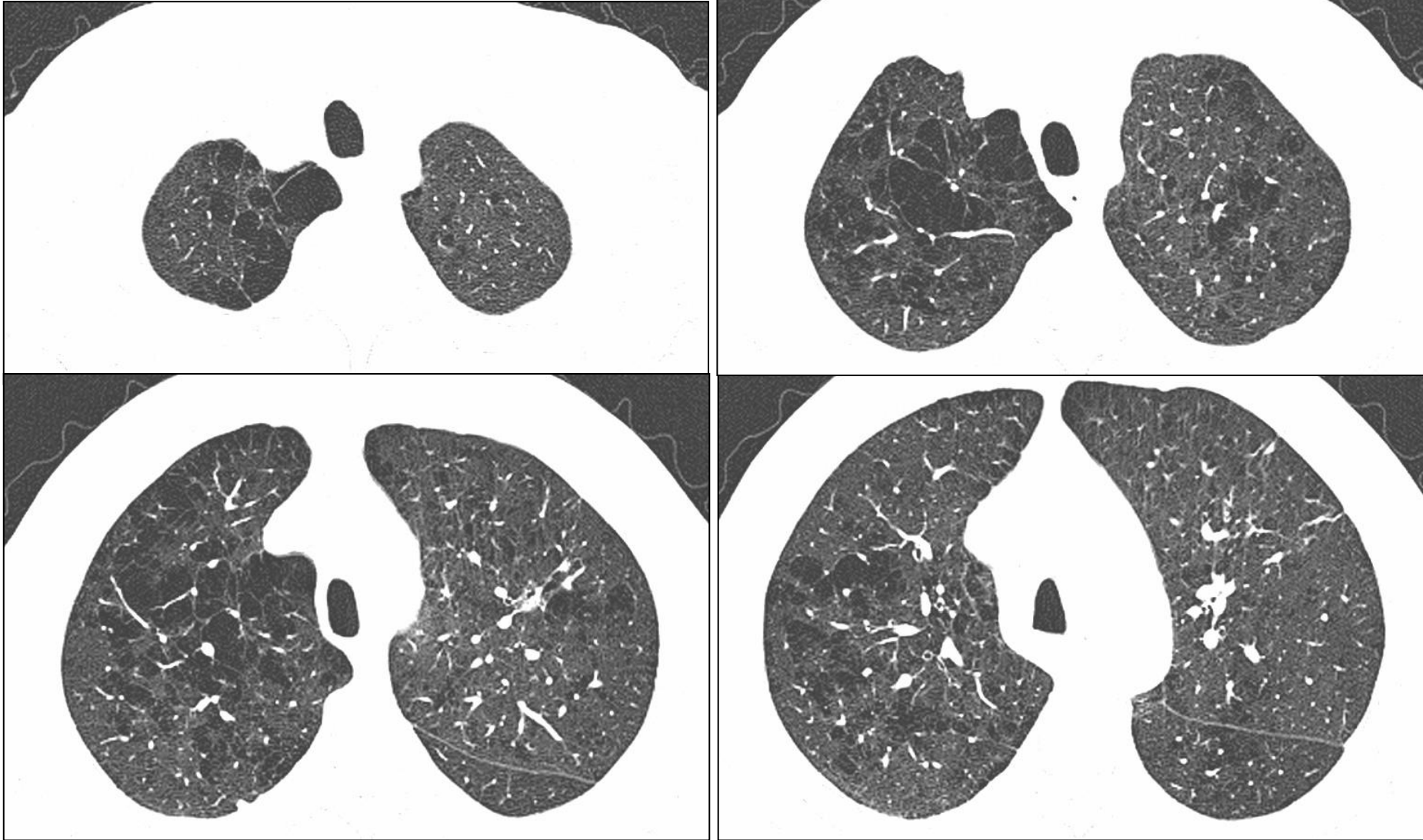




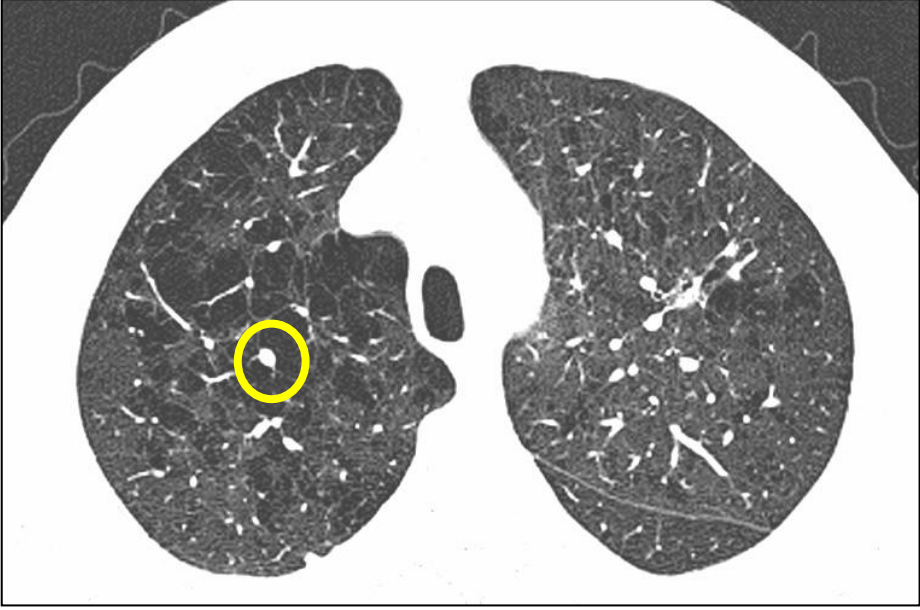
- Doğurganlık çağındaki kadın
- Akciğer:
 - İnce duvarlı kistler
 - Şilotoraks
 - Pnömotoraks
 - Pulmoner hemoraji
- Renal anjiyomyolipomlar
- Abdominal LAP
- Dalakta kistler
- Şiloz asit
- Uterin myomlar



Ayırıcı Tanı 1: Amfizem

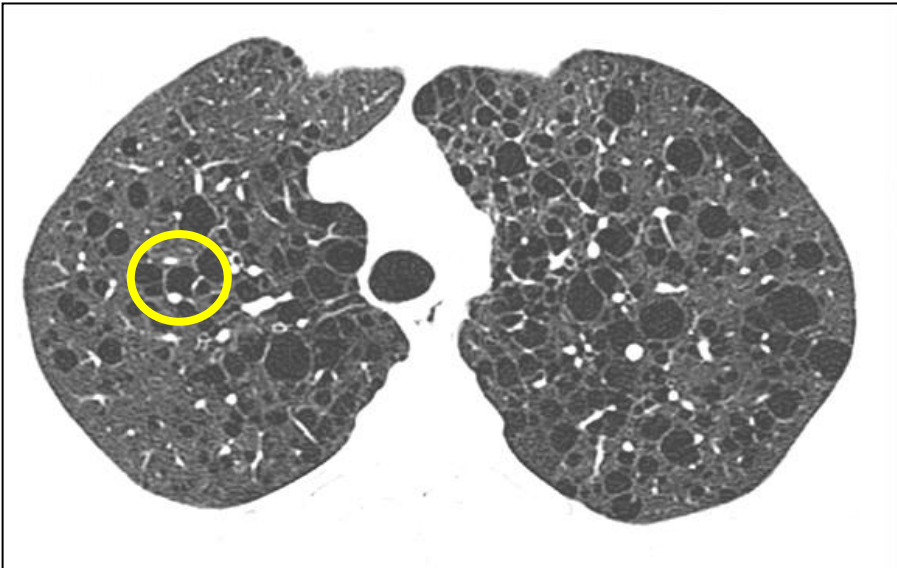


Amfizem / Hava kisti?



