Prof.dr Simon Nikolić
opšta medicina 2

Radiološka dijagnostika pluća



MMXV

Oboljenja traheobronhijalnog sistema

Trahea:

1. Tracheobronchomegalia (Sy Mounier-Kuhn)*:* atrofija elastičnih vlakana
2. Tracheobronchomalacia
3. Stenoza
4. Tumori

Ø >30 mm



1. Strana tela

Bronh

1. Strana tela
2. Bronhogene ciste
3. Trahealni bronh
4. Bronhopulmonalna sekvestracija
5. Bronhiektazije
6. Tumori

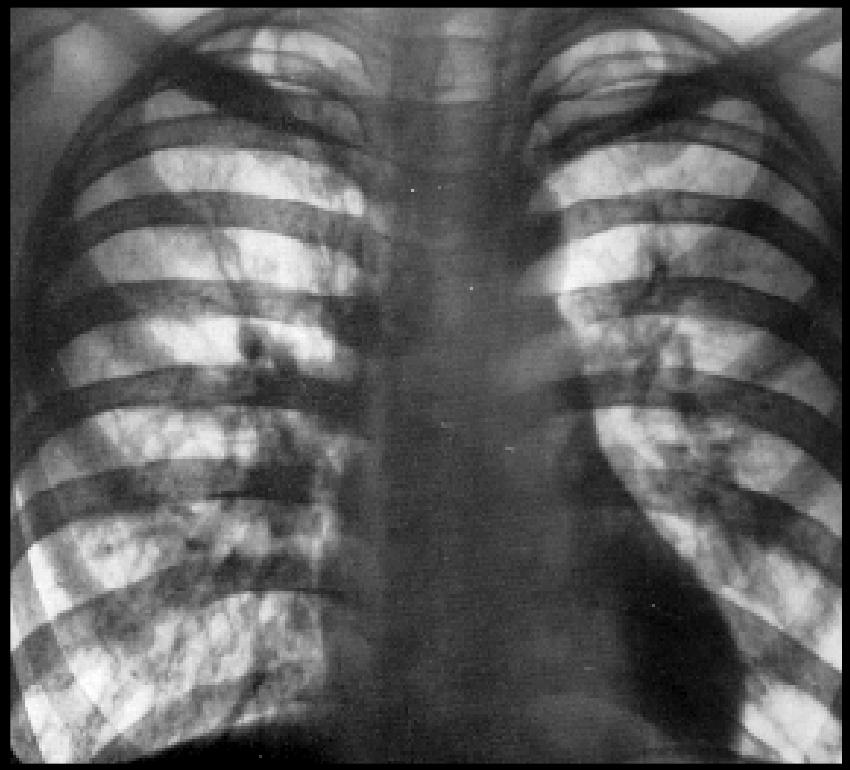


- Radio - opalescentna
  - transparentna

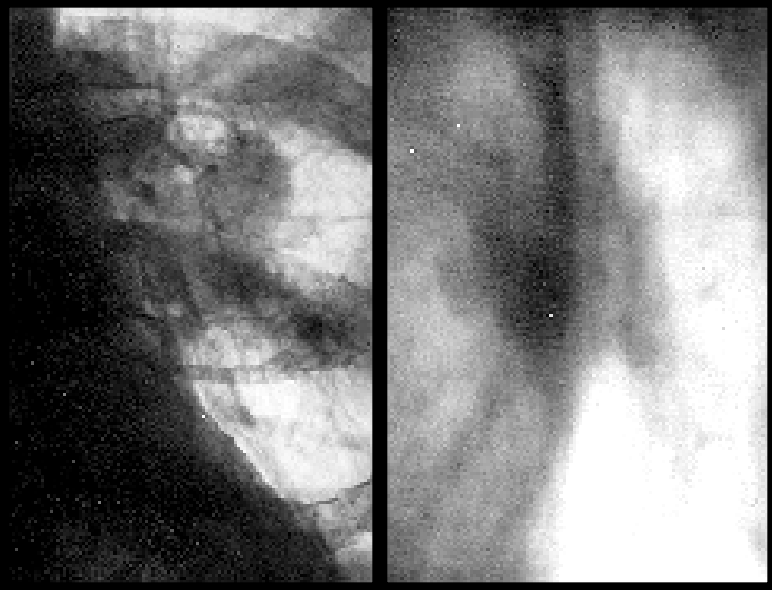
Atelektaza, opstruktivni pneumonitis

Snimak u inspirijumu i expirijumu

2. Retenciona cista



prekid daljeg razvoja i deobe bronhijalnog pupoljka



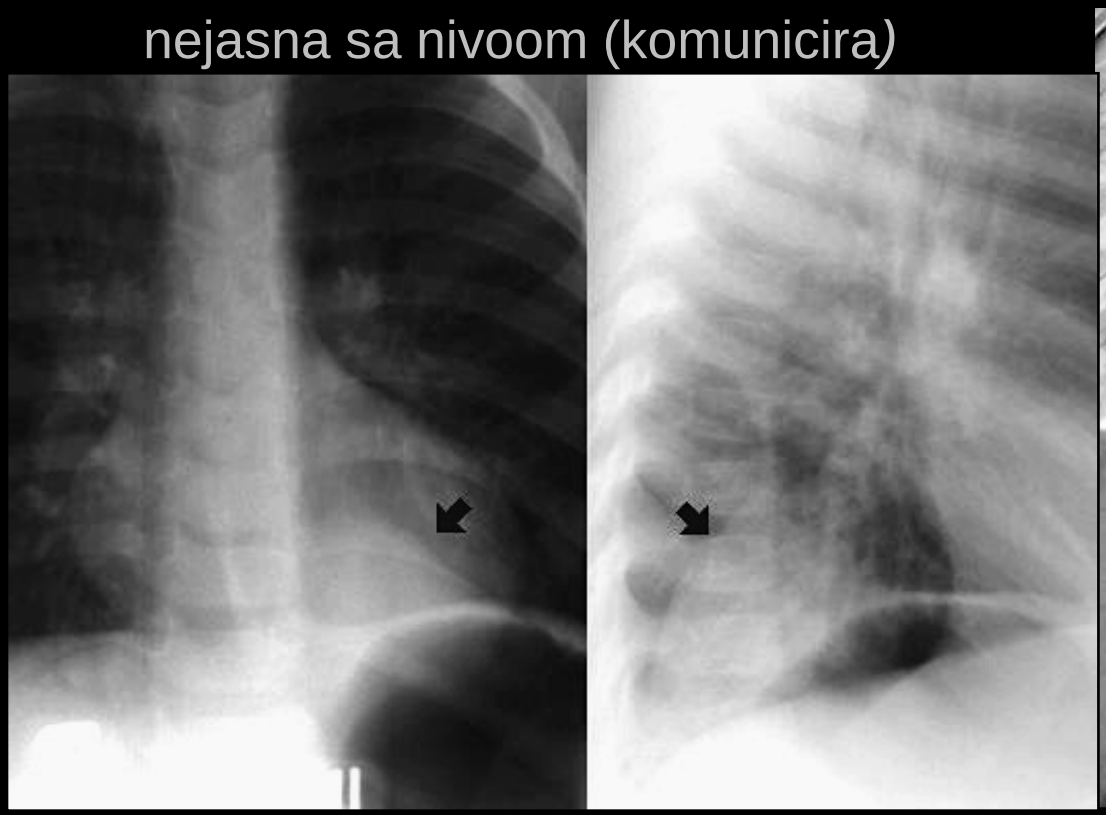
Kartagenerov sy:

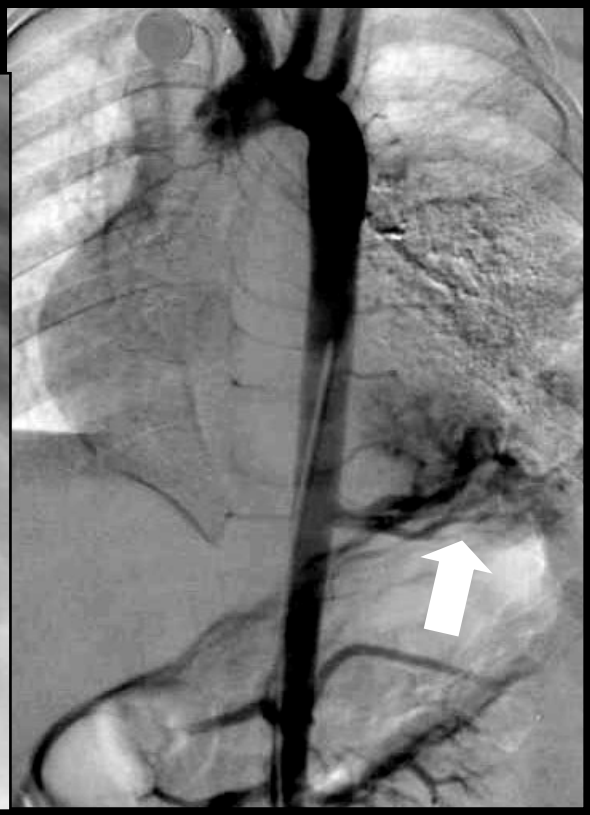
- situs viscerum inversus totalis,
- bronchiectasiae,
- sinusitis (*defekt cilijarnog aparata - odsustvo dineina)*

4. Bronhopulmonalna sekvestracija

Tip: intralobarna - zajedničku visceralnu pleuru sa ostatkom dela pluća
ekstralobarna - zasebna visceralna pleura

Rtg: jasno ograničena senka (bez komunikacije)
nejasna sa nivoom (komunicira)





Aortografija sistemska komunikacija nutritivne arterije iz aorte

5. Bronhiektazije



Trajno proširenje i deformacija bronhijalnog sistema.

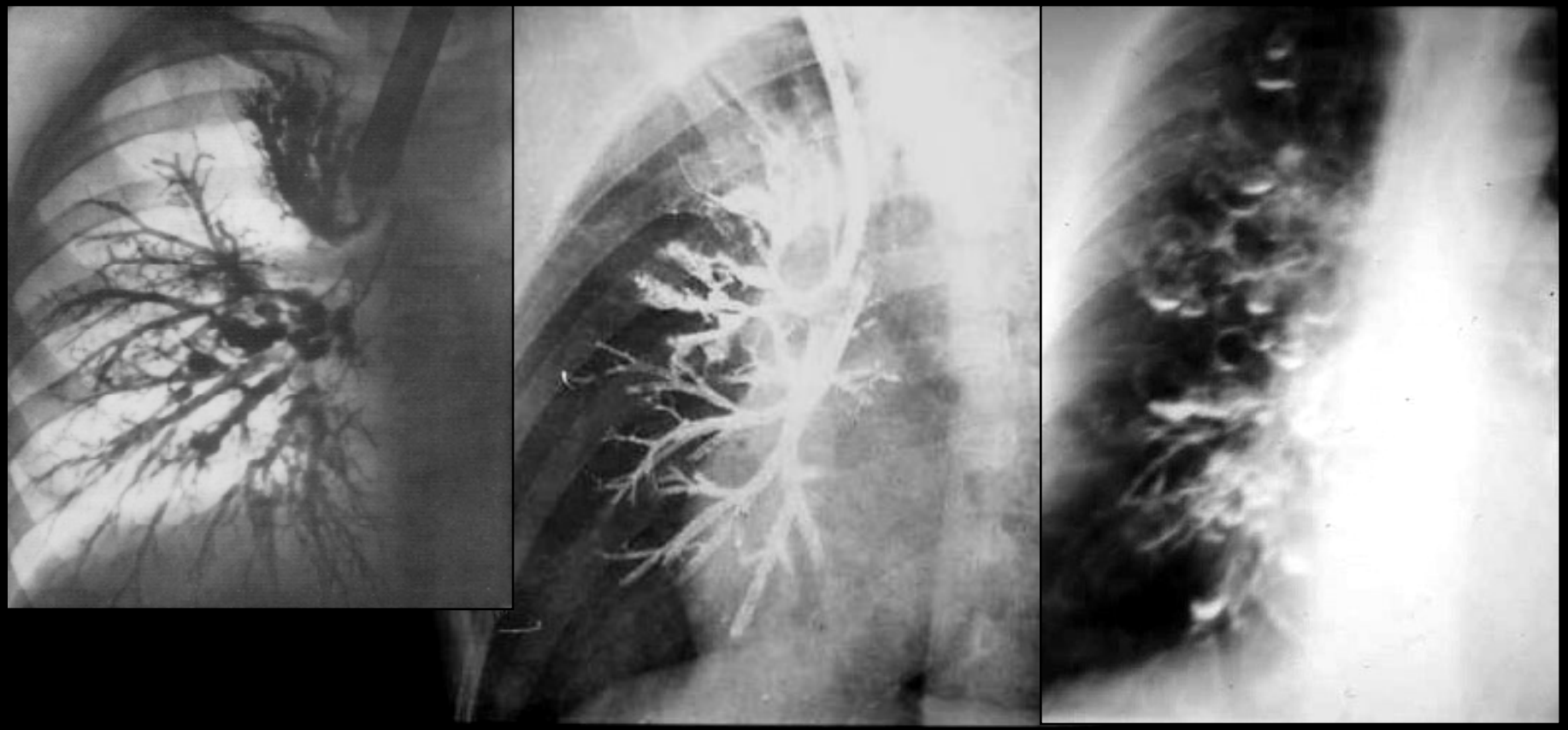
Morfologija:

cilindrične,

vretenaste (fuziformne),

cistične (sakularne)

Rtg: trakaste senke “tram lines” kratke (Y ili V), grozdaste oblika "saća"



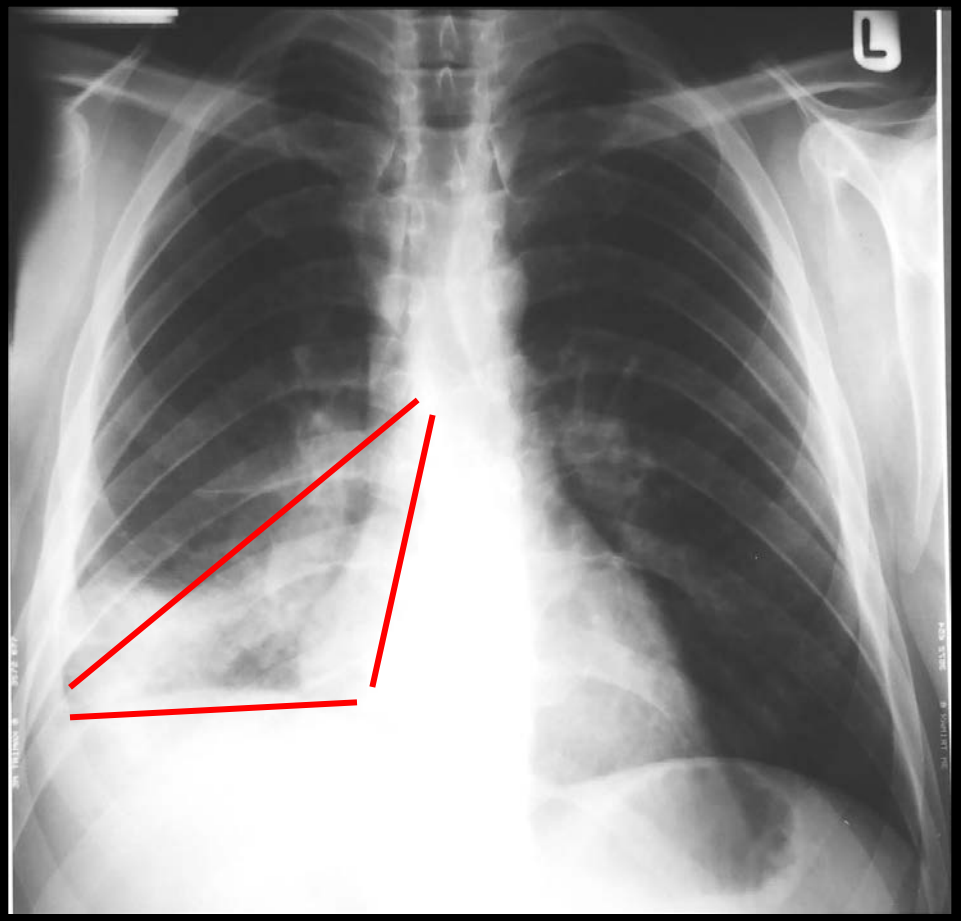
Bronhografija:
cilindrične - distalni deo "ogoljenog drveta"
vretenaste - iregularna kontura sa maljičastim završetkom
cistične - "grozd" "lastino gnezdo"

Pneumonia

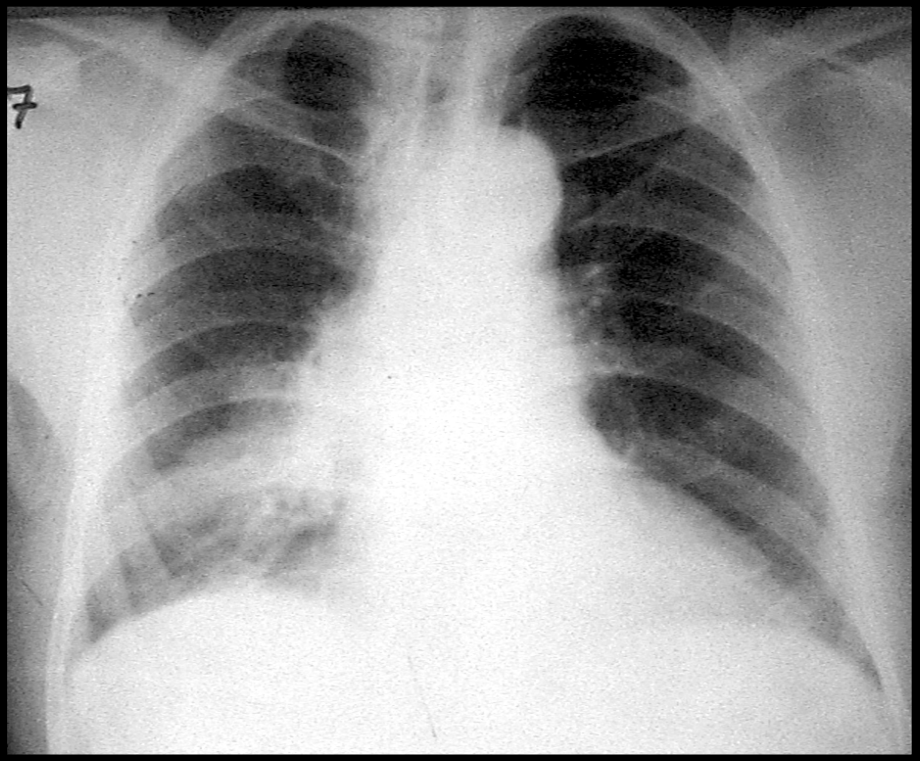
zapaljenski proces u plućima

1. lobularna pneumonia (bronchopneumonia)
2. lobarna pneumonia
3. intersticijalna pneumonia

Ditmar-Rumpertov trougao



1. Bronhopneumonia



Proces polazi iz terminalnih bronhiola, zahvata ceo acinus a susedne zahvata na preskok.

