Prof.dr Simon Nikolić
zdravstvena nega

Radiološka dijagnostika kardiovaskularnog sistema



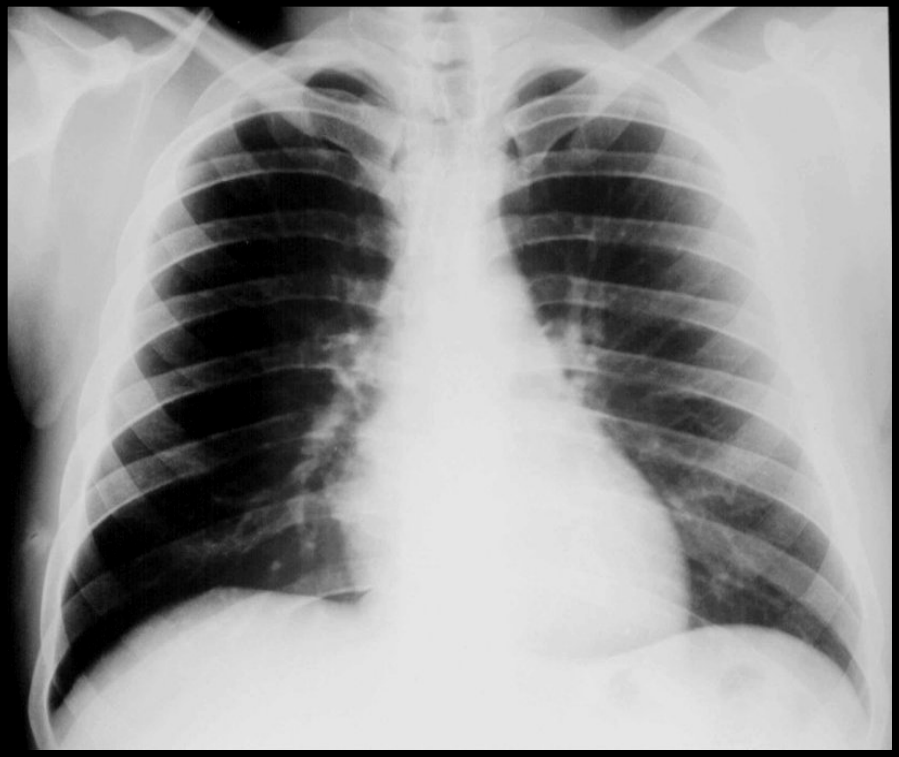
MMXV

Metode pregleda

- Teleradiografija srca
- Radioskopija
- Ehokardiografija
- Kompjuterizovana tomografija
- Magnetna rezonancija
- Angiografija - koronarografija
- Nuklearna medicina