Amfizem :

- ✓ Lusen alanların duvarı yok
- ✓ Santrlobüler arter - santral- yerleşimli "central dot sign"



Kist:

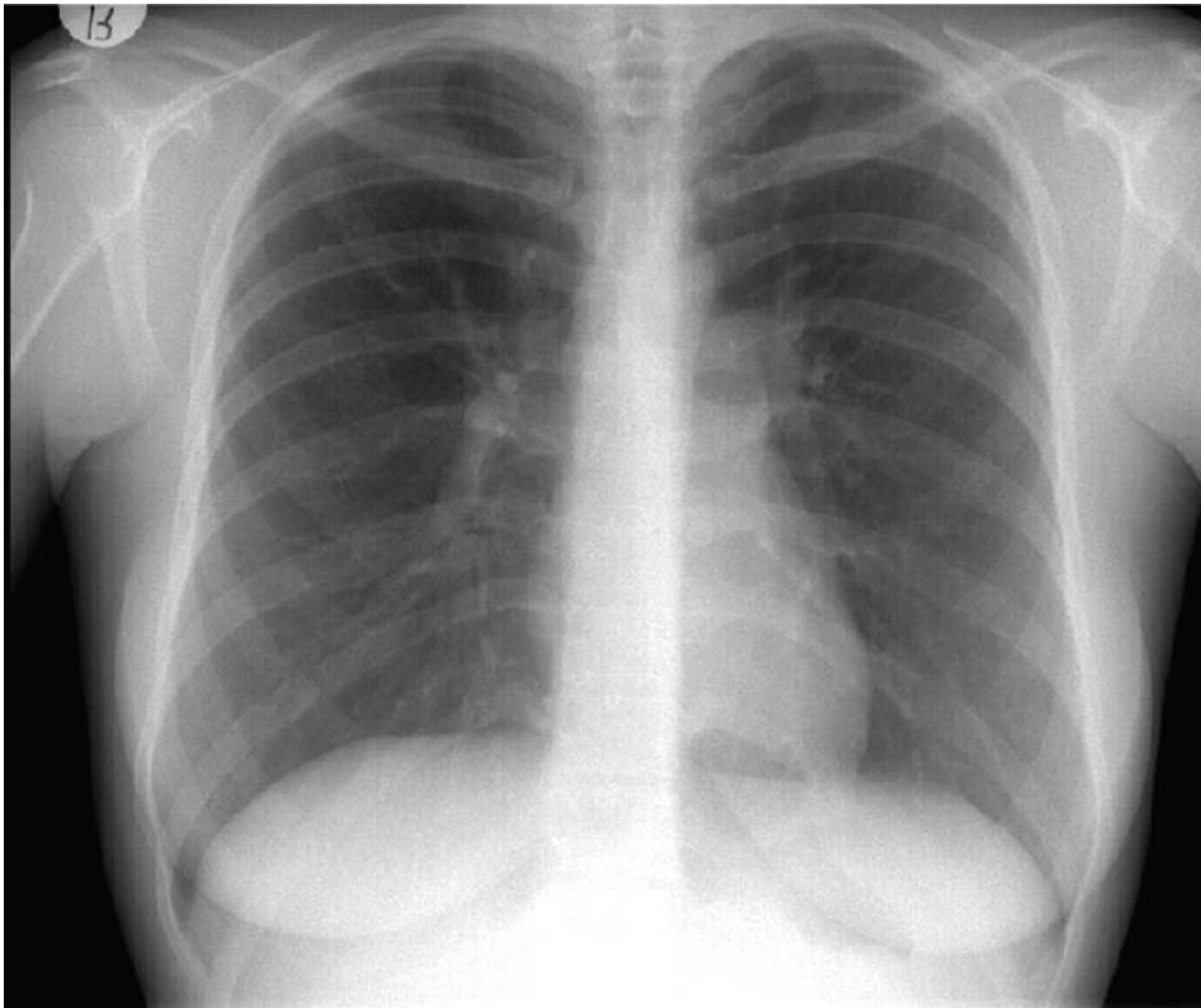
- ✓ Lusen alanların ince duvarı var
- ✓ Santrlobüler arter periferde kist duvarında yerleşim gösterir

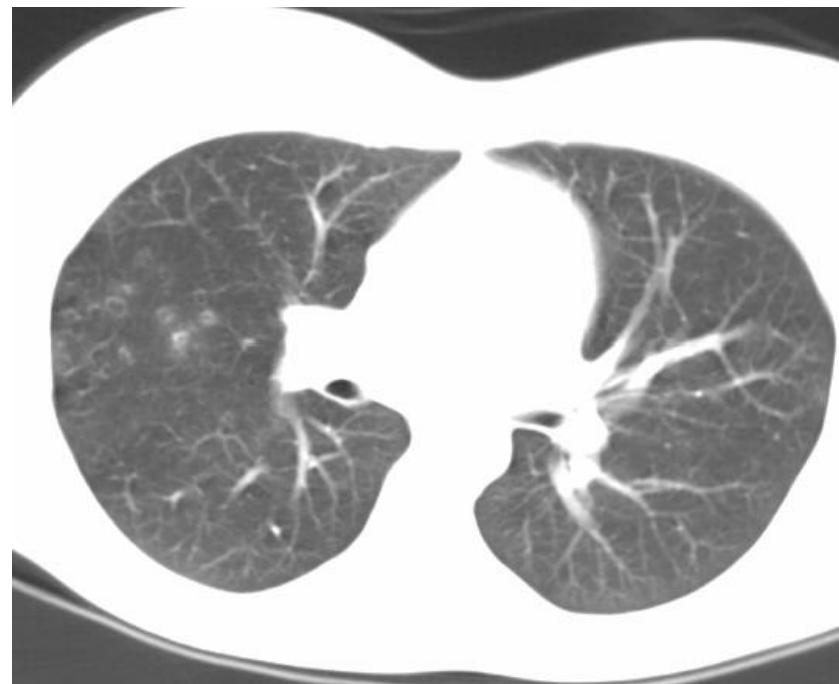
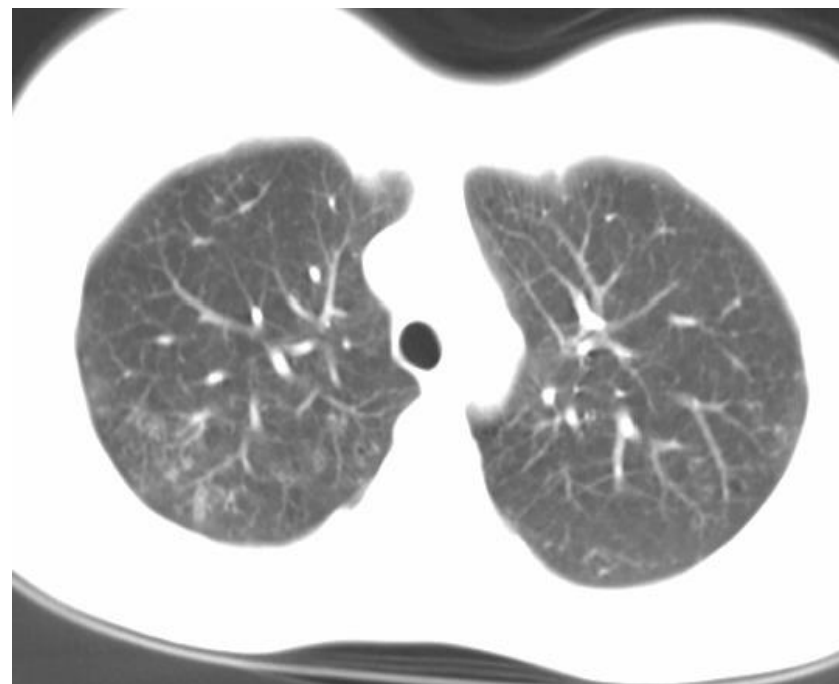
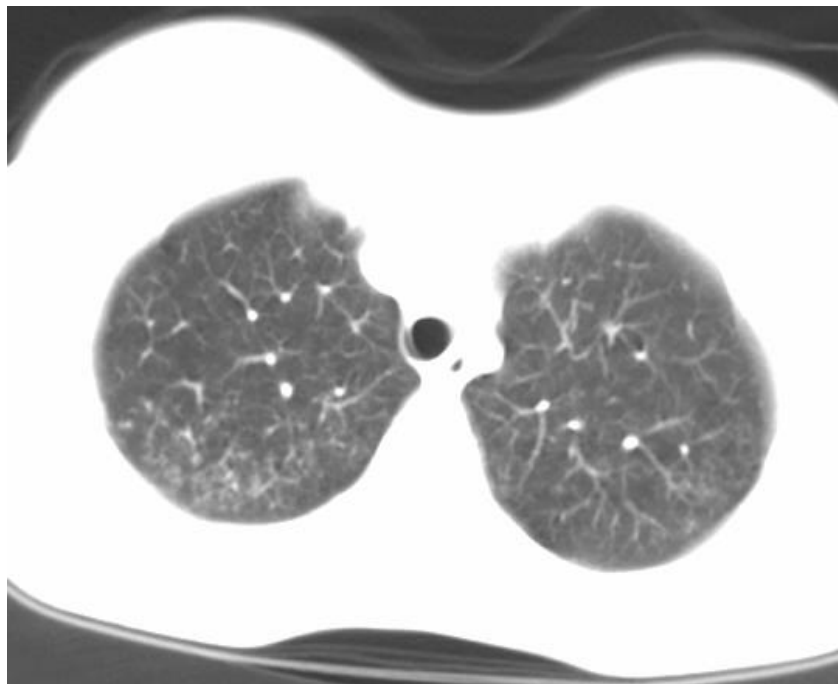
OLGU