Rtg:

nehomogena mrljasto-trakasta senka, bazalne lokalizacije

- Mrljasta senka - zapaljenski izliv u acinusima.
- Trakasta senka - intraluminalni i peribronhijalni proces bez negativnog bronhograma.

2. Lobarna pneumonija



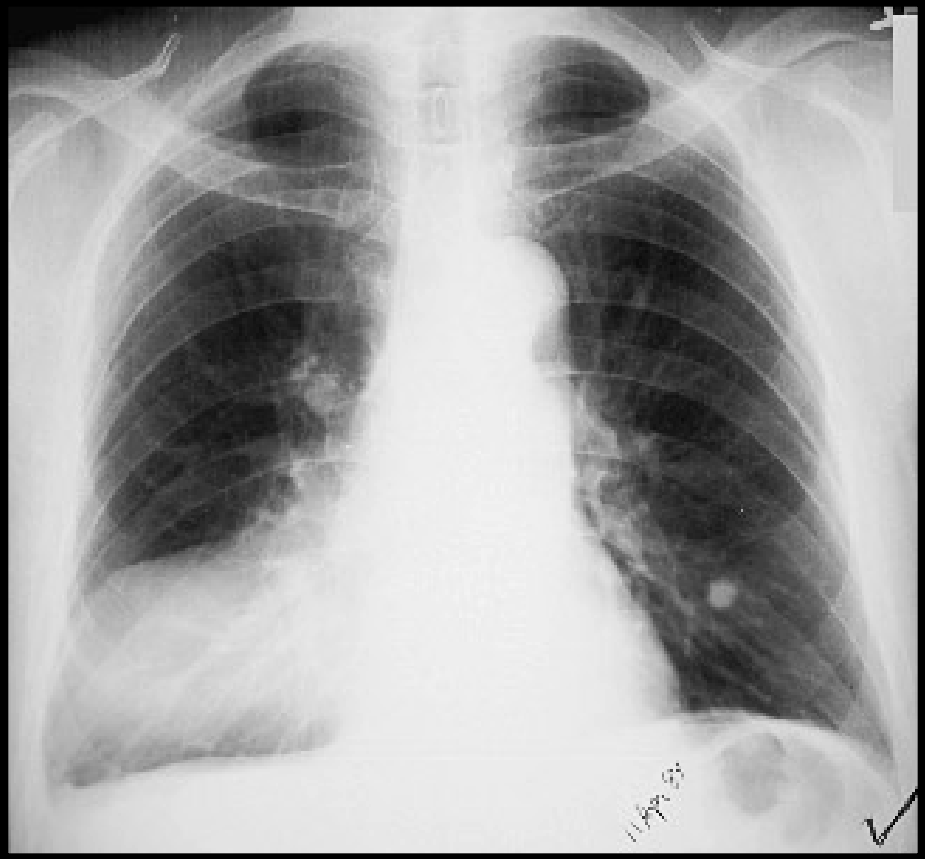
započinje u alveolama, širi se kroz Cohn-ove prostore, uglavnom bazalno, zahvata ceo lobus

I stadijum – aktivna hiperemija (smanjena velasta prozračnost)

II stadijum – crvena hepatizacija (eksudat i fibrin u alveolama, homogena senka, sa vazdušnim bronhogramom)

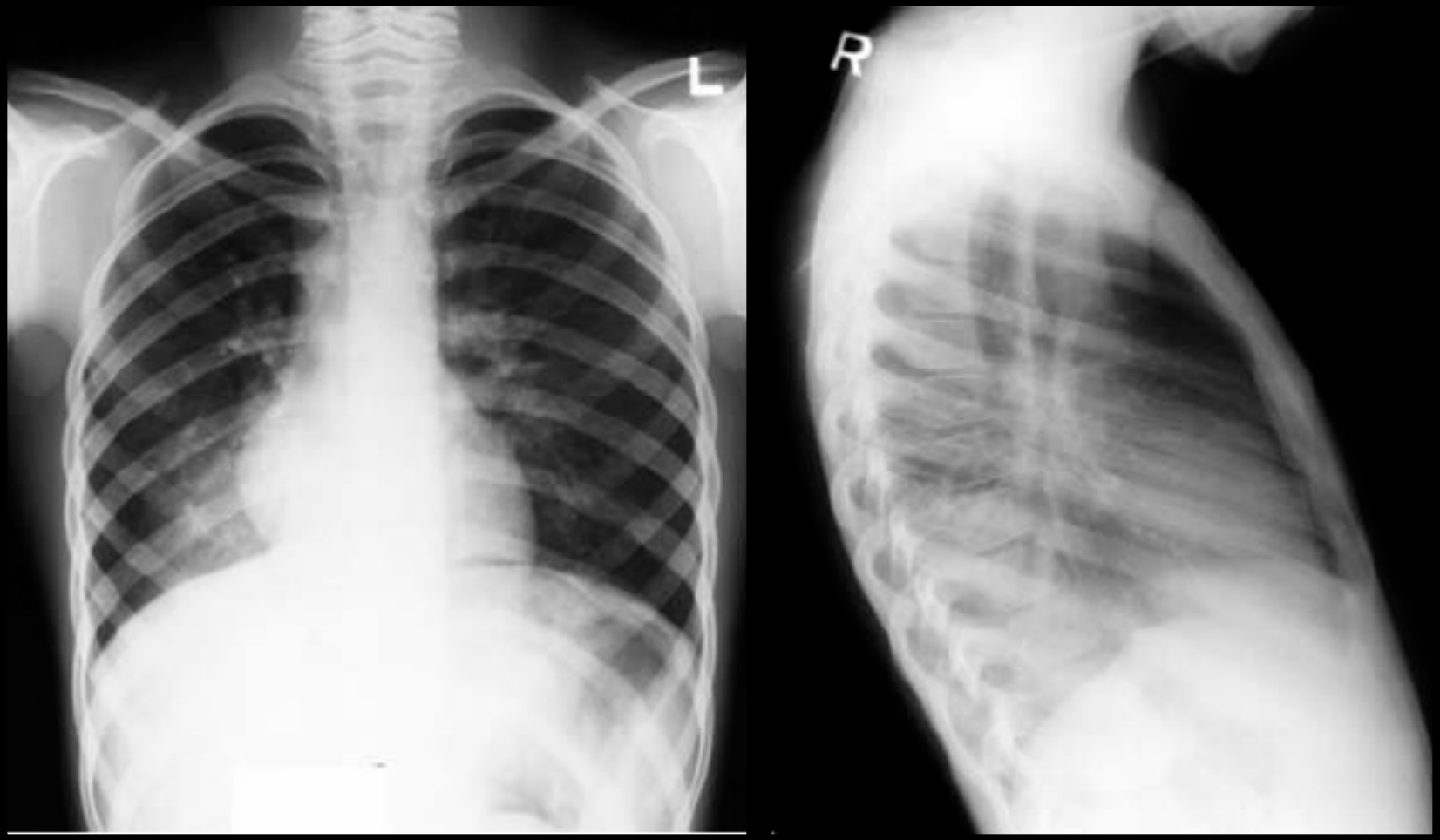
III stadijum – siva hepatizacija (raspad Er, ↑ Le, nehom.senka)

IV stadijum – rezolucija (raspad fibrina, mrljasto-trakasta nehomogena senka)

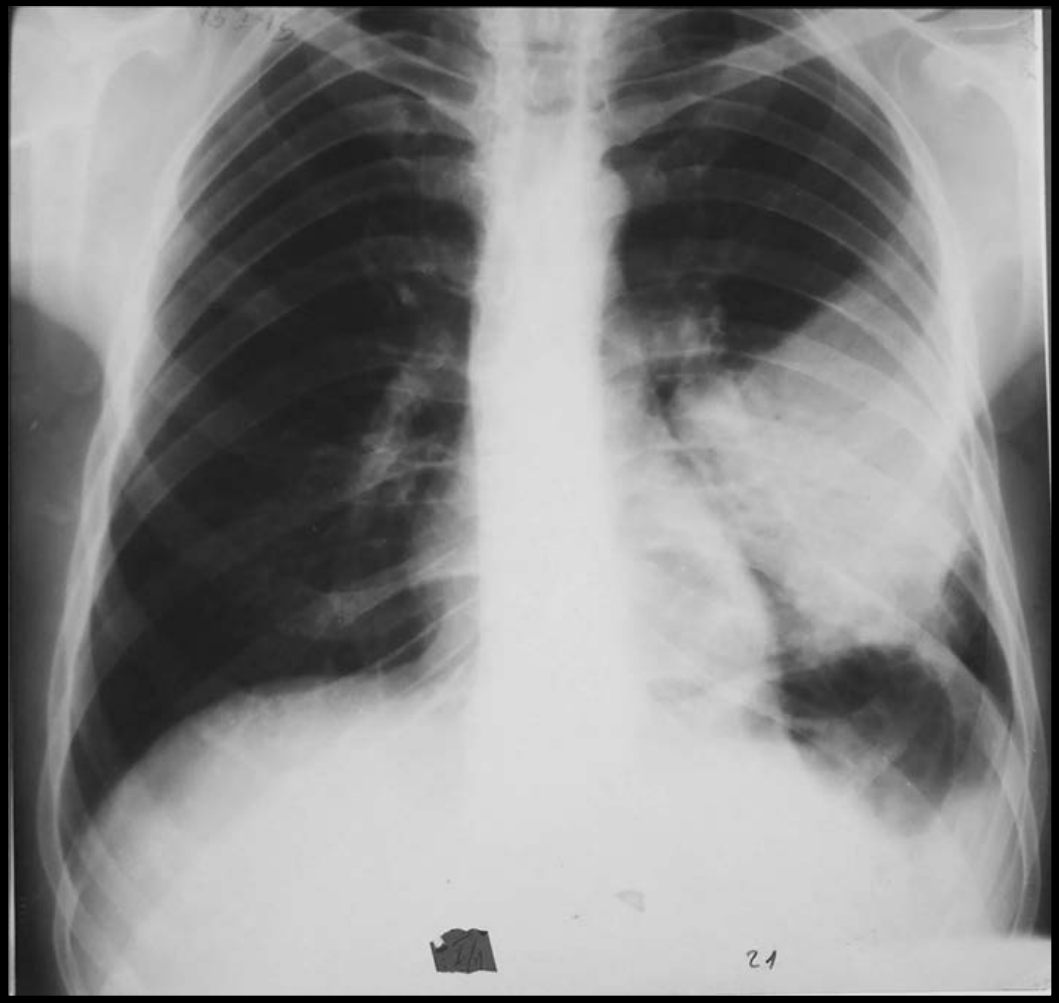




Srednji i donji lobus desno, gubitak desne srčane konture



Donji lobus desno
normalno retrosternalni i rerokardijalni prostorsu istog denziteta.
Gubitak vazdušnosti retrokardijalnog prostora na LL snimku.

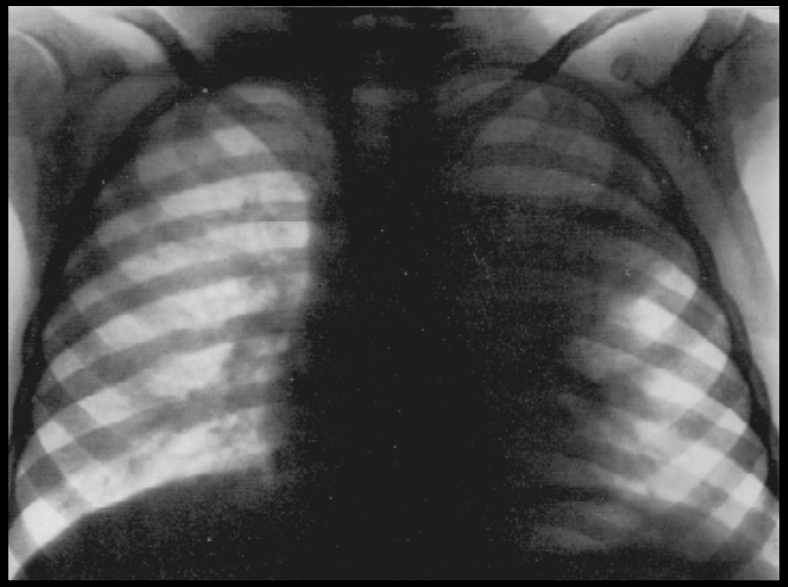


Lingvalni segment gubitak leve srčane konture.

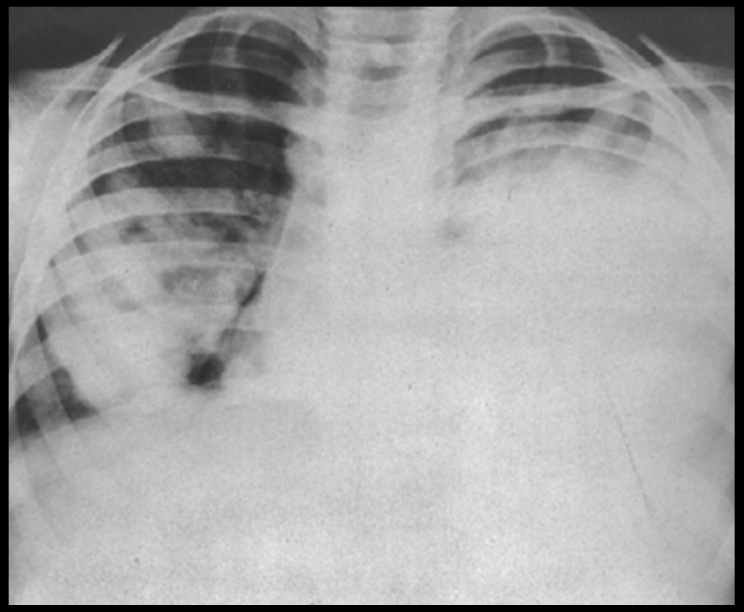




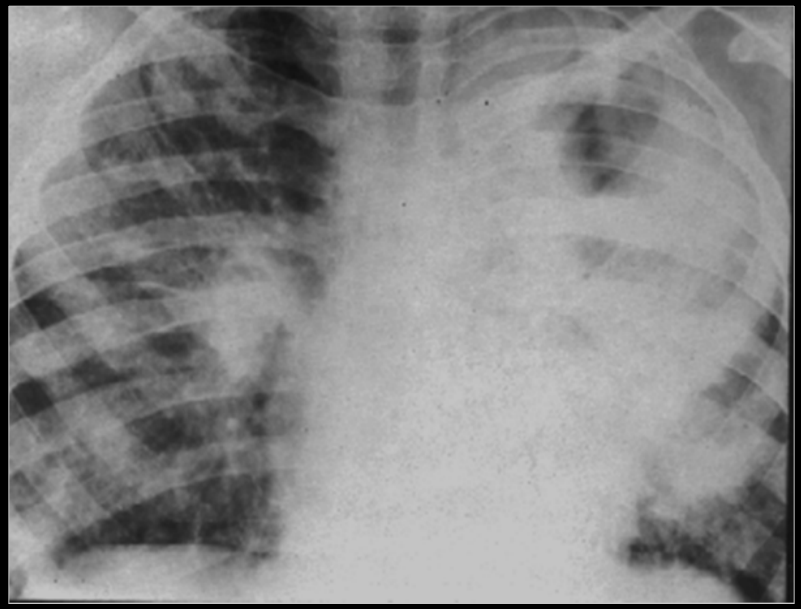
Gornji lobus levo vidljiva dijafrgama na AP i kosa fisura na LL.