21 yaşında kadın hasta

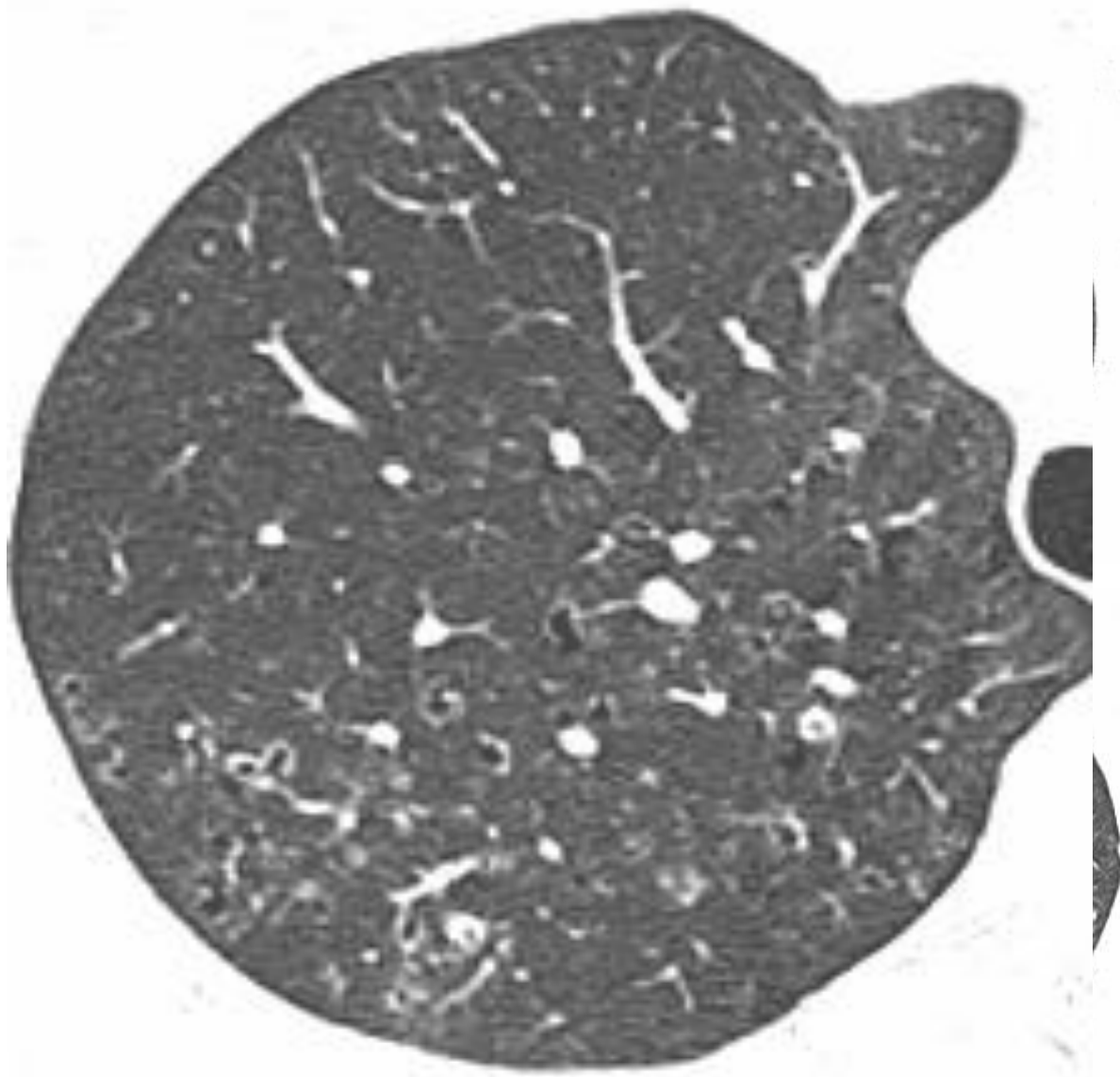
İki aydan beri devam eden, 20'lik diş çekiminden sonra ortaya çıkan abse

Nefes darlığı nedeniyle doktora başvuruyor

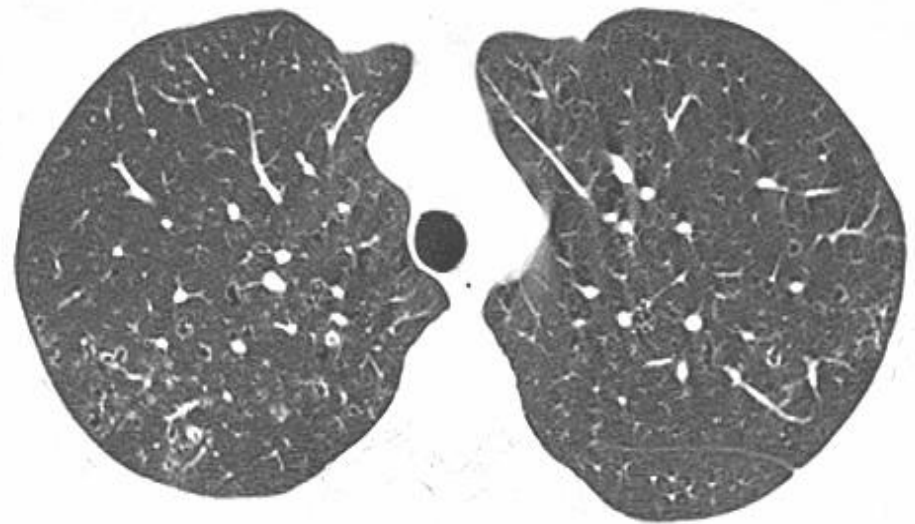
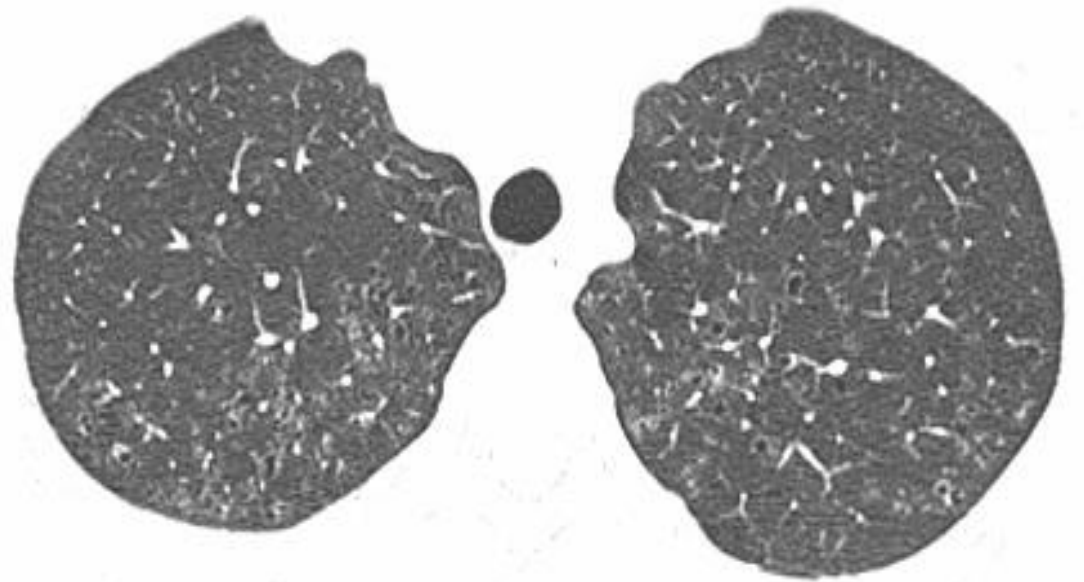








Tanı?



Tanı?