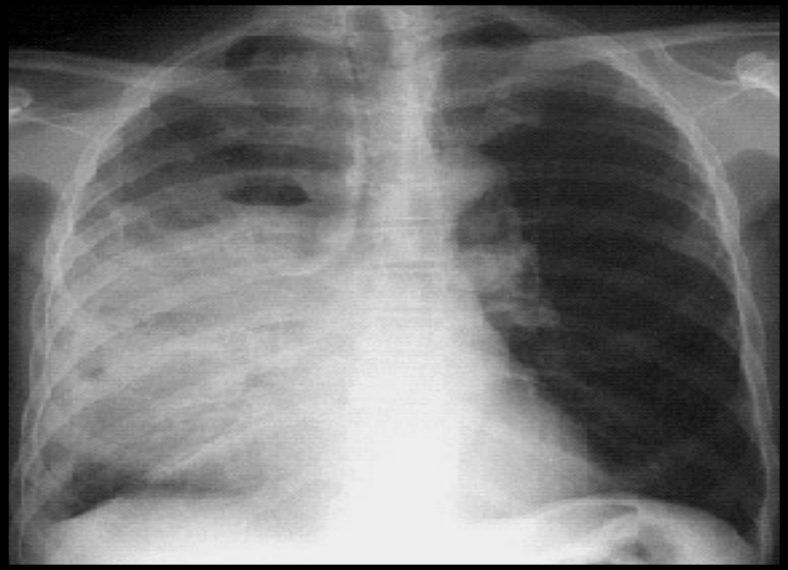
krupozna pneumonia



obostrana krupozna pnemonia

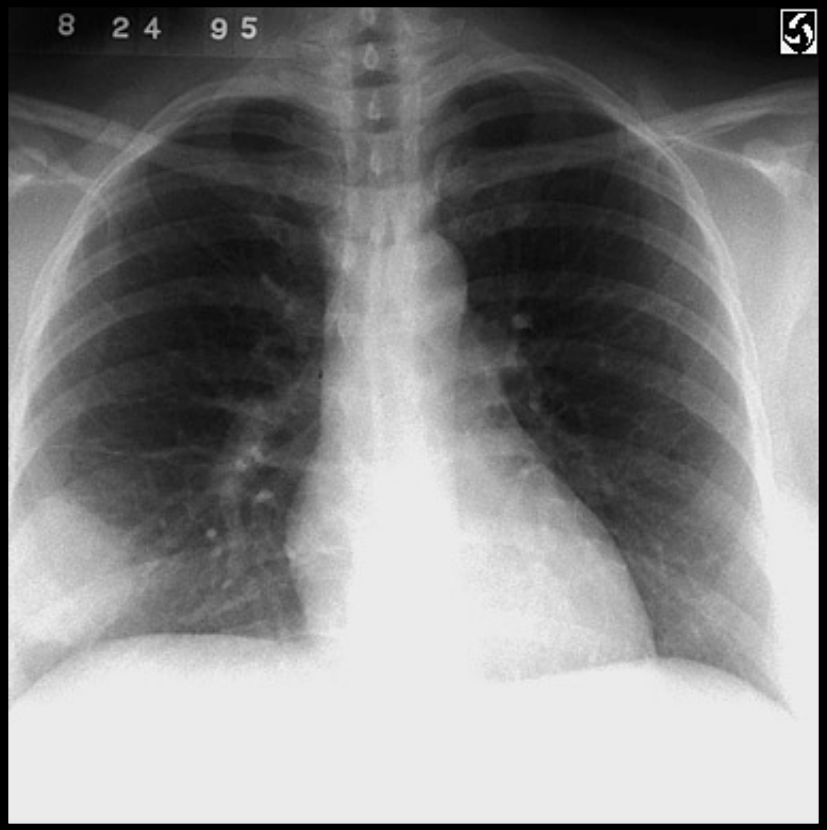


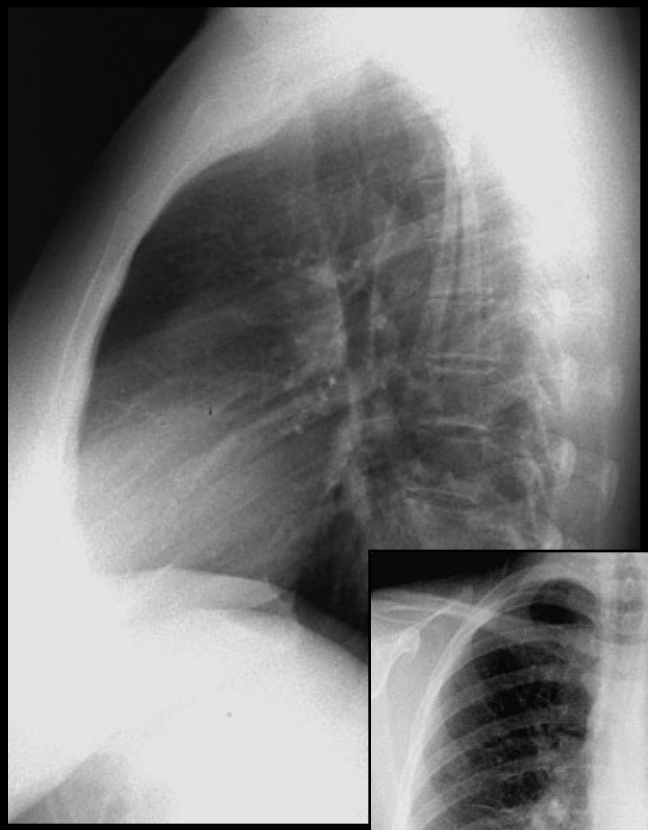
streptokokna pnemonia

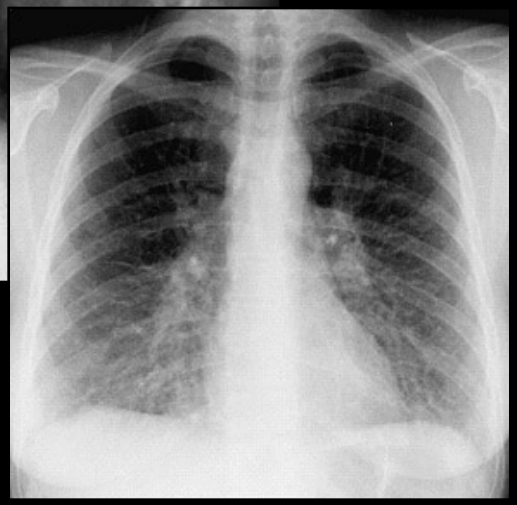


pseudomonas

- kružna pneumonija

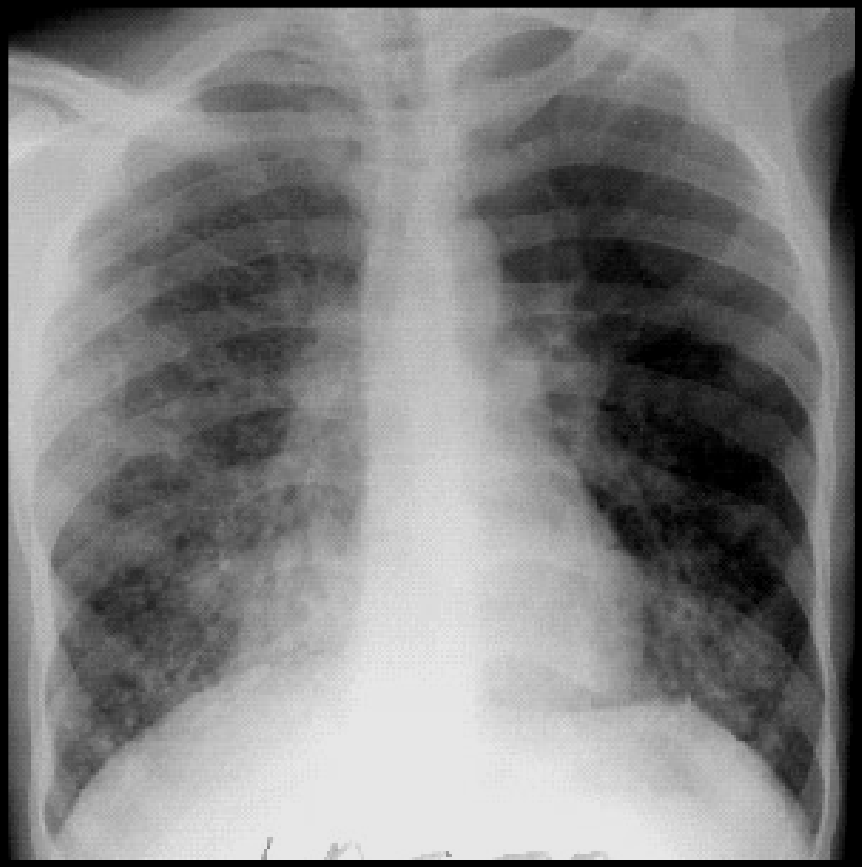


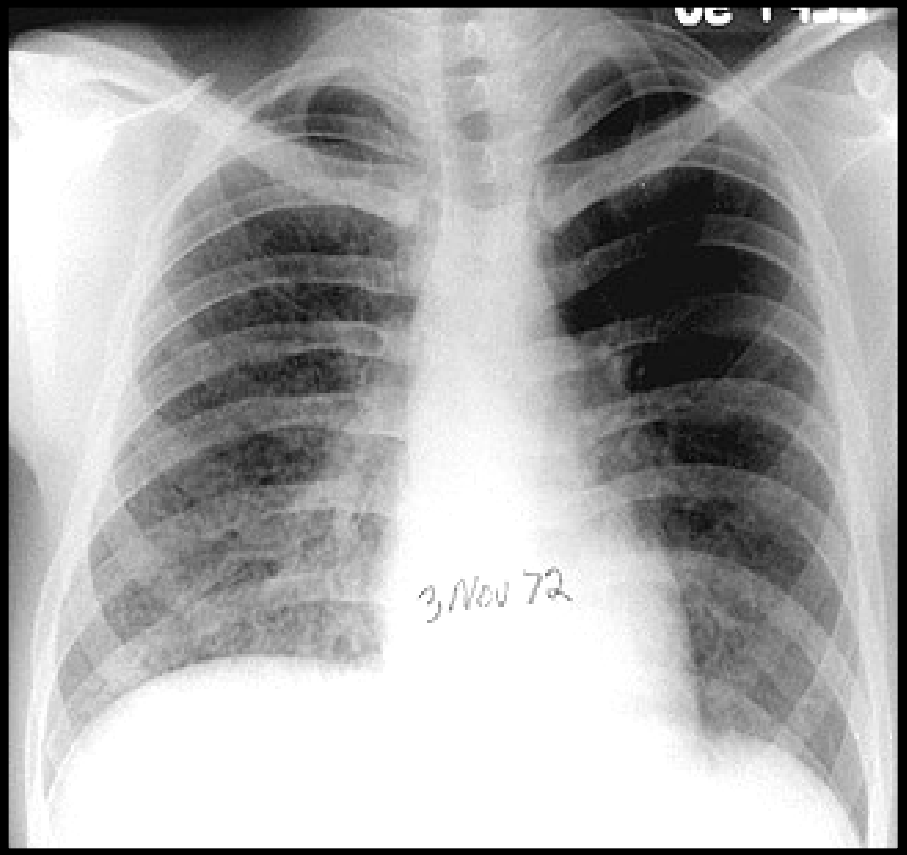




mycoplasma pneumonia

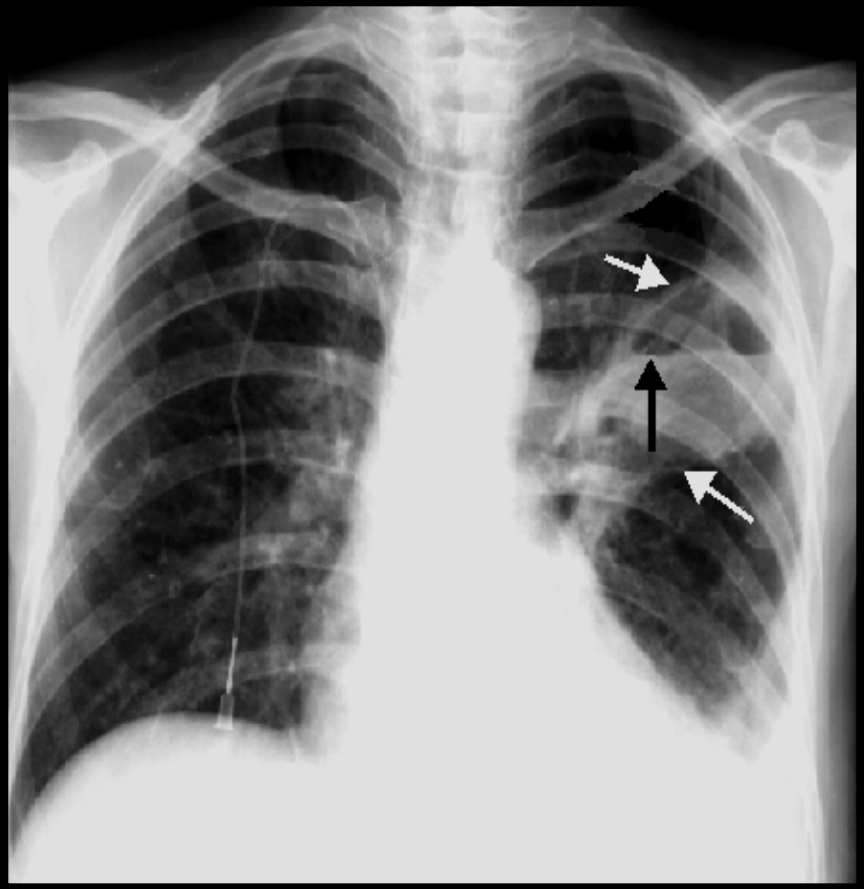
3. Virusna pneumonija

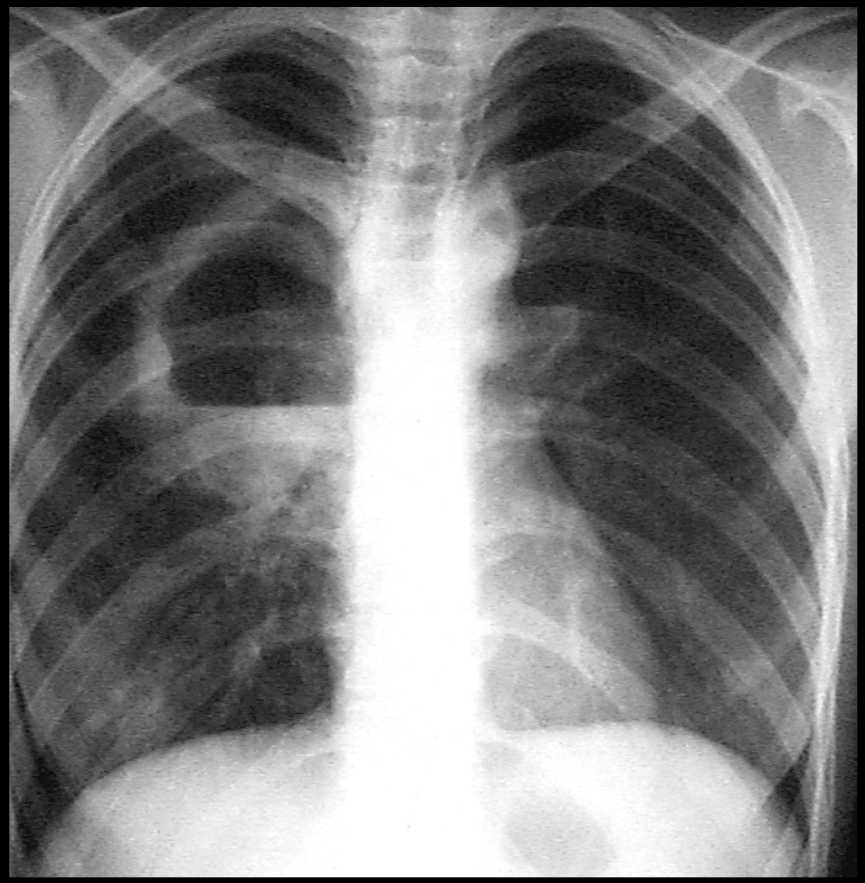




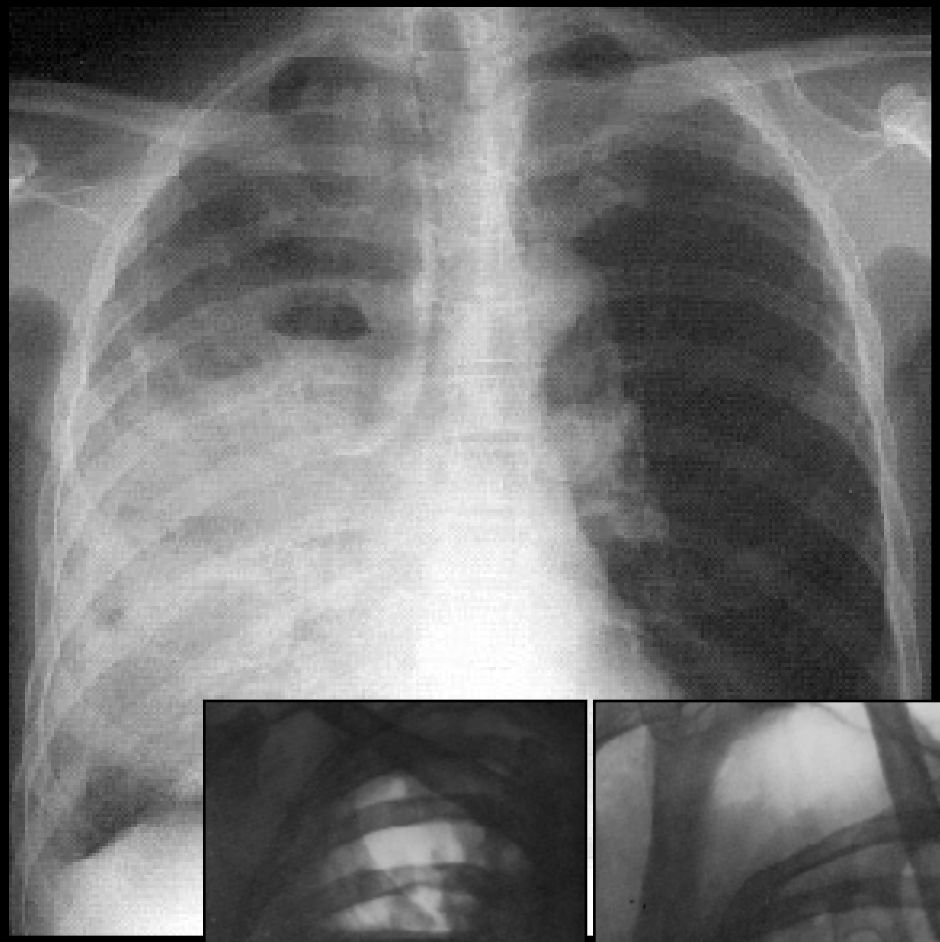