- A) Langerhans Hücreli Histiyoitozis
- B) Tüberküloz
- C) Sarkoidozis
- D) Metastaz

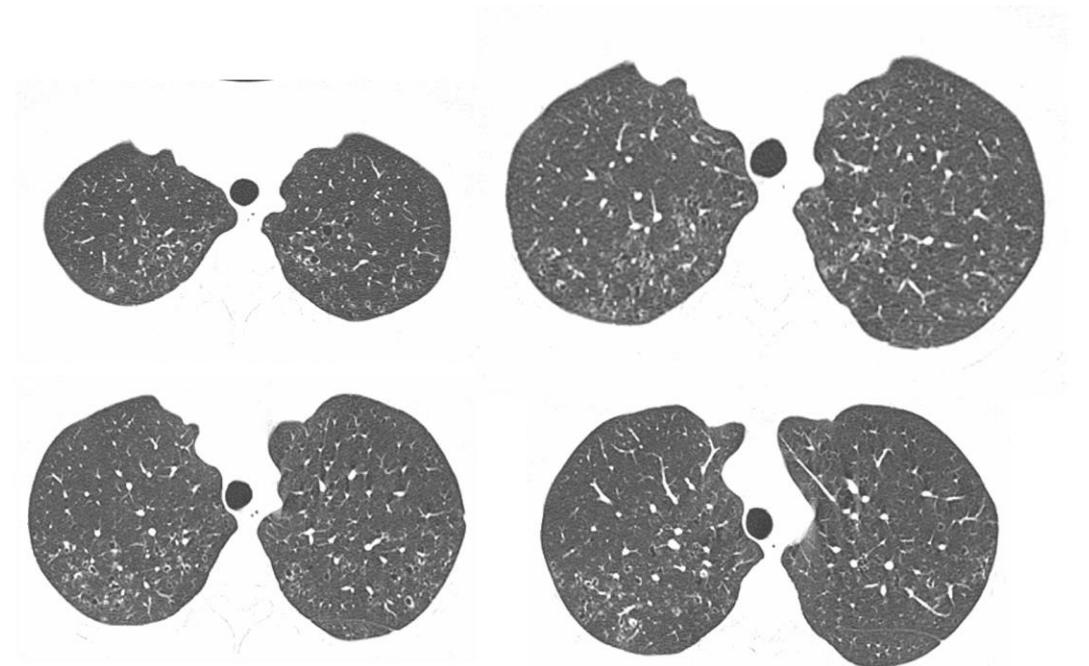
Tanı?

A) Langerhans Hücreli
Histiyoitozis

B) Tüberküloz

C) Sarkoidozis

D) Metastaz



Langerhans Hücreli Histiositozis (LHH)

Erken dönemde → nodüler patern

İleri dönemde → retikülonodüler patern

BT'de ileri dönemde kistler → yuvarlak, oval veya sekilsiz. Balpeteği şeklinde kistik görünüm.

Kostofrenik açılar korunmuş ve üst - orta zonda daha yaygın.

DOB:23.11.1988

StID:

ImNo:1

ViewPos:PA

RefPhys:

SpatRes:0.000

x 0.526

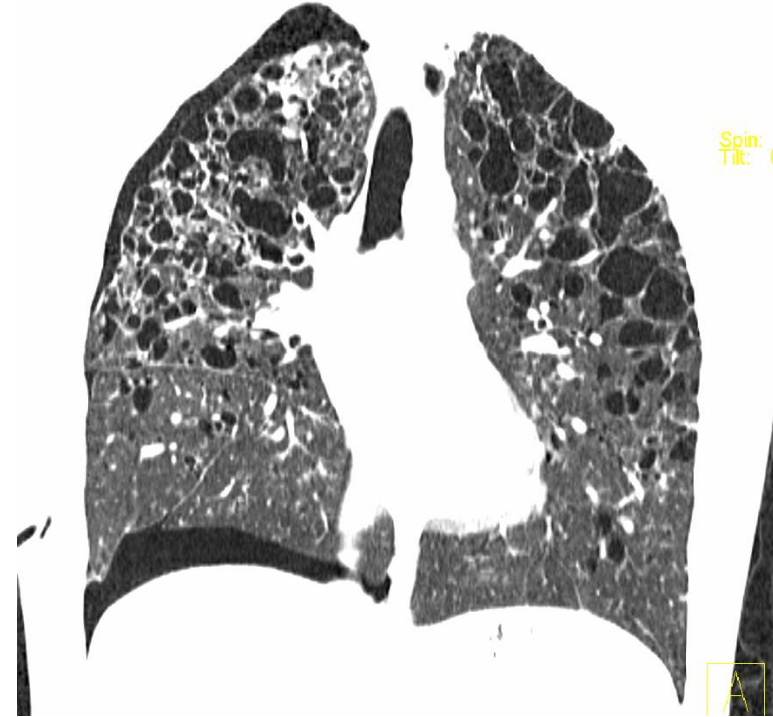
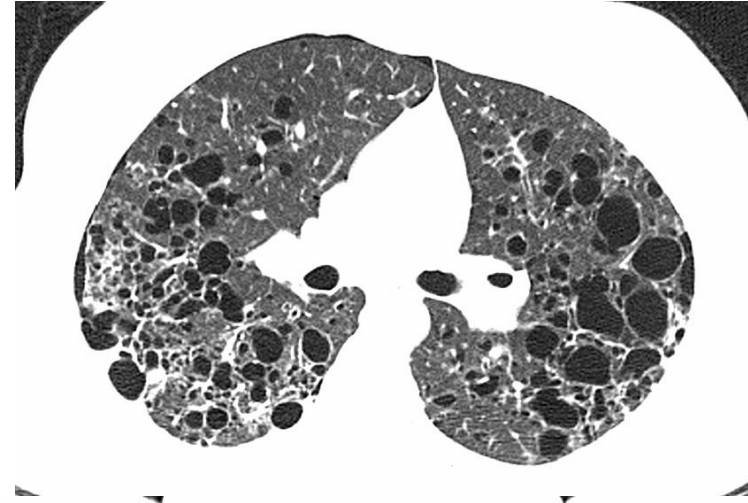
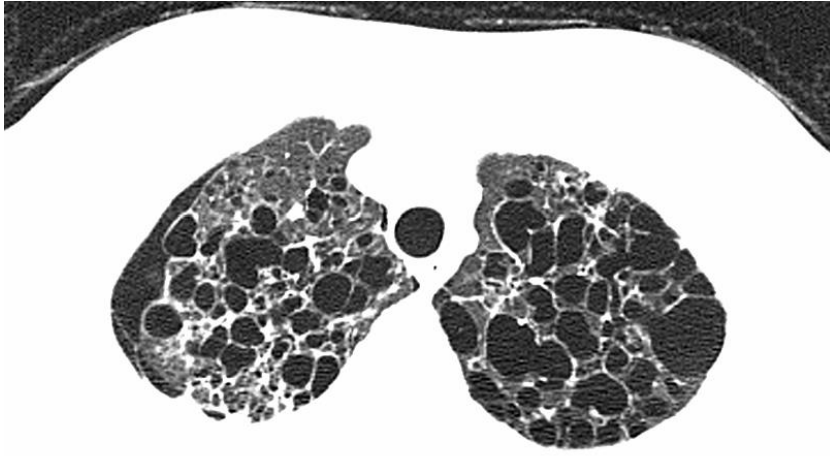
R

SpatRes:0.000

Sens:0.000

mAs:



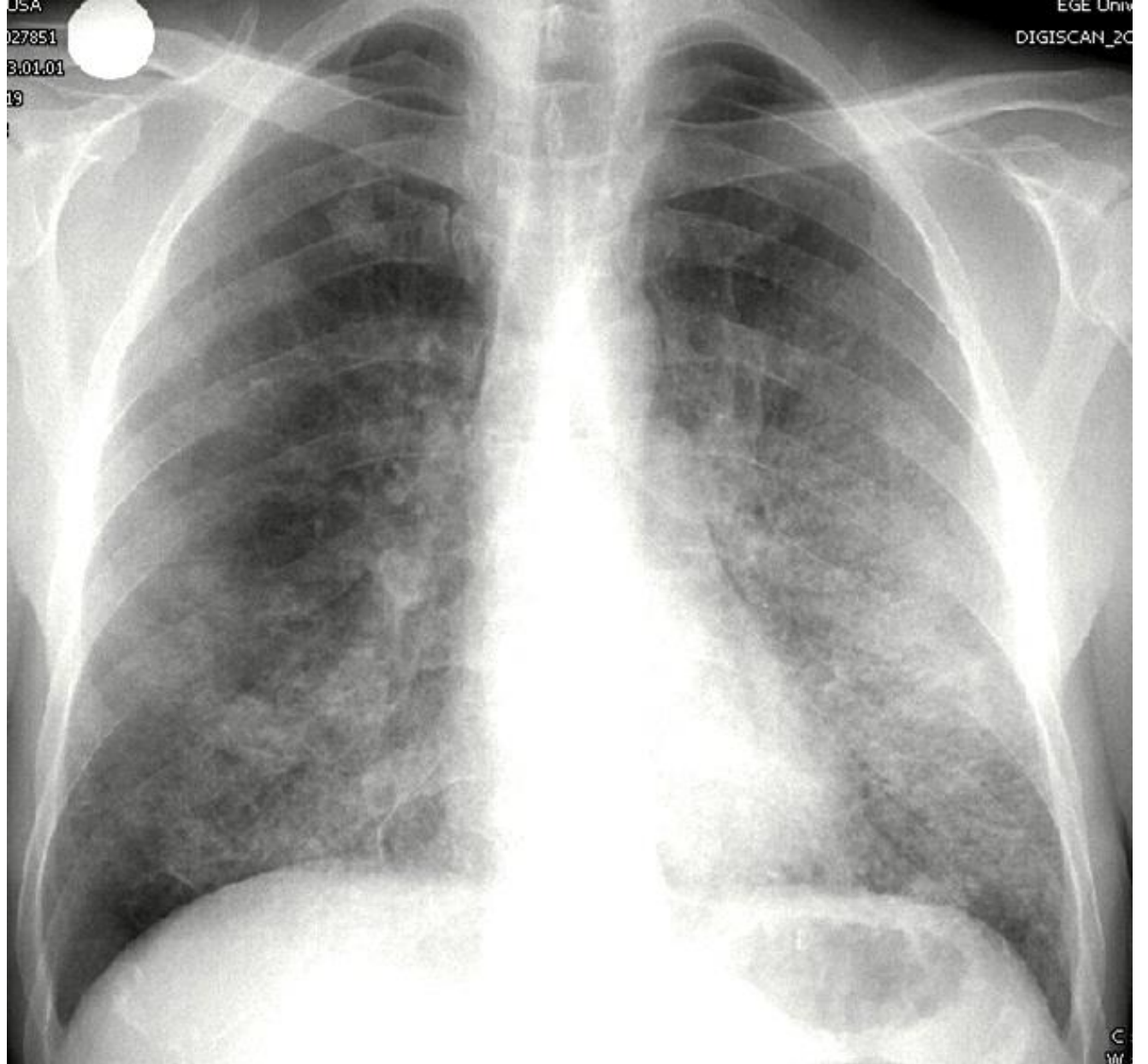


Langerhans Hücreli Histiyoitozis

FARKLI PATERNLERİN KOMBİNASYONU

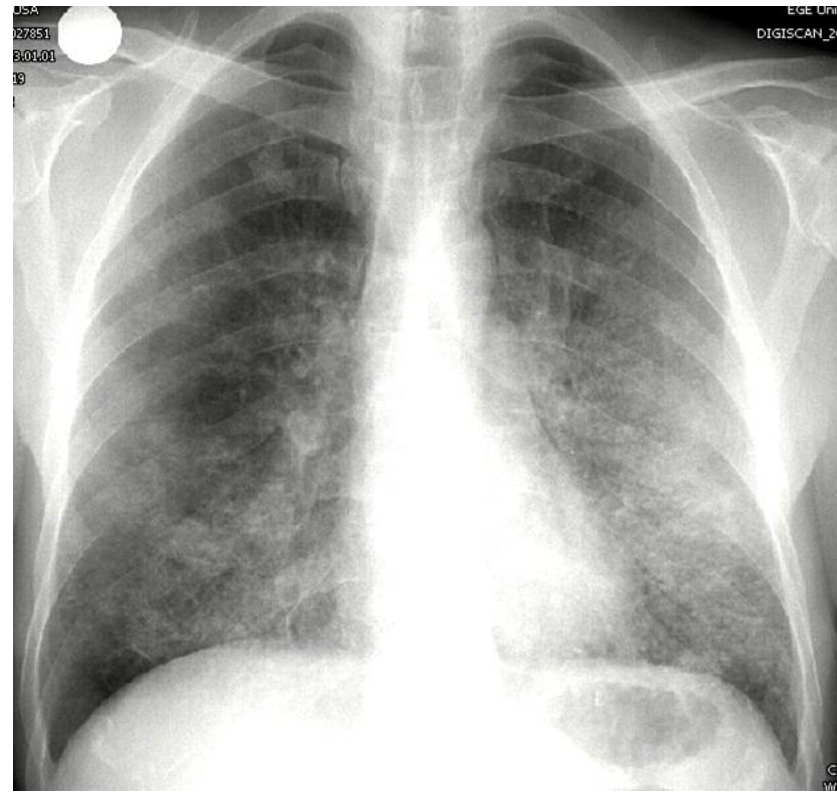
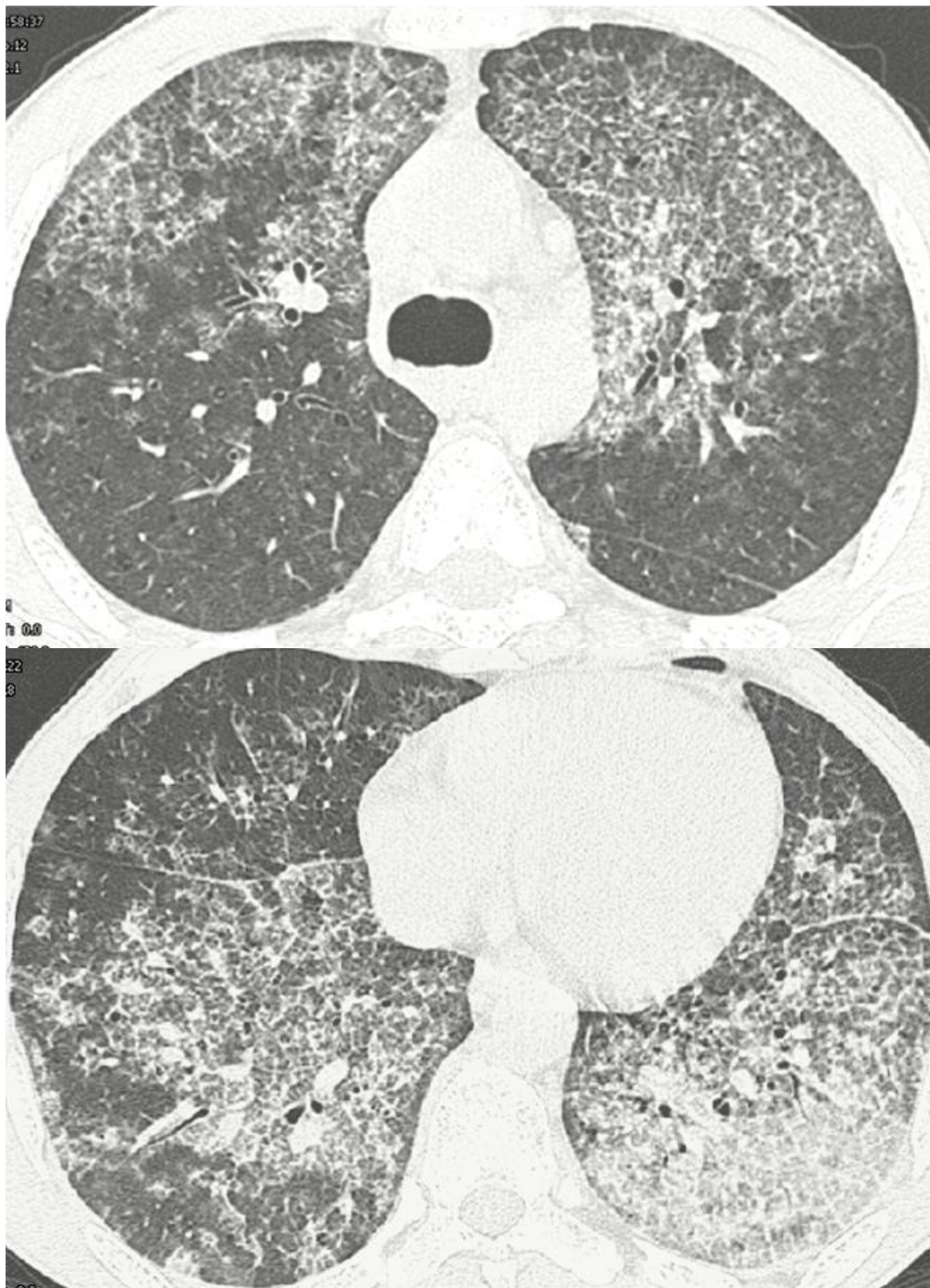
OLGU

45 y, erkek,
4-5 aydır olan
nefes darlığı, öksürük



Tanınız Nedir?