Rtg: Primarno intersticijska, hilofugalno mrežasta lepeza

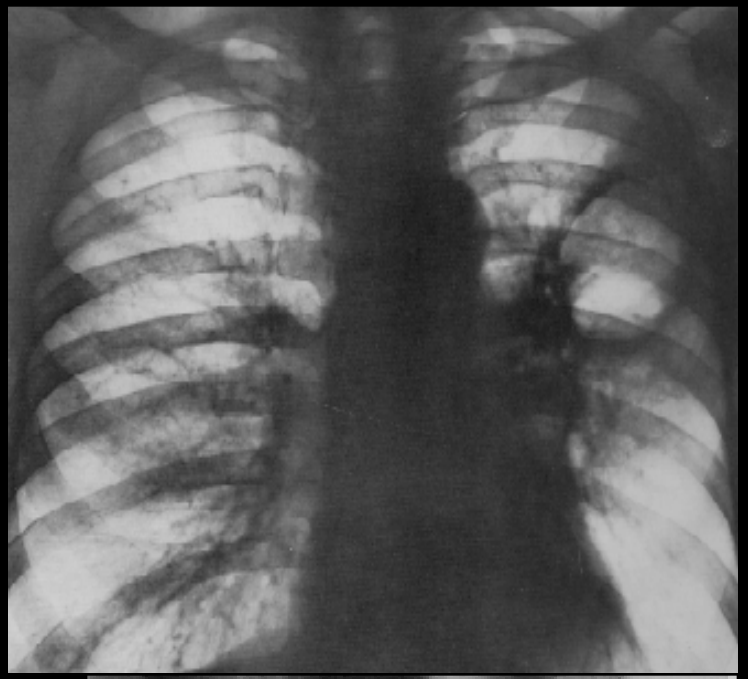
Apsces pluća

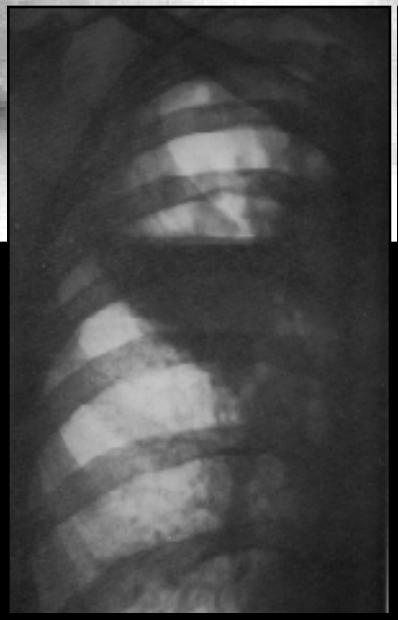




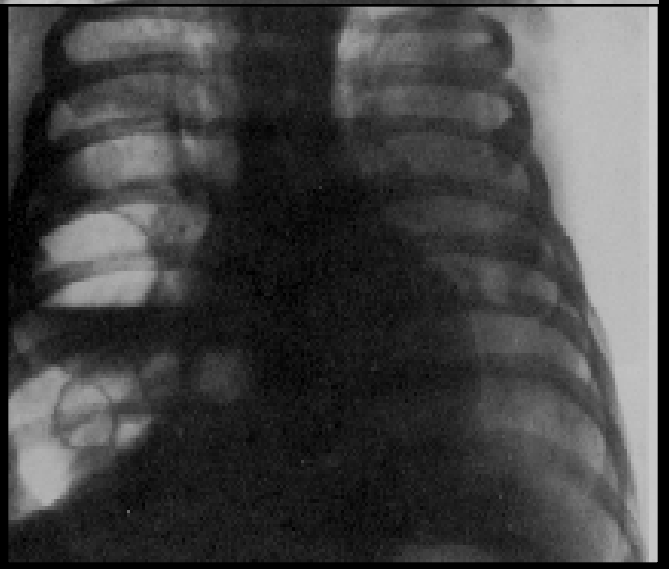
Lokalno gnojno oboljenje praćeno nekrozom i kolikvacijom



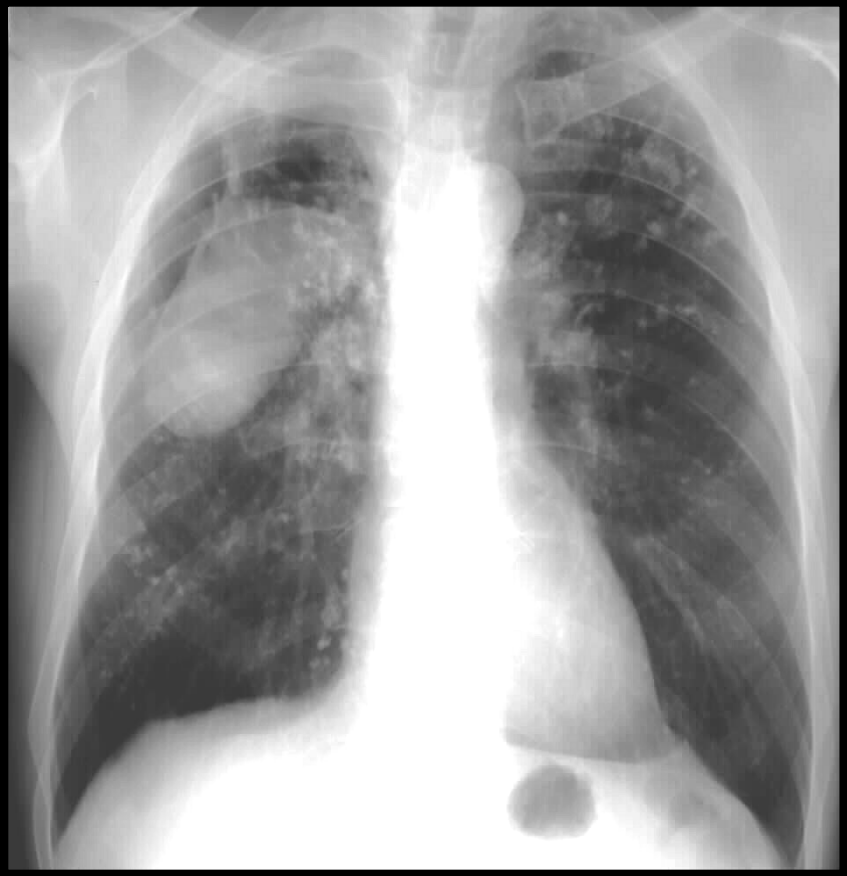




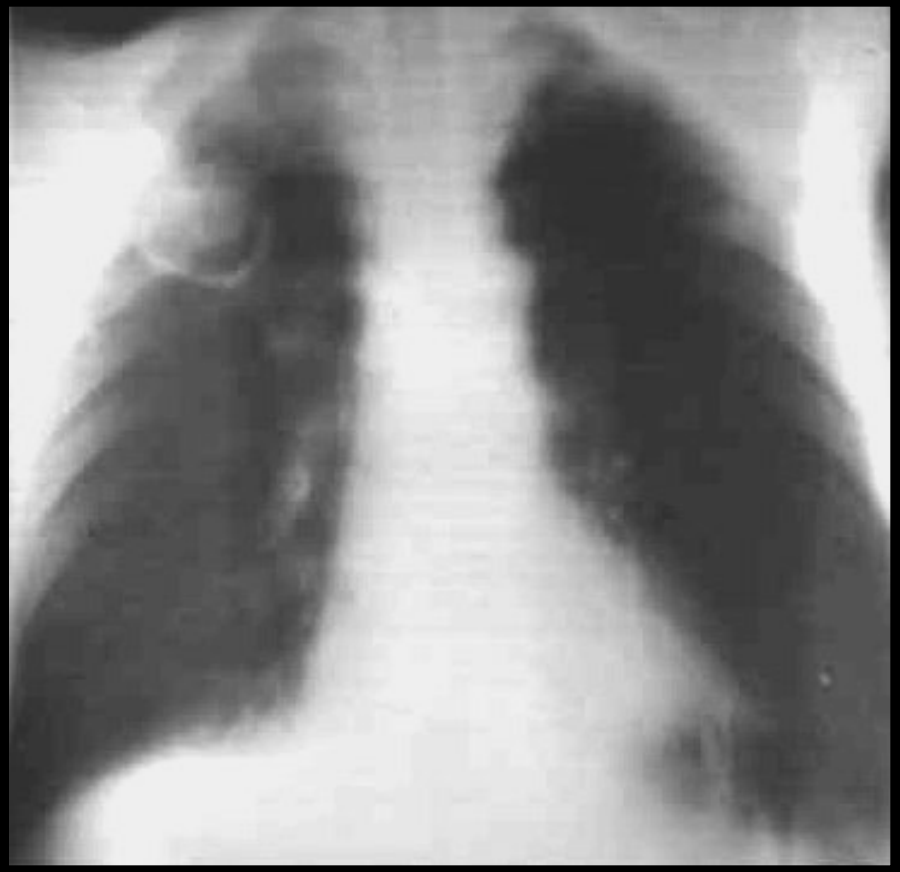




Plućna aspergiloza i aspergilom

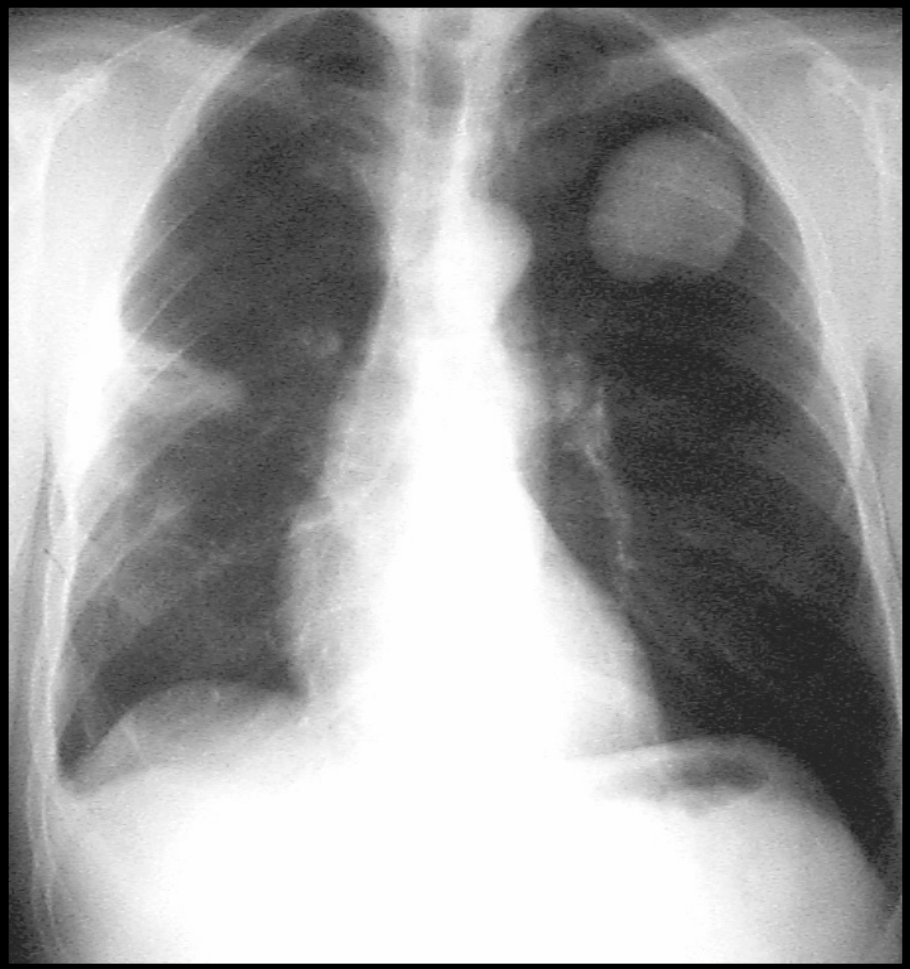


Aspergillus fumigatus
flavus
niger



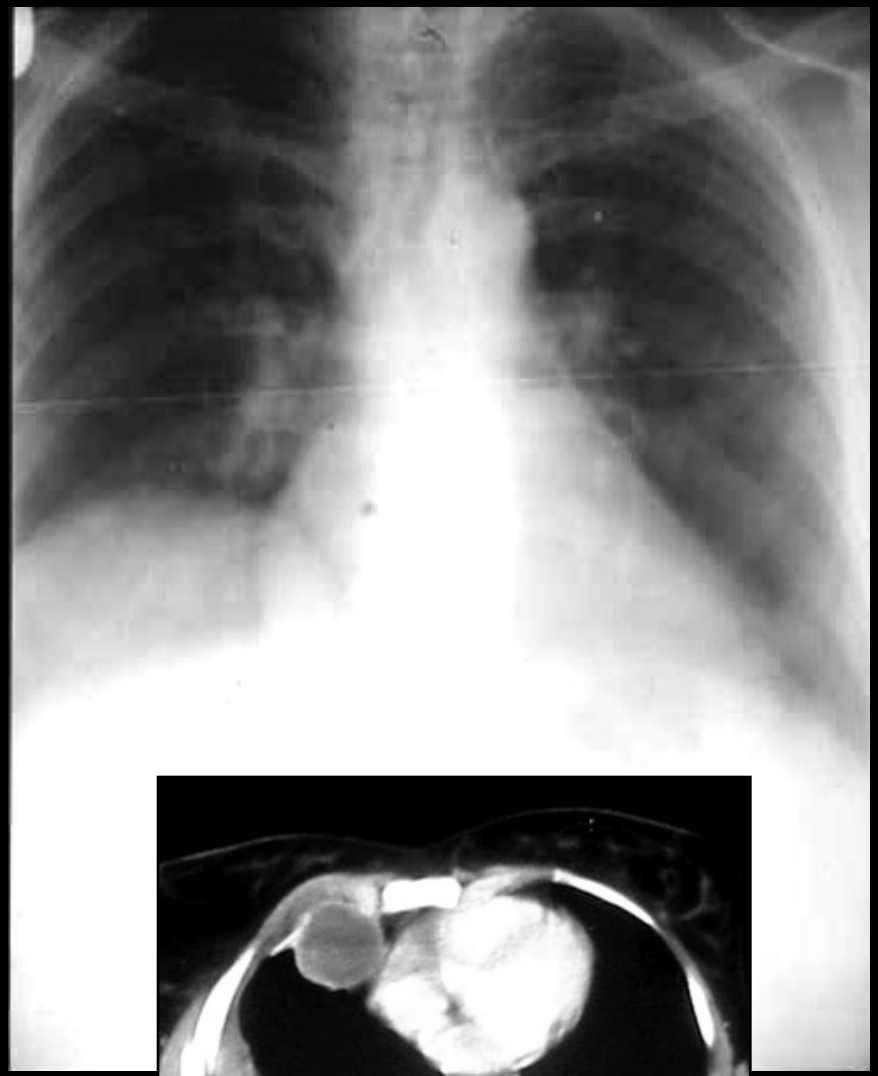
Rtg: kružna senka unutar prstenaste senke, "gljivična lopta"

Ehinokok pluća



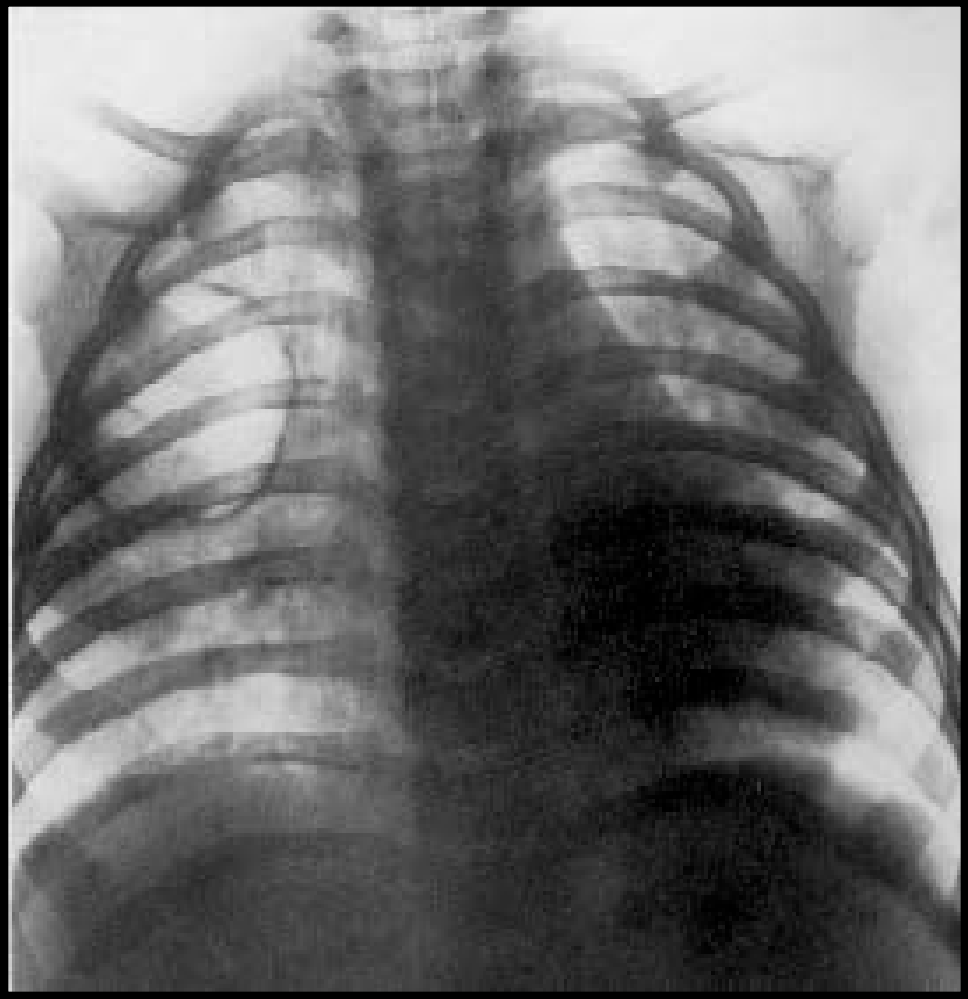
Rtg: kružna senka jasno ograničena

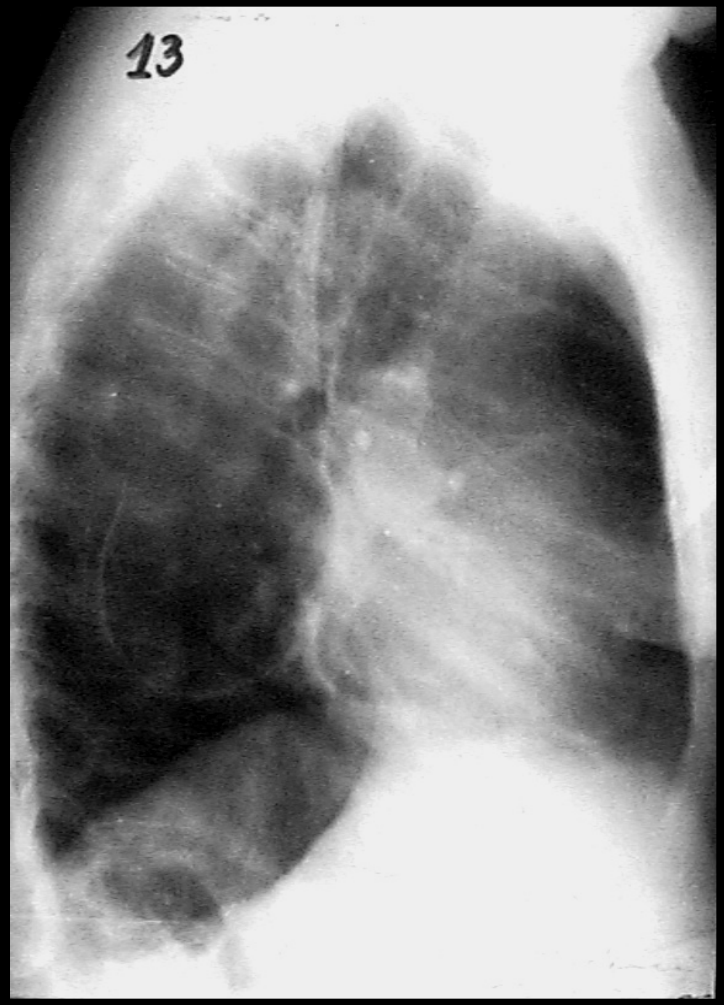
- pri inspirijumu ovalan oblik (Escudero-Neumanov znak)
- O_2 između peri i ektociste, meniskus (Zhebeov znak)
- O_2 između membrane i periciste i u cisti, dvostruke arkade (z. Ivanišević)
- smežurana opna na dnu prazne ciste (Cumbov znak)
- membrana po površini tečnog sadržaja (Camalotov znak)

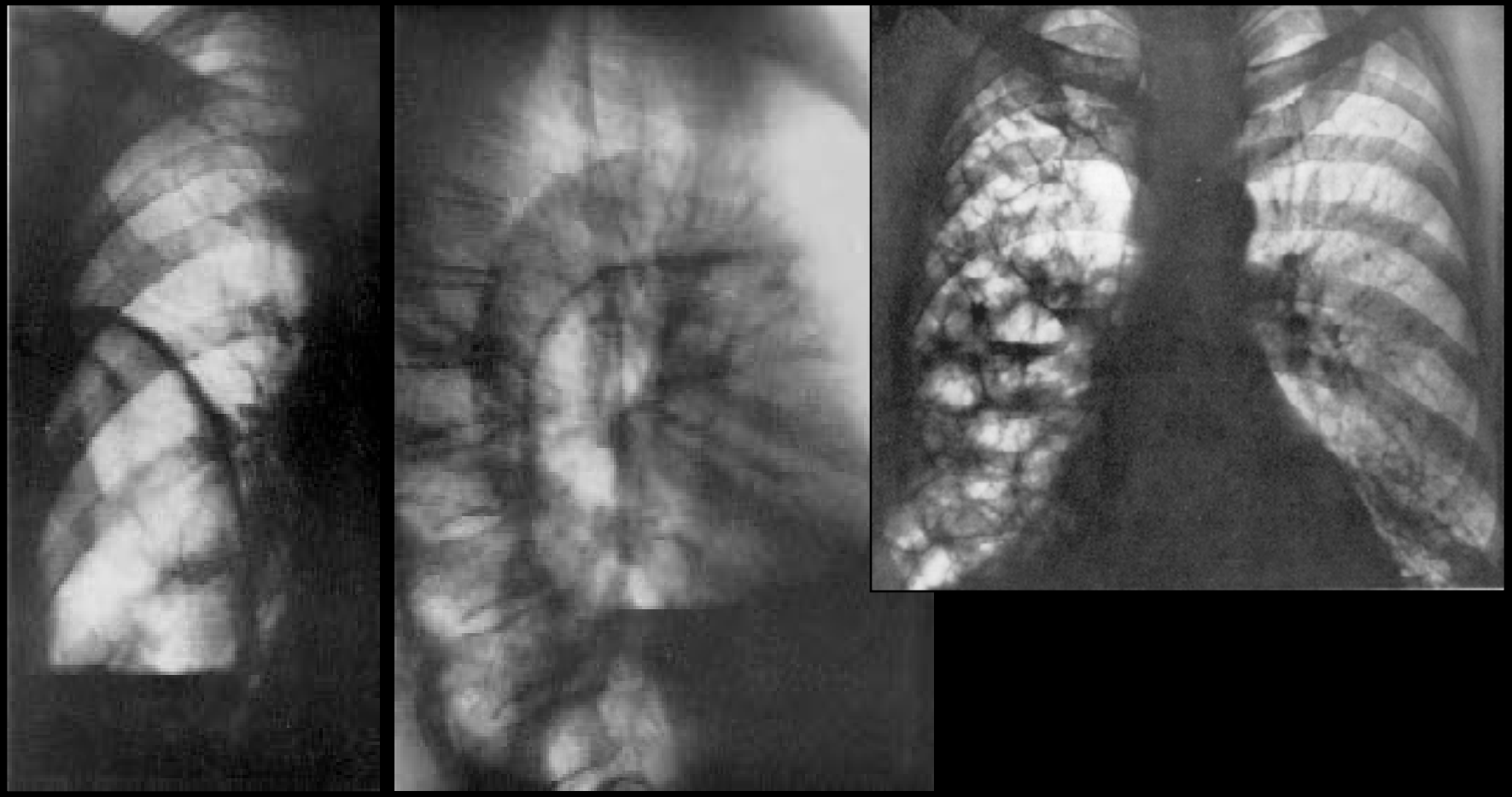




- U senci dijafragme
  (znak "zalazećeg sunca")




13

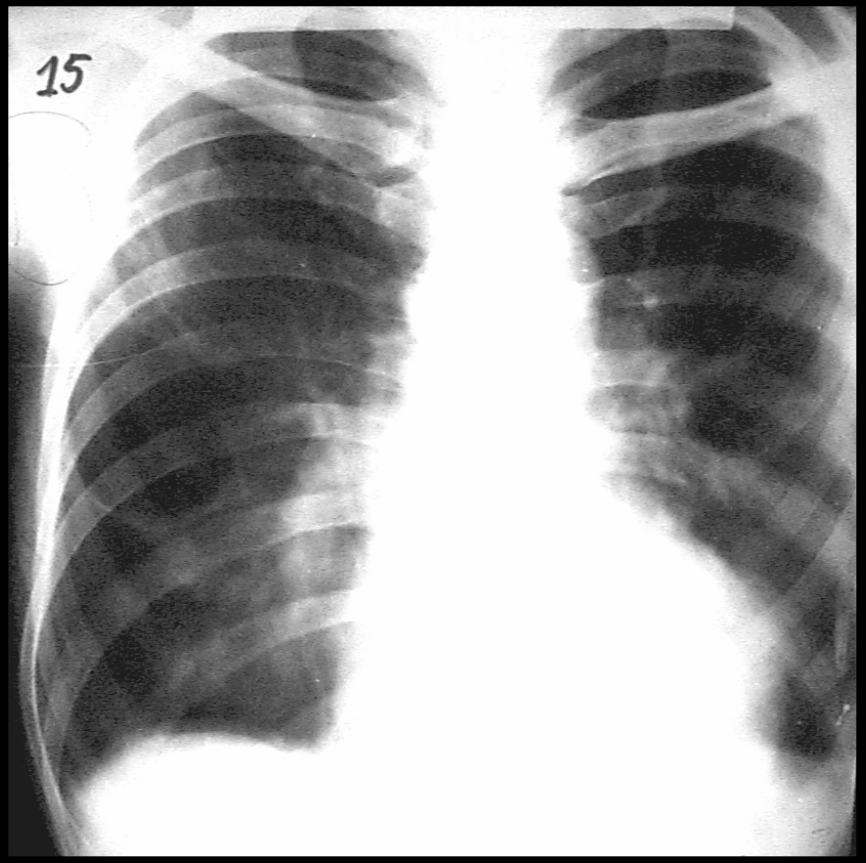


- Hidropneumocista "ćerke ciste"

Emfizem pluća

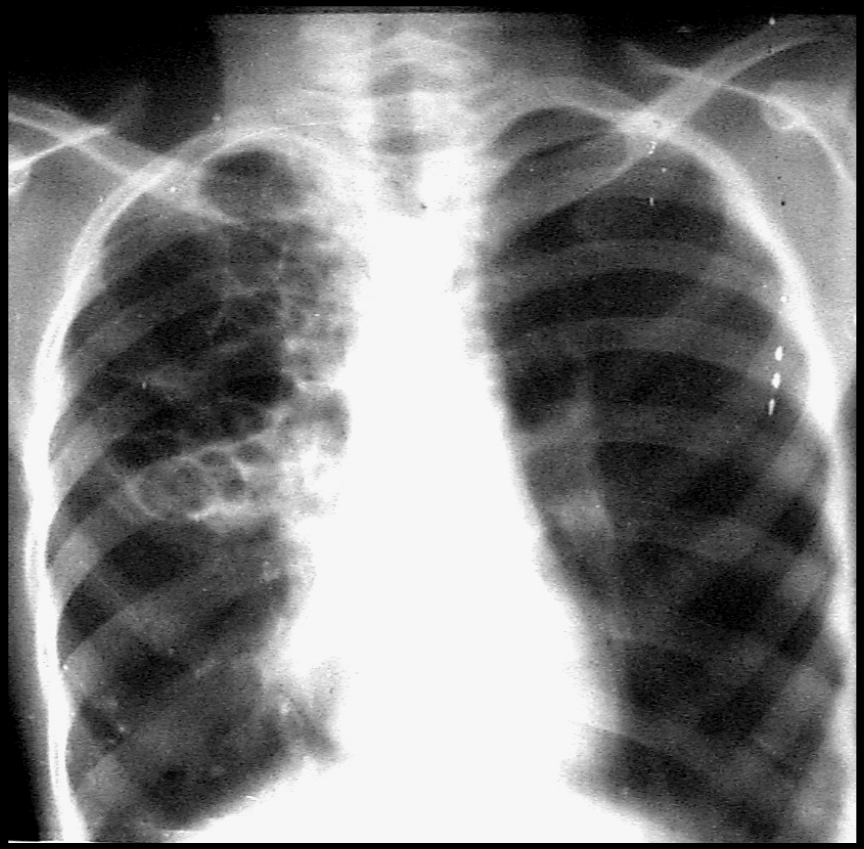


Trajno proširenje vazdušnog prostora distalno od terminalnih bronhiola praćeno destrukcijom alveolarnih zidova kapilara



Objektivni znaci

1. visina pluća >28 cm
2. dijafragma ispod
   napred -prednji okrajak 5-6 rebra
   pozadi -zadnji okrajak 8-9 rebra
3. visina svoda dijafragme 3 cm
4. respiratorna pokretljivost
   dijafragme manja od 6 cm
5. širina retrosternuma 2,5 cm
   (u max.expirijumu)
6. dubina retrosternuma 7 cm
   (u max.expirijumu)