- A) Fibrotik hipersensitivite Pnömonisi
- B) Pulmoner Alveoler Proteinozis
- C) Pulmoner Ödem
- D) Pnömosistis Jerovici Pnömonisi
- E) UIP

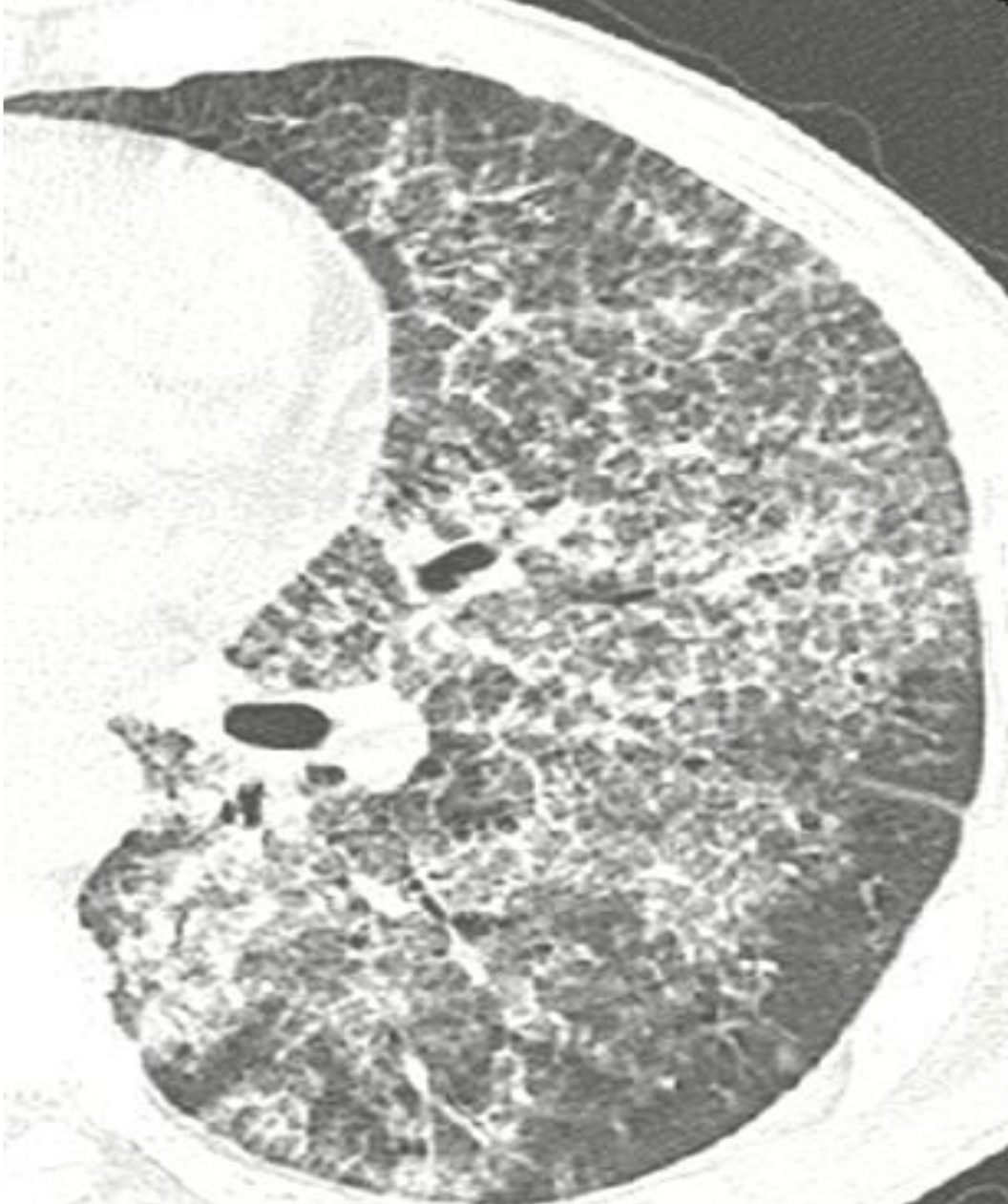


- 1.Hastaya ait bilgiler: Genç ,erkek, 4-5 aydır olan nefes darlığı
- 2.Dominant patern :Kaldırım taşı manzarası
- 3.Tutulmuş şekli? : apikal kesim, kostofrenik sinüsler korunmuş, santral akciğerde simetrik tutulum
- 4.Eşlik eden bulgular: yok

Tanınız Nedir?

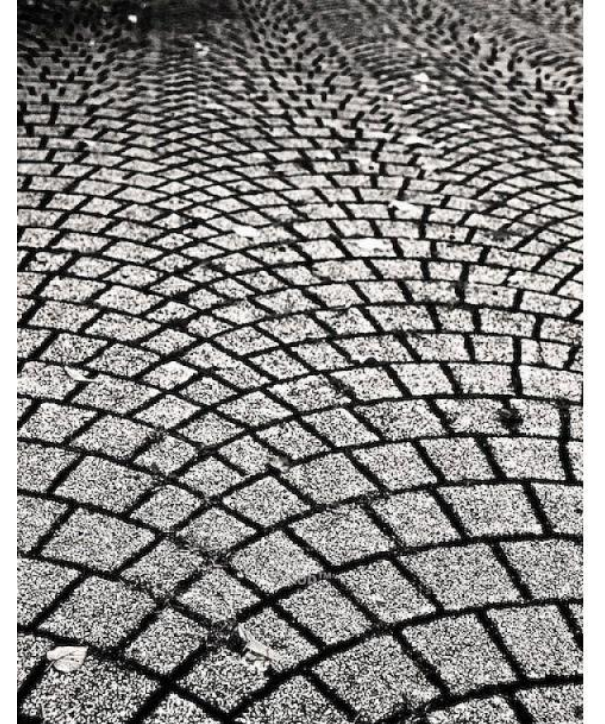
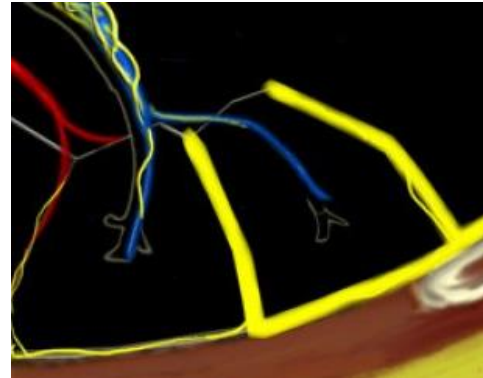
- A) Fibrotik hipersensitivite Pnömonisi
- B) Pulmoner Alveoler Proteinozis
- C) Pulmoner Ödem
- D) Pnömosistis Jerovici Pnömonisi
- E) UIP

Farklı Paternlerin Kombinasyonu



KALDIRIM TAŞI MANZARASI

- İnterlobüler septa
- İnteralobüler septa
- Buzlu cam

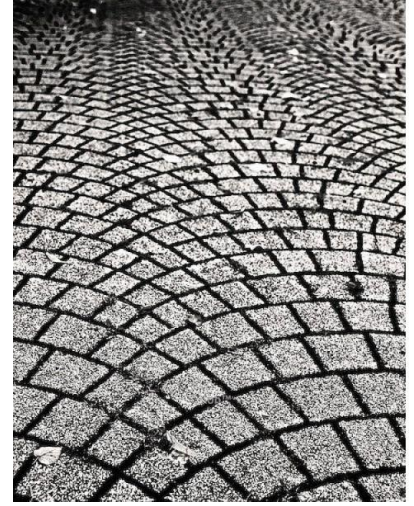


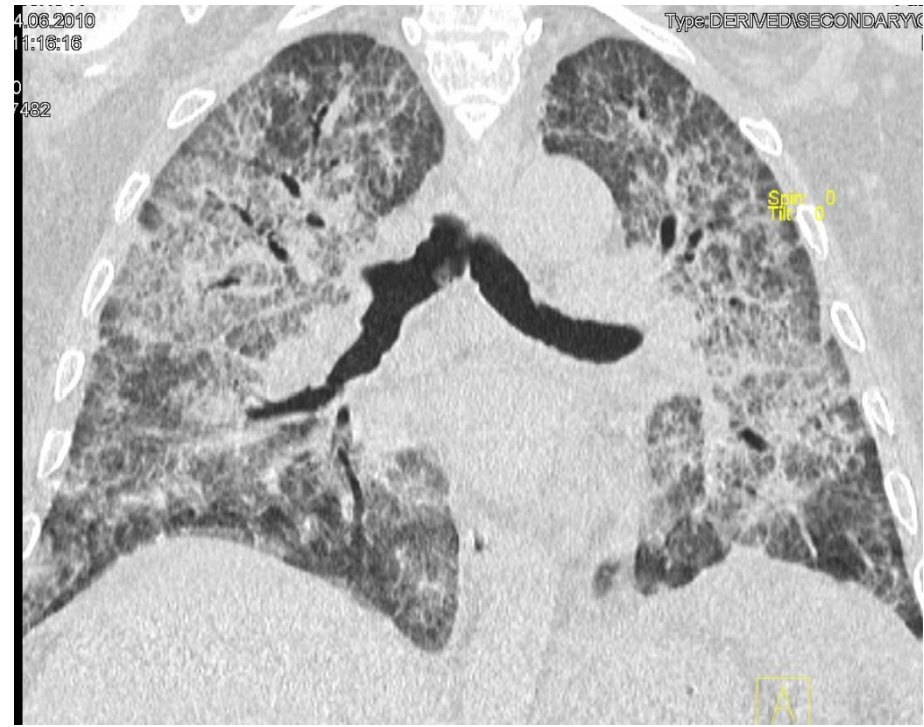
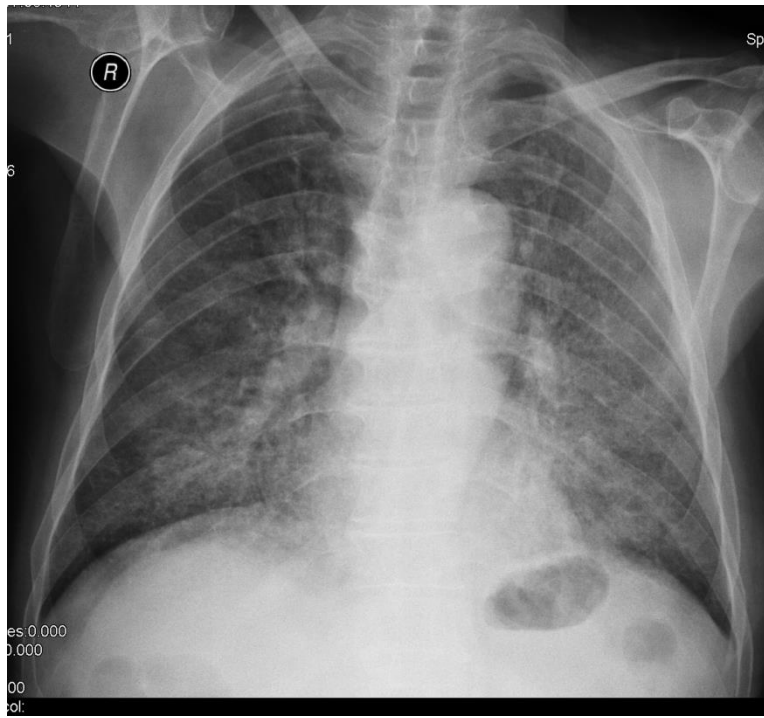
Kaldırım taşı (crazy paving) görünümünü yapan nedenler

En sık nedenler

- Pulmoner Ödem
- ARDS
- Enfeksiyonlar
- Akut interstisyel pnömoni
- Pulmoner alveolar proteinosis (PAP)

- UIP;DIP
- İlaçla ilişkili pnömoni
- Radyasyon pnömonisi
- Pulmoner hemoraji
- Kronik eozinofilik pnömoni
- Organize pnömoni
- Adenokanser
- Sarkoidozis
- Lipoid pnömonisi



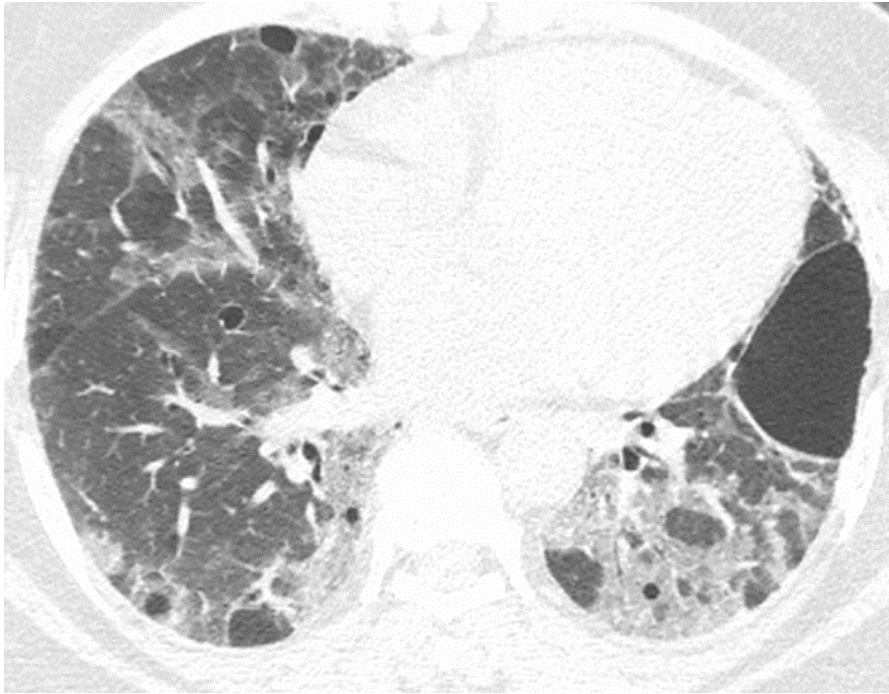
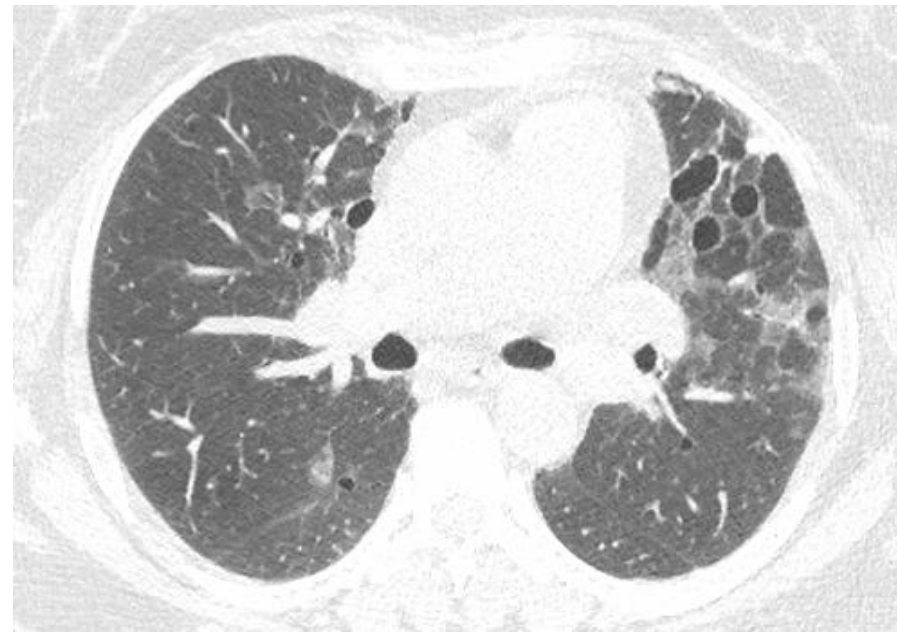


45 yaşında erkek hasta ,
Renal tx öyküsü ve
ateş yüksekliği , öksürük

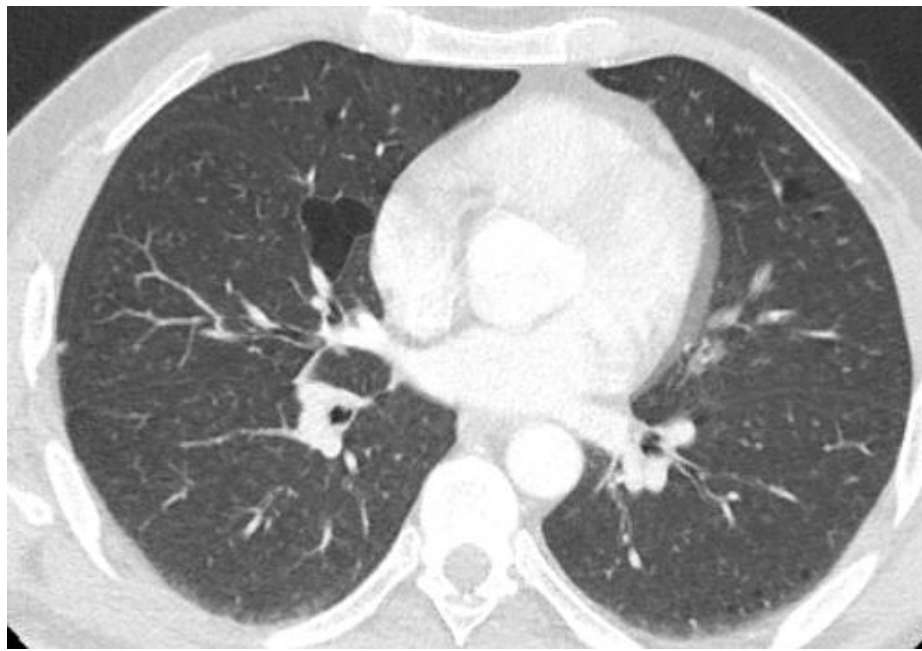
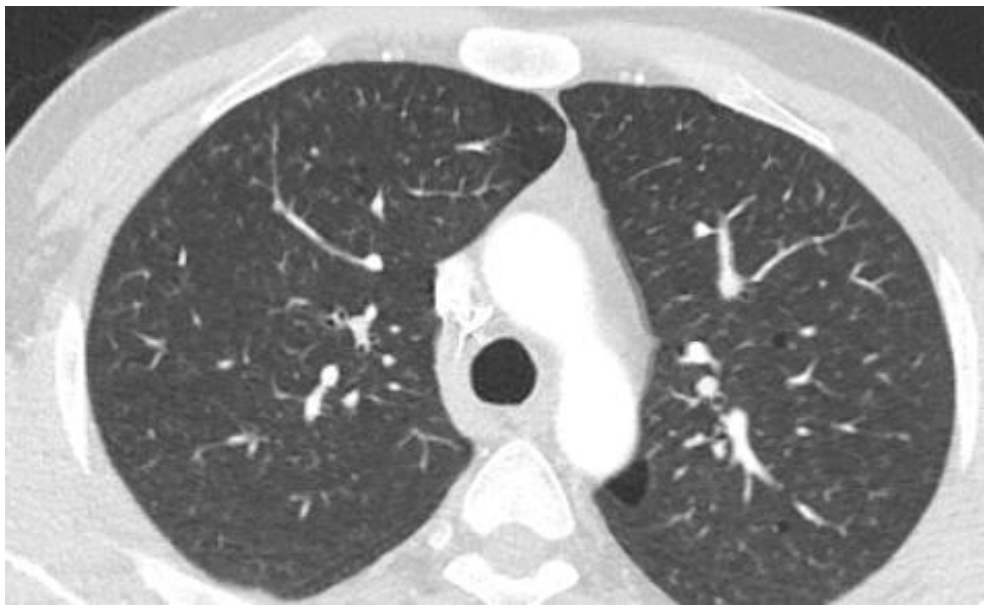
Pneumocystis jiroveci
pnömonisi