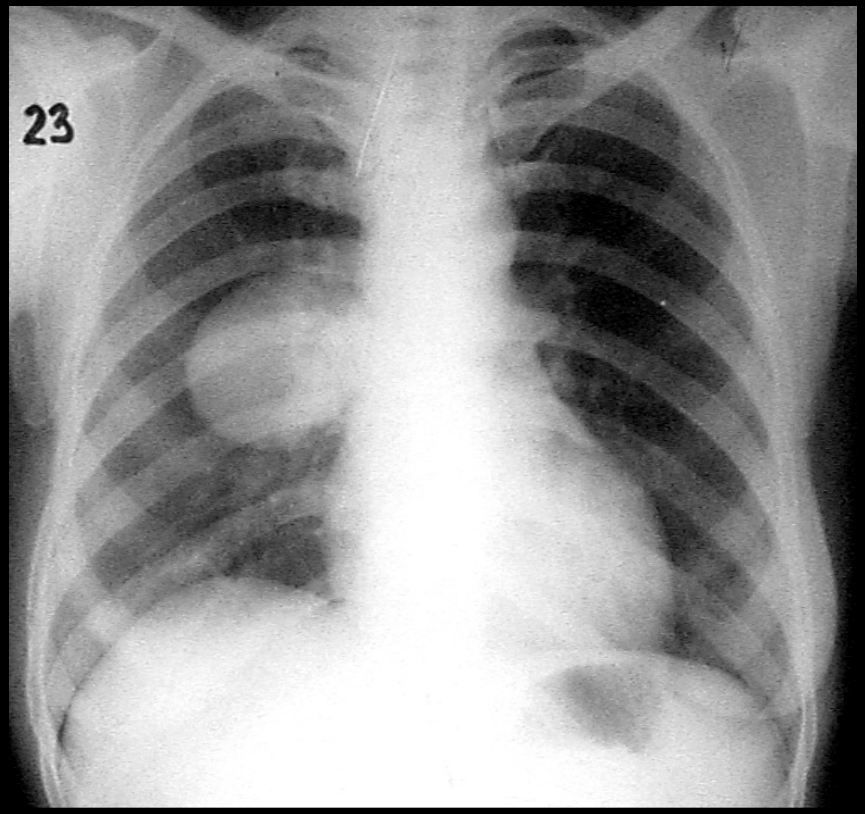


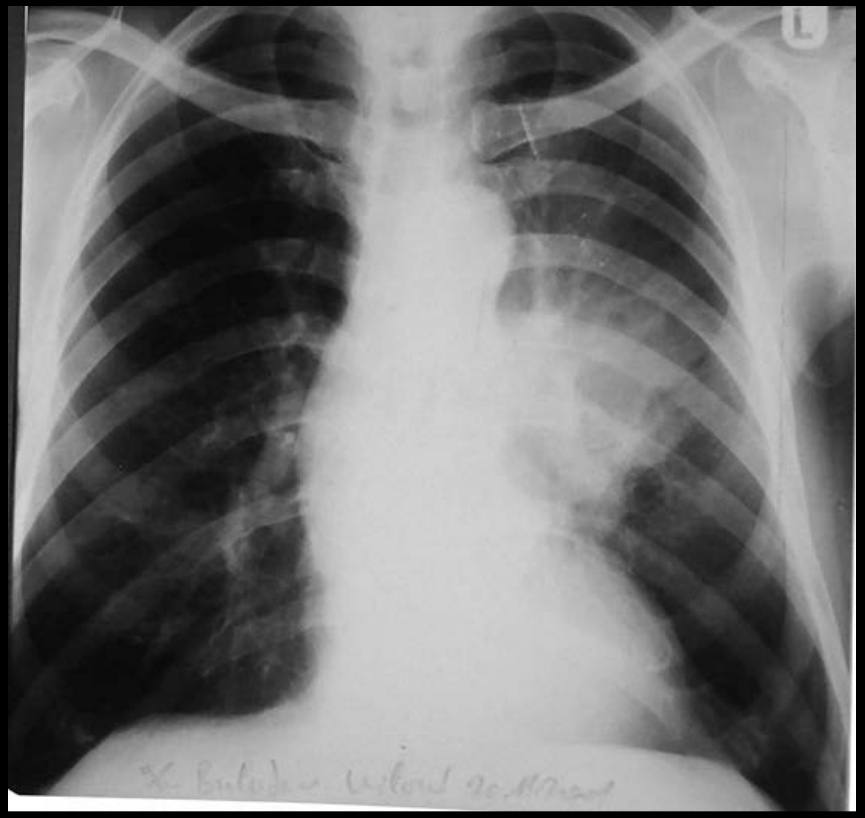
plućne ciste

Subjektivni znaci

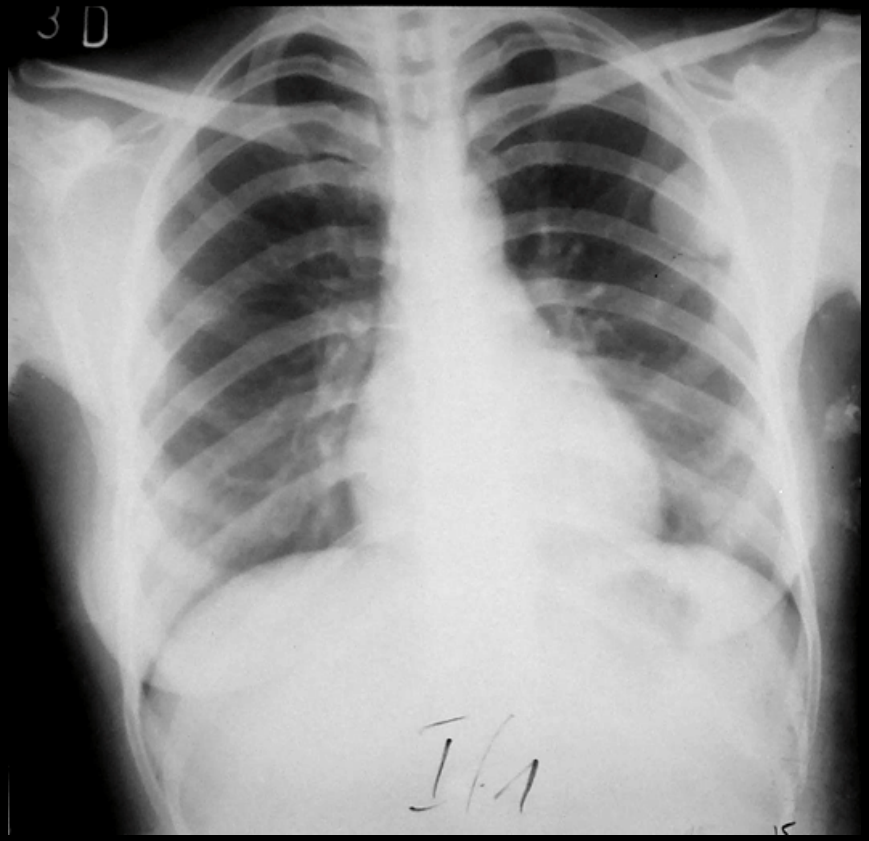
1. redukovana pl.šara,
   ugao račvanja se povećava,
   kranijalizacija
2. emfizemske bule, vazdušne ciste
3. konveksan hilus,
   prominencija tr.pulmonalisa,
   ortorendgenski perihilusni krvni
   sudovi preko 5 mm
4. emfizemosklerotično i malo
   pulmonalno srce

Tumori





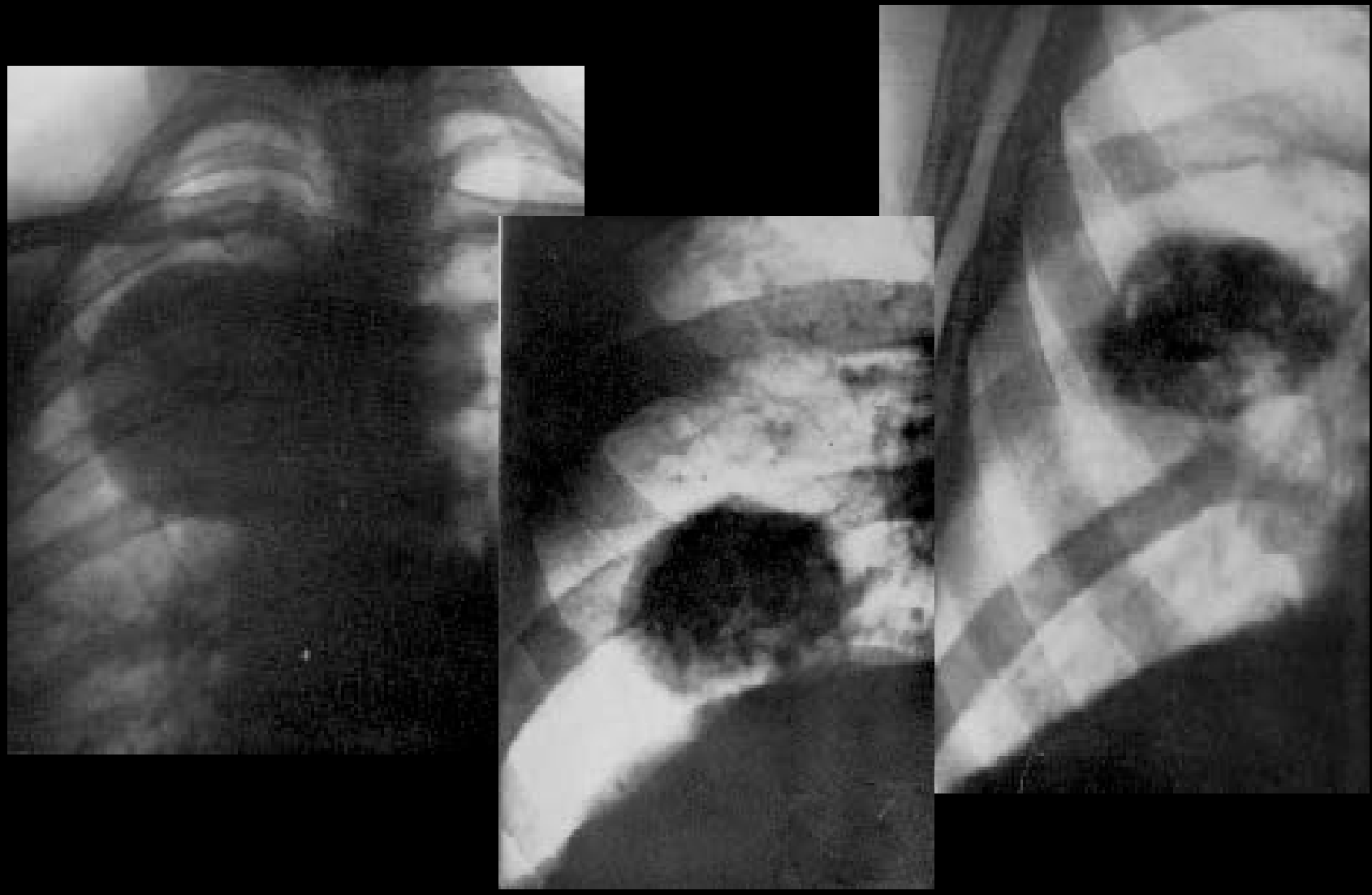
Benigni



- lipom, fibrom, hondrom
- hamartrom (kružna, lobulirana, oštro ograničena, popcorn kalcifikacije)
- hemodektom
- angiom
- neurofibrom

Rtg:

solitarna kružna mekotkivna senka oštro ograničena



Semimaligni



Karcinoid (60% maligni)
pluripotentne nediferentovane ep.ćelije bronhijalne sluznice

Rtg:

- centralni - transmuralnog sporog rasta "atletski teg"
- periferni - kružna oštro ograničena do 3 cm

Ca bronha

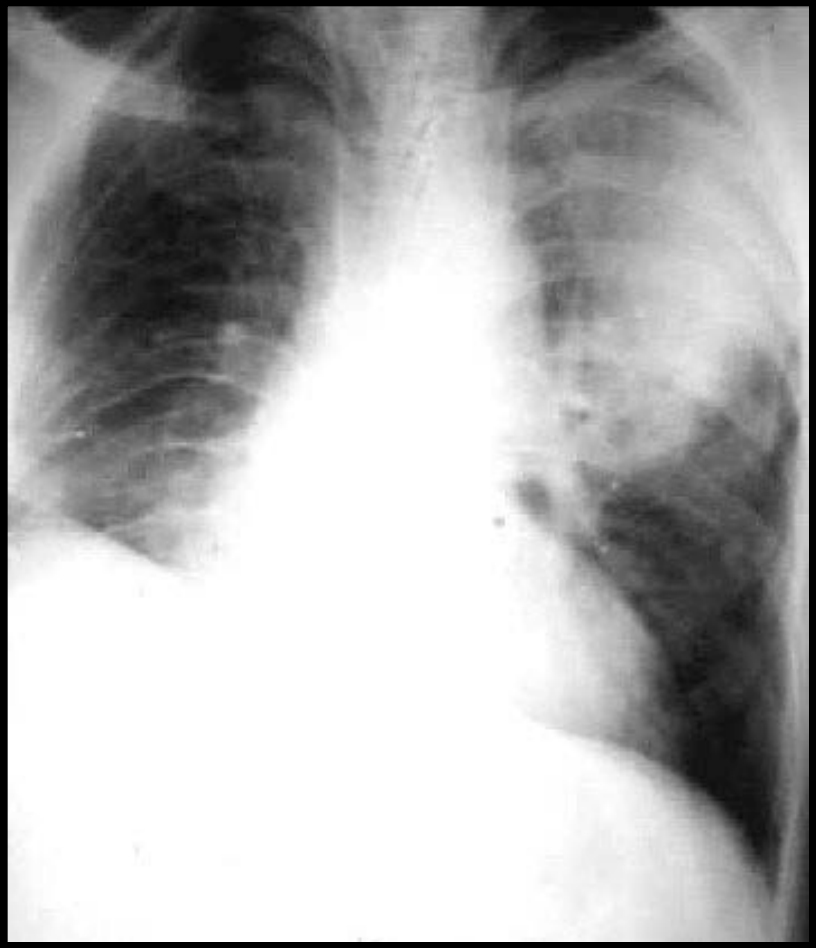
Topografska lokalizacija

- centralni 75%
  glavnom, lobarnom i segmentnom bronhu

- periferni
- periferni sa centralnom lok.
- Pancoast-Tobias
- bronhioloalveolarni

Histološki: planocelularni
adenoca
sarkomi

- Centralni



Rtg:

indirektno se prikazuju

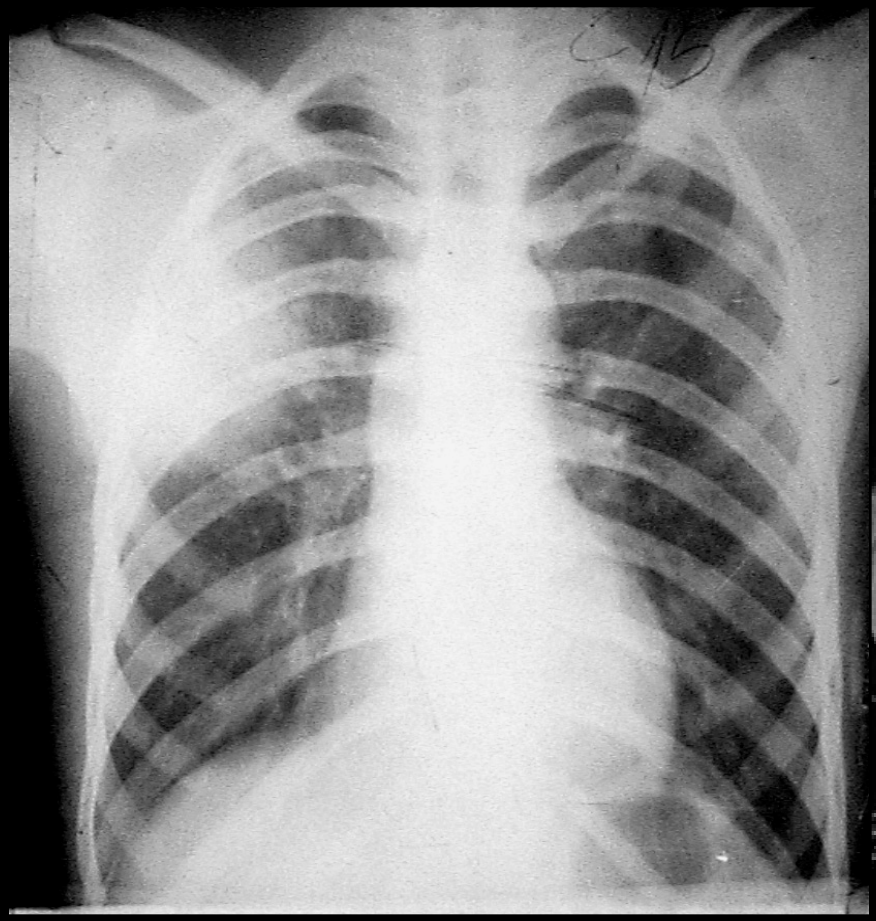
- nepotpunom opstrukcijom - opstruktivni pneumonitis, emfizemom
- potpunom opstrukcijom - atelektazom

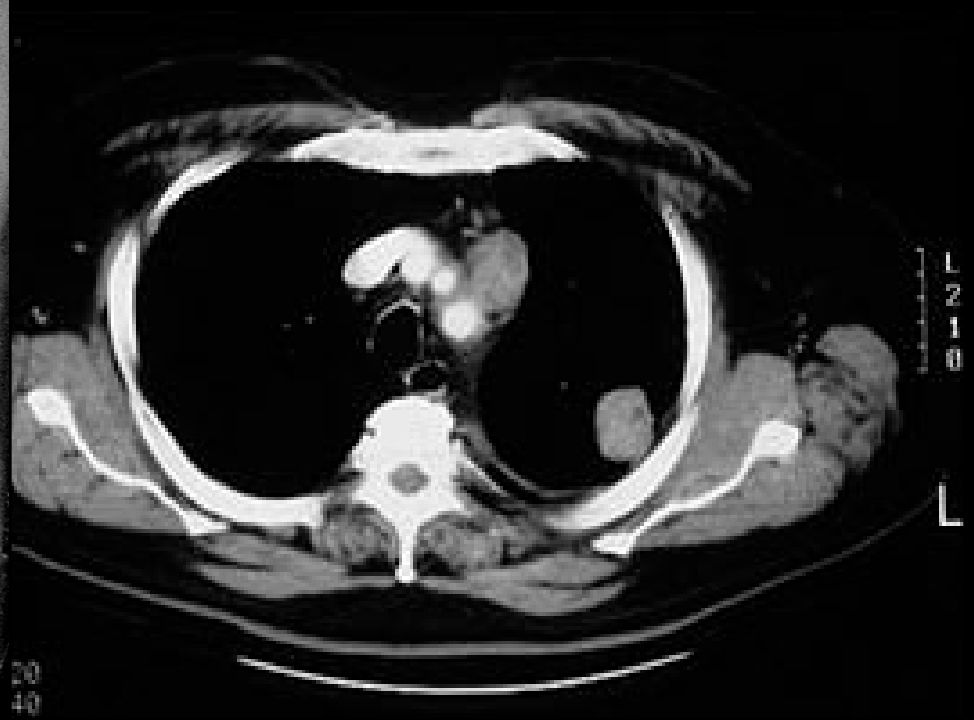
Metode pregleda:

CT, bronhografija,

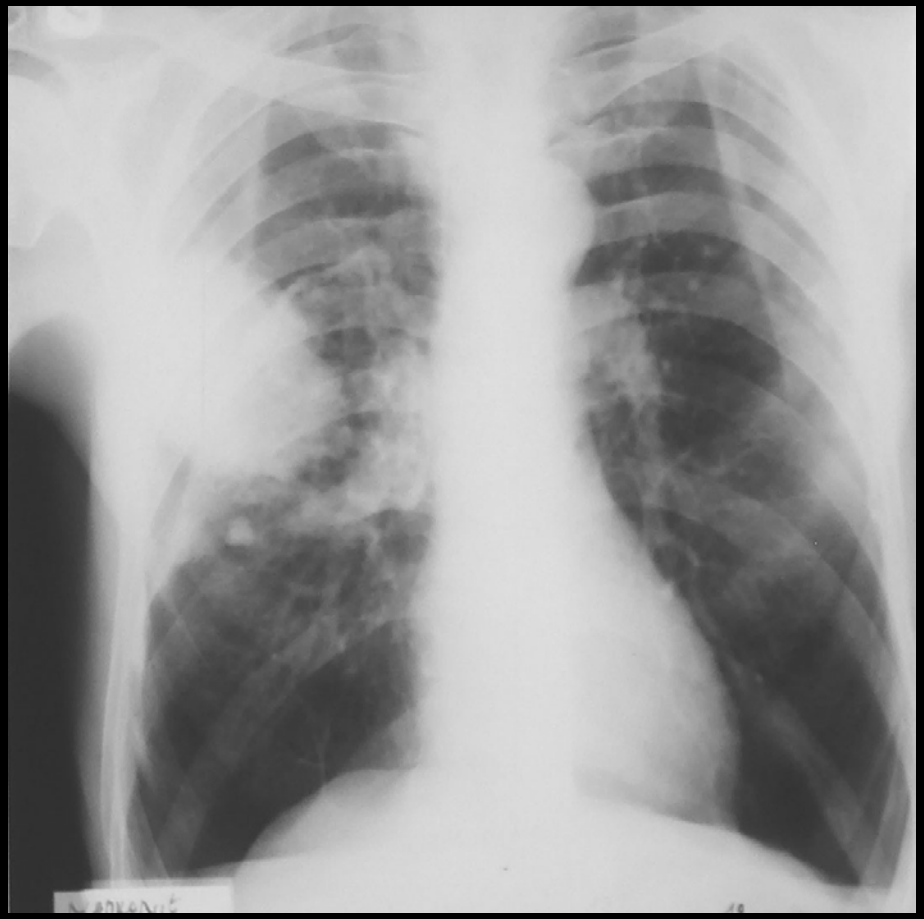
tvrdozračna tehnika

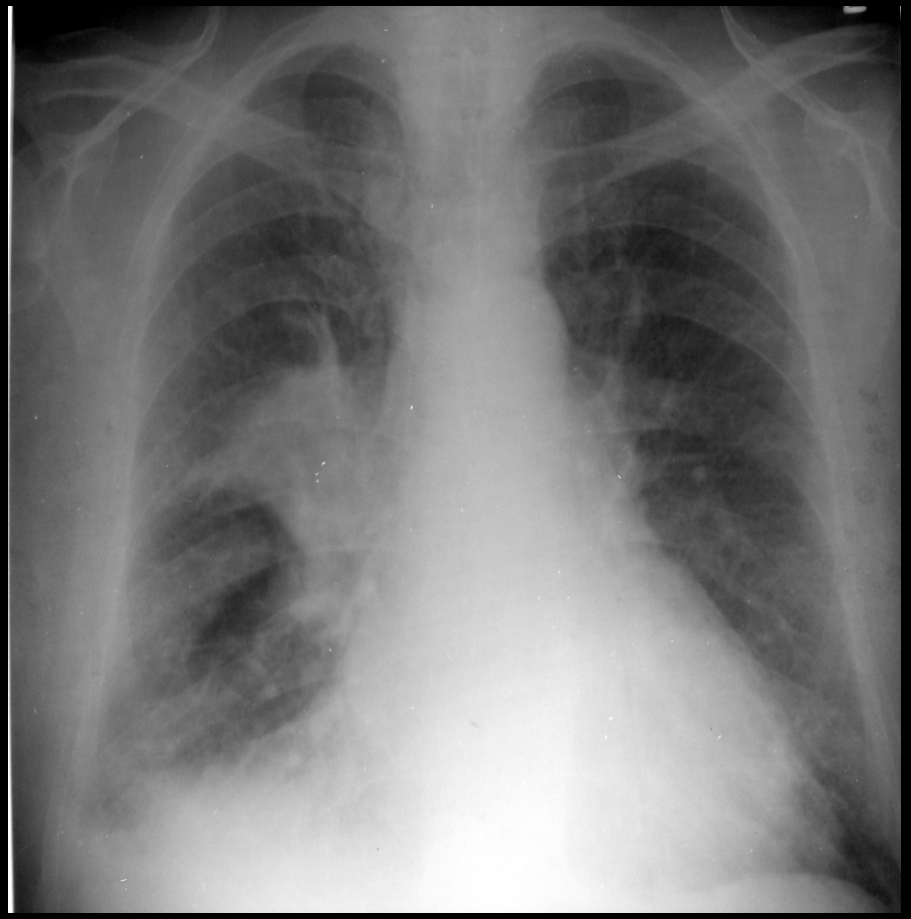
- Periferni



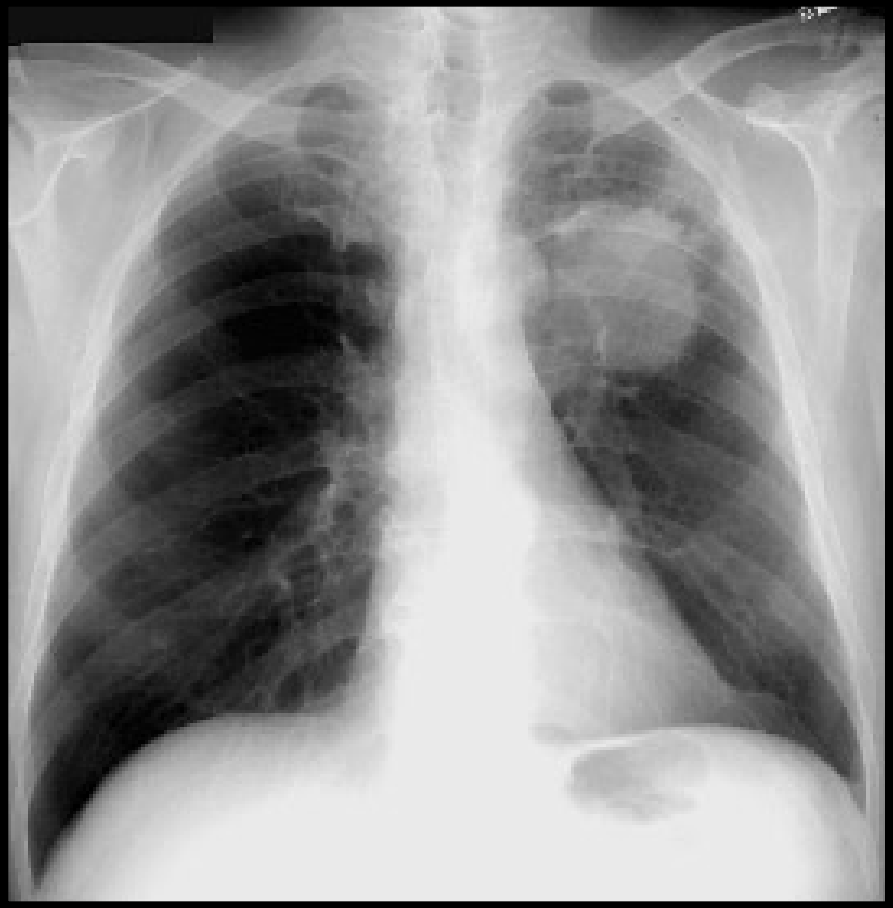


Rtg: kružna mekotkivna senka, neoštrih kontura,
kalcifikacija na periferiji iz koje je nastao tu rast

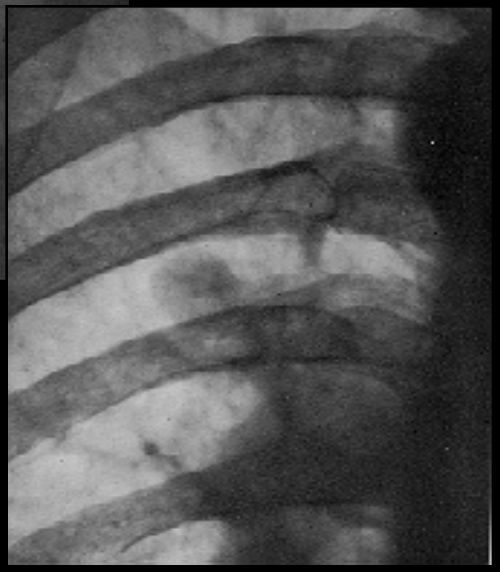




Rtg: "corona radiata" "mišiji rep" "zečije uši"
propagacija duž interlobularnih septi