KİSTİK AKCİĞER HASTALIKLARINI DEĞERLENDİRME:

1. Kist mi ? değil mi?
2. Kistlerin dağılımı nasıl ?
3. Kistlere eşlik eden nodüller var mı?
4. Kistlere eşlik eden buzlu cam alanları var mı?



Lenfositik İntertisyel Pnömoni

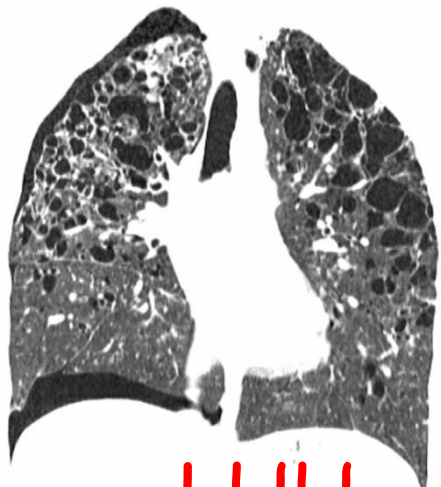


BIRT-HOGG-DUBE
SENDROMU

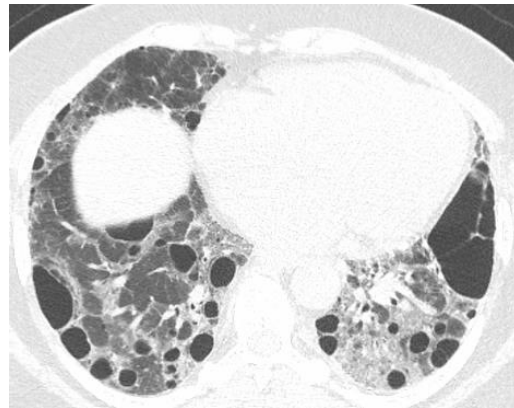
	Kistlerin Özellikleri	Kistlerin Dağılımı	Eşlik eden bulgular
LAM	Çok sayıda, uniform, 2-10 mm kistler	Diffüz, simetrik, Zonal ayırım göstermeyen	Şilotoraks, pnömotoraks, şilöz asit, renal tümörler, kemiklerde sklerotik odaklar (tuberoskleroz varlığında)
LHH	Multiple, irregüler kontürlü, farklı boyutlarda, nispeten kalın duvarlı	Üst lob dağılımlı, Kostofrenik açılar korunur	Santrlobüler veya peribronşiyal nodüller, pnömotoraks
BHD	Multiple, farklı boyutlarda, septalı	Alt loblarda, plevral yüzlere yakın, mediasten çevresinde	Pnömotoraks, Renal tümörler ve cilt lezyonları
LIP	Yuvarlak, farklı boyutlarda, ince duvarlı, az sayıda	Diffüz, alt zonlarda daha fazla sayıda, peribronkovasküler demet boyunca dağılım	Nodüller, septal kalınlaşmalar ve buzlu cam alanları, lenfadenomegaliler



LAM



LHH



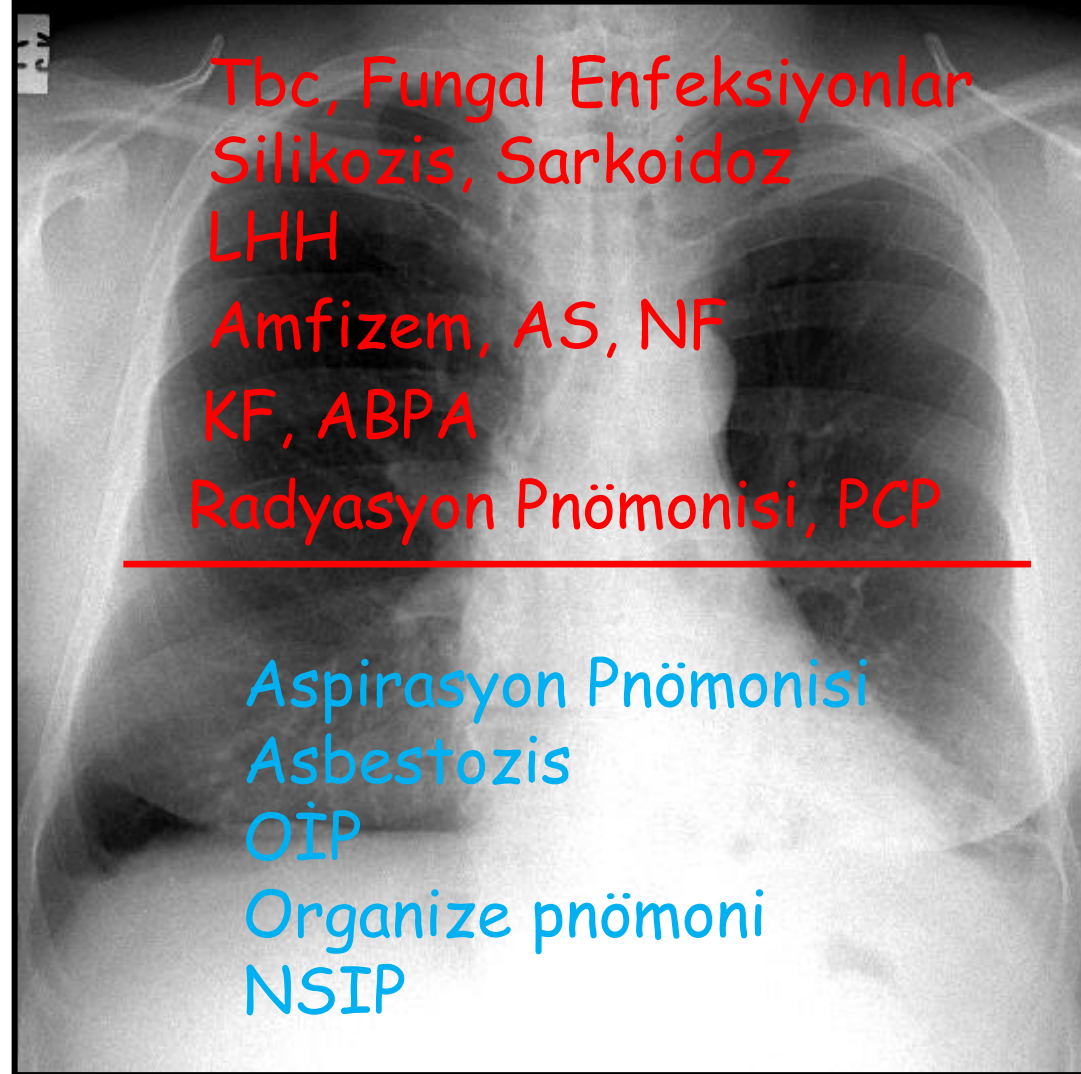
LIP



BHD



AKCIĞER ÜST ZONLARINI TUTAN HASTALIKLAR



SON SÖZ

- Hastalıkların dağılımı (üst- alt, santral-periferik)
- Hastalıkların paterni (nodül, buzlu cam, kist...)
- Klinik bilgi

taniya giderken birlikte değerlendirilmeli