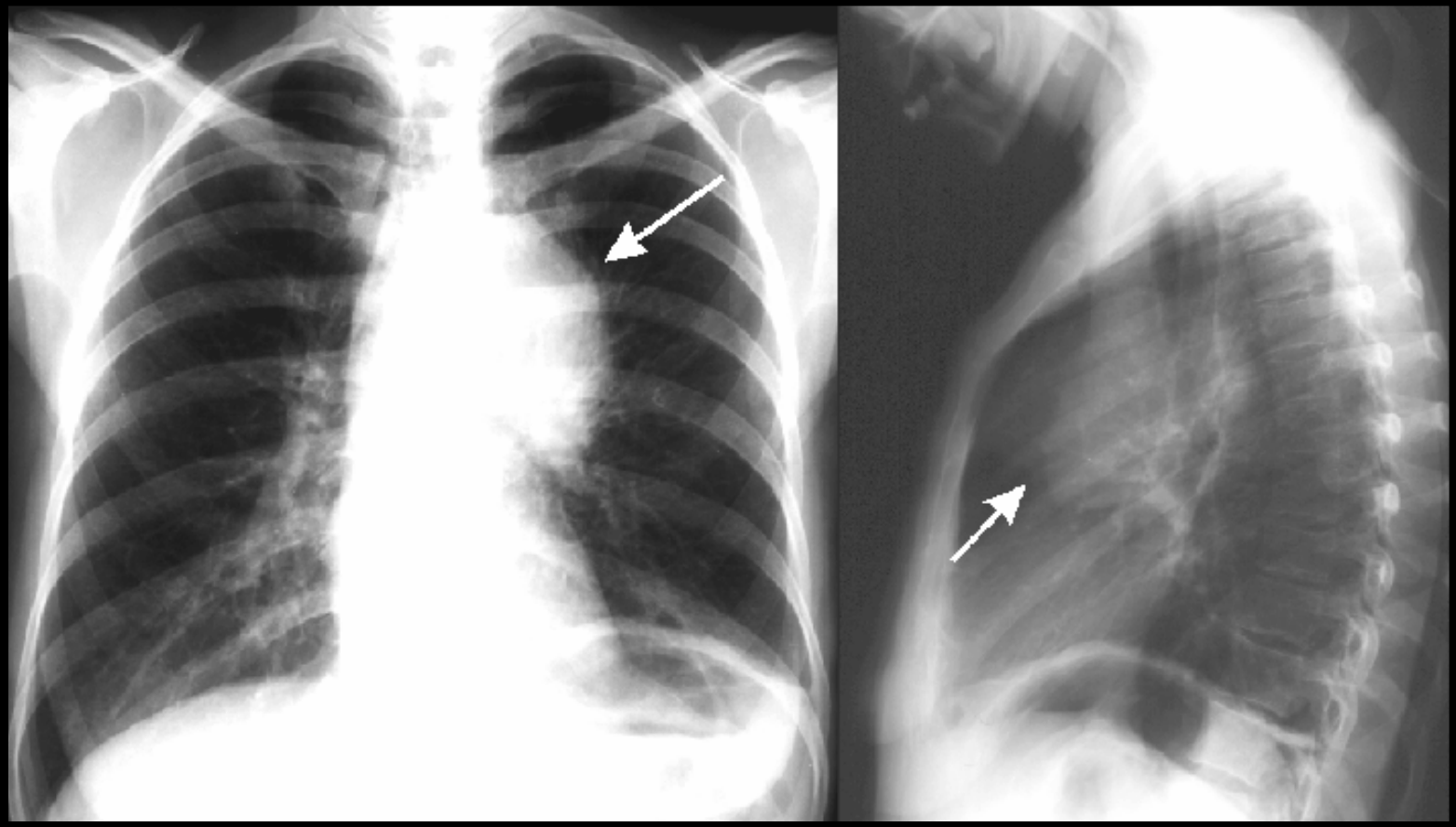




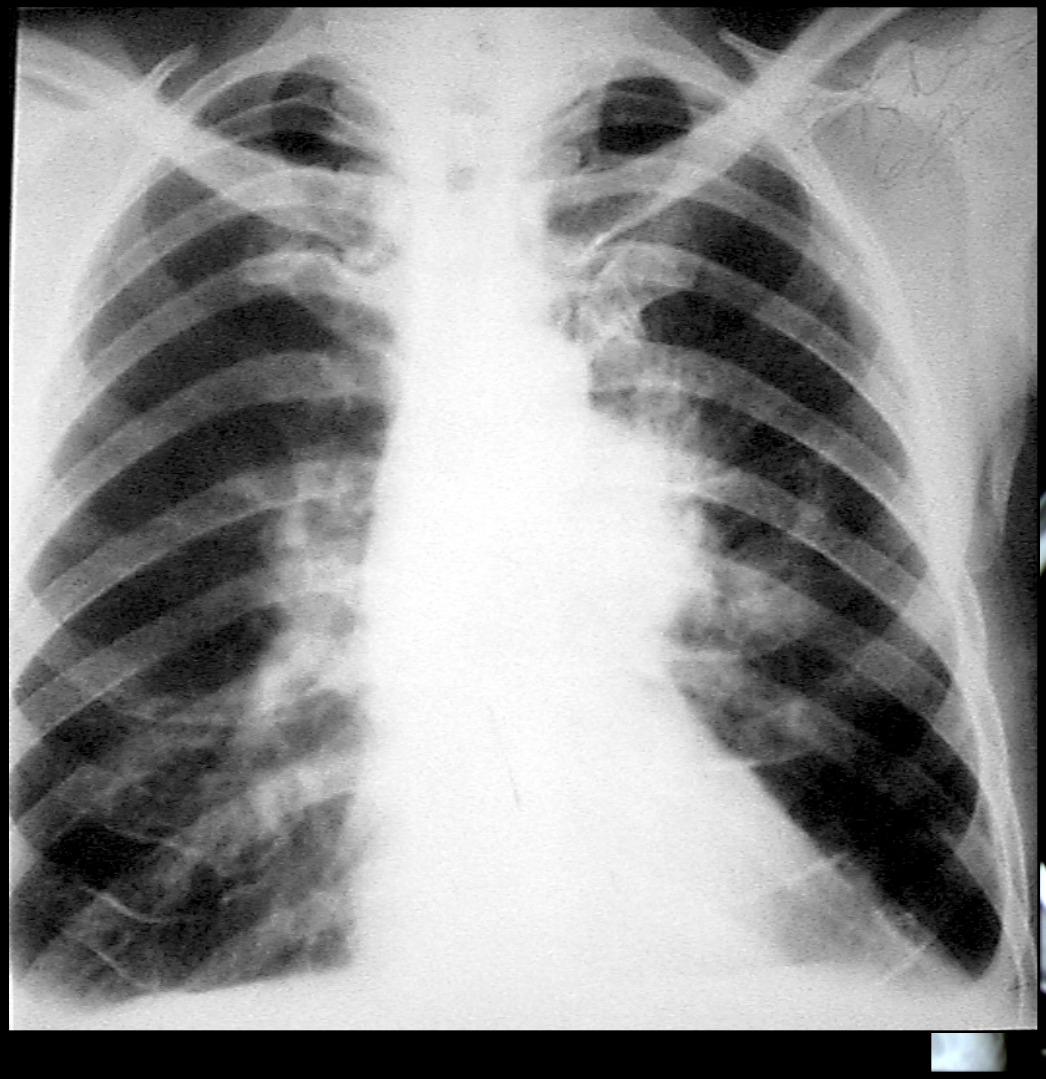


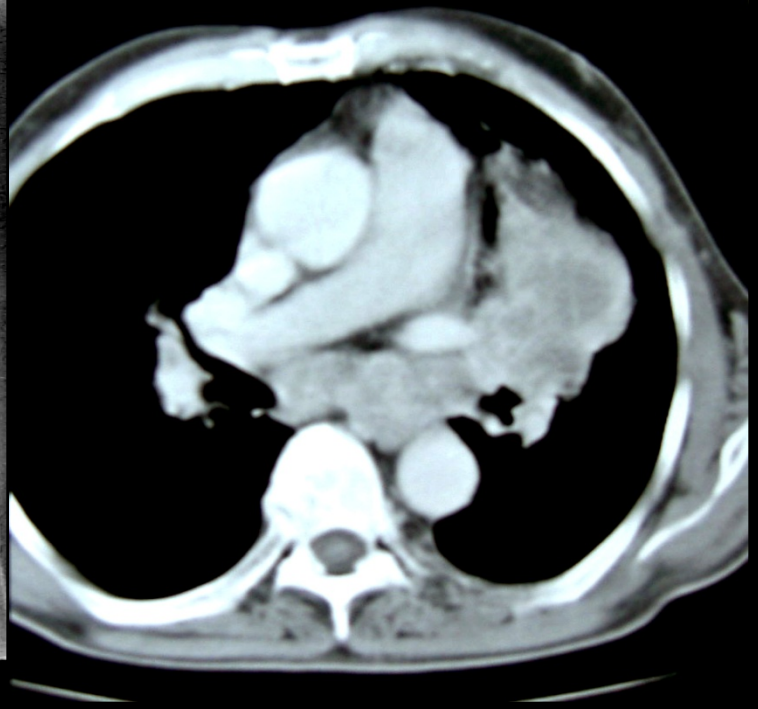
Mikrocelularni – semimaligni tu.,
ekstremno invanzivan, brzo metastazira, neoštre konture,
OAT cell endokrina svojstva slična karcinoidu

- Periferni sa centralnom lok.

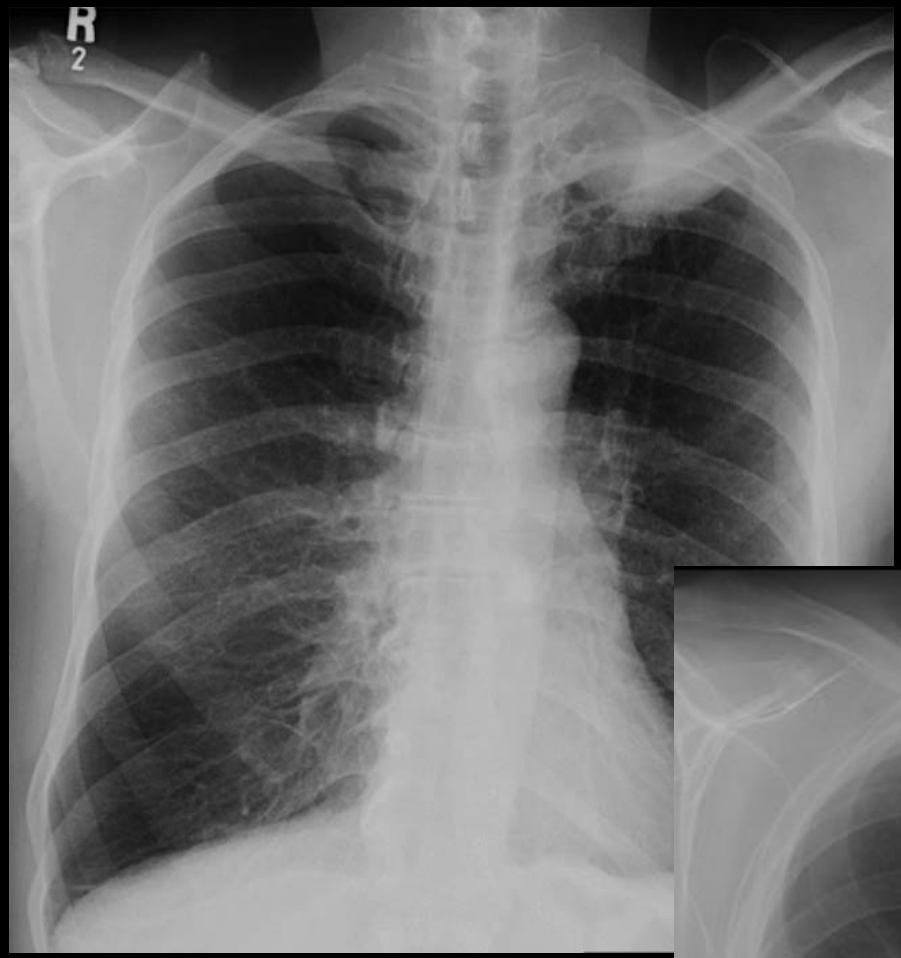


Rtg: opstruktivni pneumonitis koji posle antibiotske terapije ostavlja kružnu senku



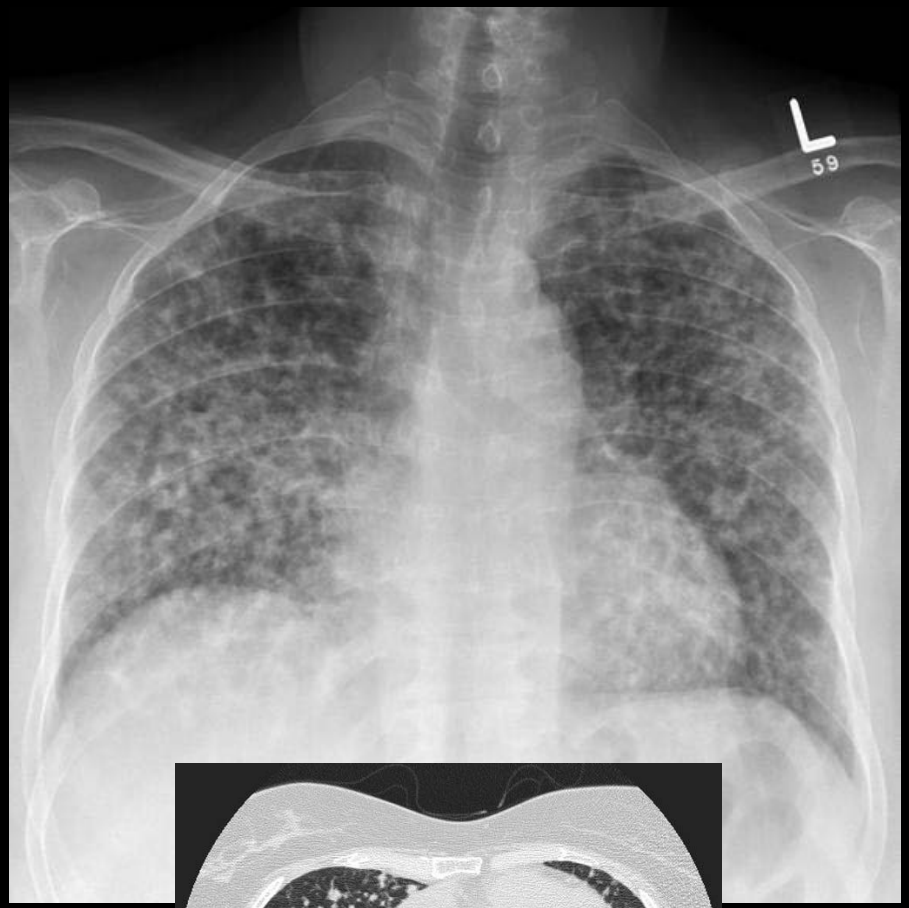


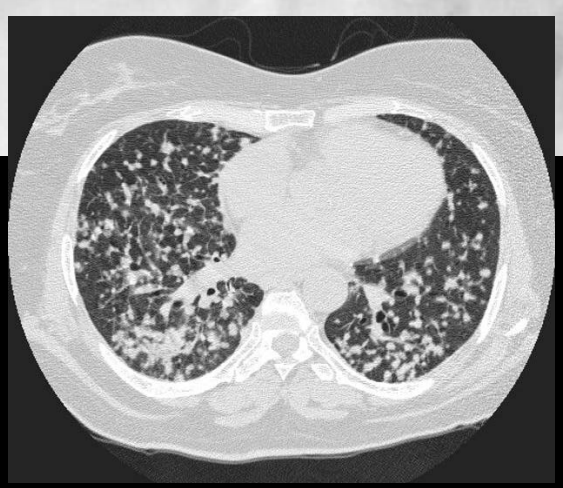
- Pancoast-Tobias



- Claude-Bernar-Hornerov sy (ptoza, mioza, enoftalmus)
- anhidroza, hiperoleoza lica
- bol u ramenu
- liza rebara







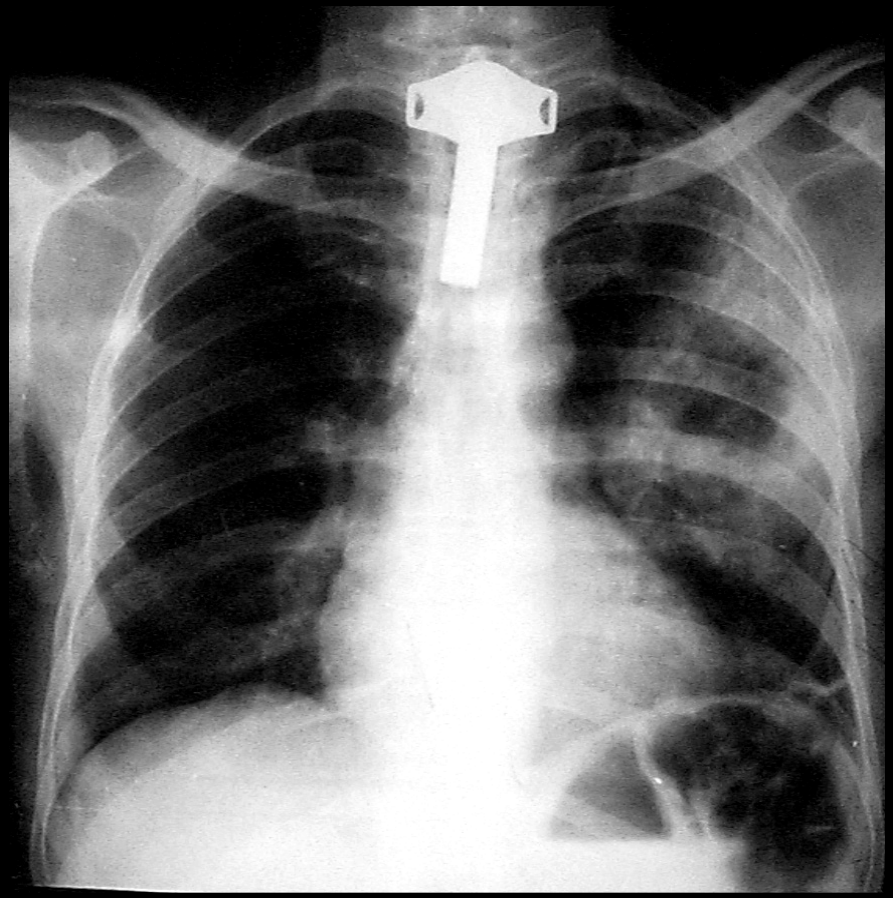
- Bronhioloalveolarni

Rtg:

- solitarna, kružna, noštro ograničena mekotkivna senka sa centralno intenzivnijim delom
- mikronodusna (milijarna) samo u jednom pl.krilu
- segmentna lobarna senka pneumonična sa vazdušnim bronhogramom



ekskavirani ili maligna kaverna





Metastaze

Hematogeni putevi

VCS + VCI (glava, vrat; mala karlica, retoperitoneum)

a.Mes.sup → Jetra (želudac, kolon, pankreas)

v.Hemoroid. + VCI (adenoCa rectuma)

perifer. Ca bronha v.pulmonalis → jetra

Limfogeni putevi

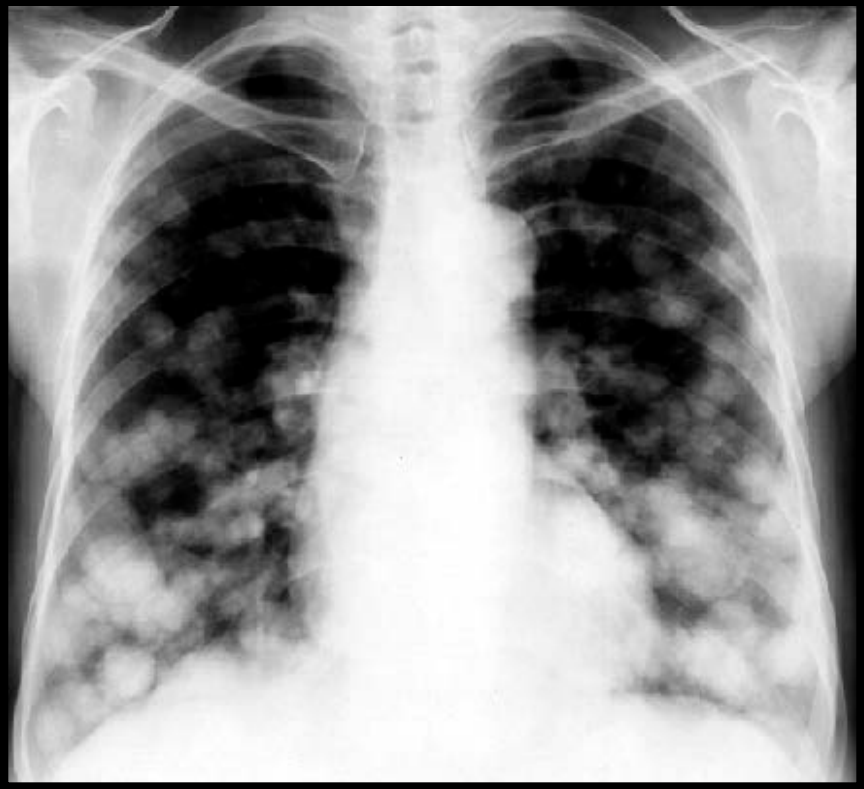
bronh, dojka, želudac, kolon, pankreas,

grlić materice, prostata

Per continuitatem

Pancoast-Tobias, okolne strukture

- Hematogeni putevi



Rtg:

- pečataste senke
  kružne, homogene,
  oštro ograničene
- milijarna karcinoza
  neujednačene veličine,
  neravnomerne distribucije
- ekskavirane metastaze

- Limfogeni putevi



Rtg:

- lymphangitis carcinomatosa
  mrežoliki intersticijum, lgl u medijastinumu, subacutno pl.srce
- meta pleuralni izliv
  terminalna faza hem. i limf. plućnih metastaza



- http:// www.med.pr.ac/katedra/interna-medicina.php