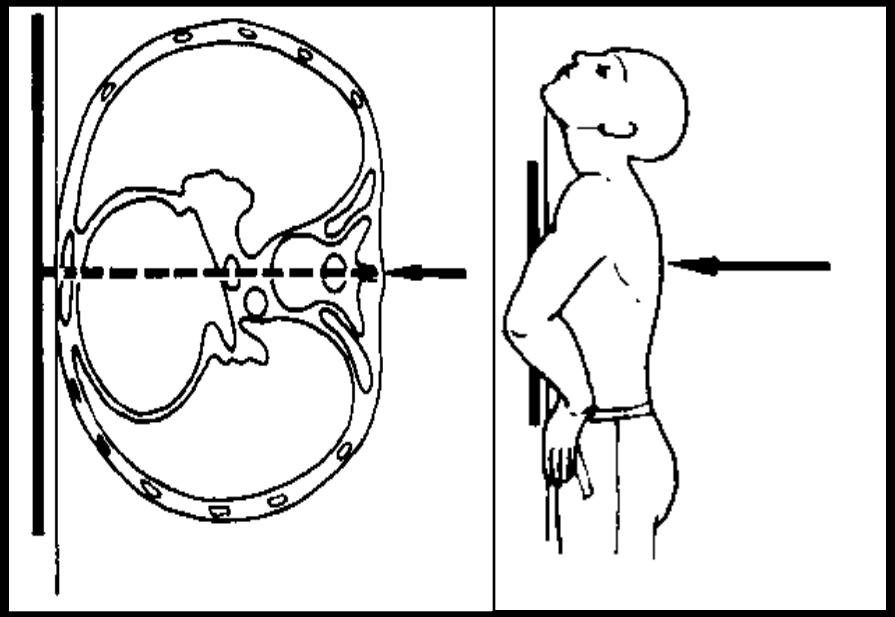


- Teleradiografija srca



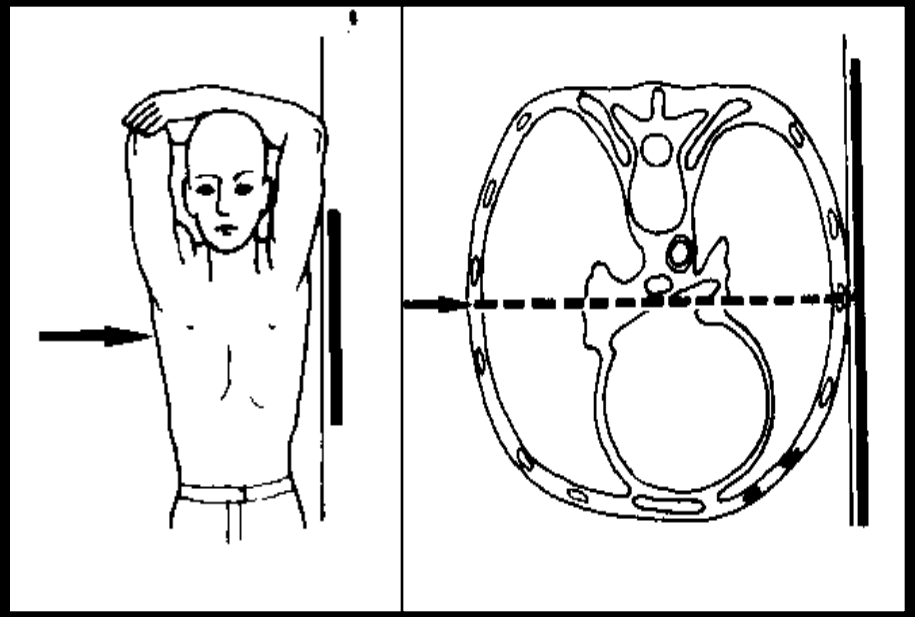


PA



Distanca Fo-Fi do 2m

LL



CZ u visini spinoznog nastavka Th 6

Stavovi

Stojeći

Sedeći

Ležeći



Položaji

PA (posterio-anteriorni)

AP

PDK

(I kosi, prednje desni kosi)

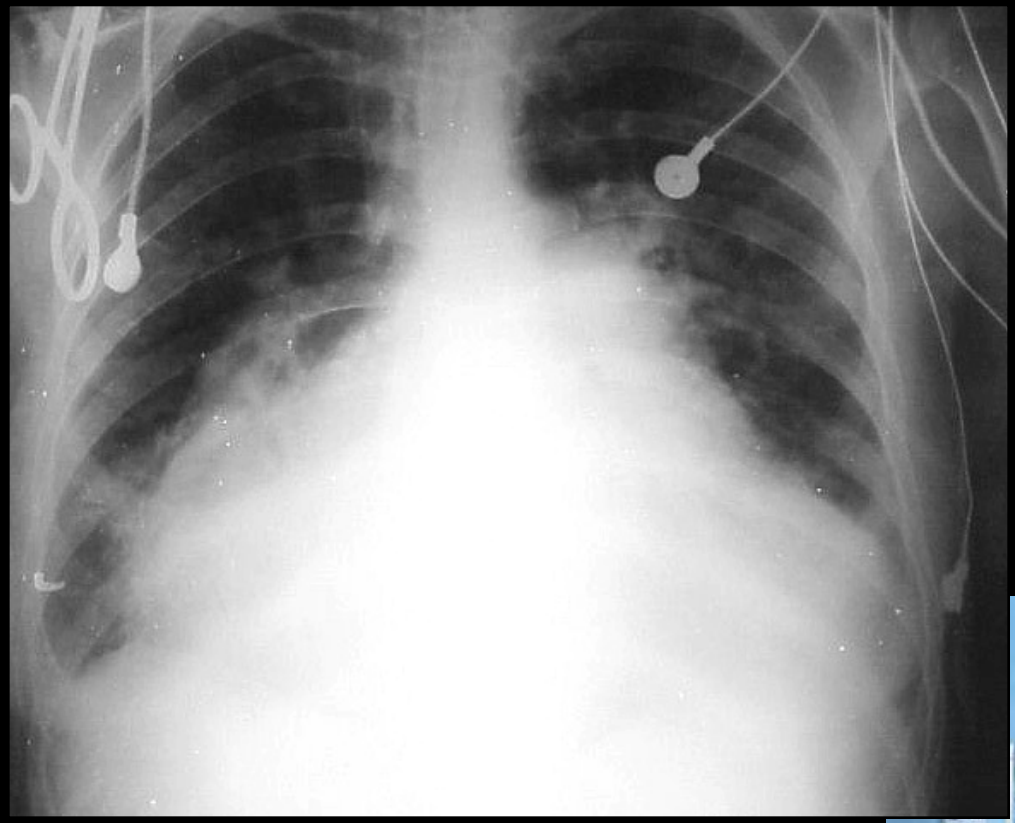
PLK

(II kosi, prednje levi kosi)

LL (LD, DL)

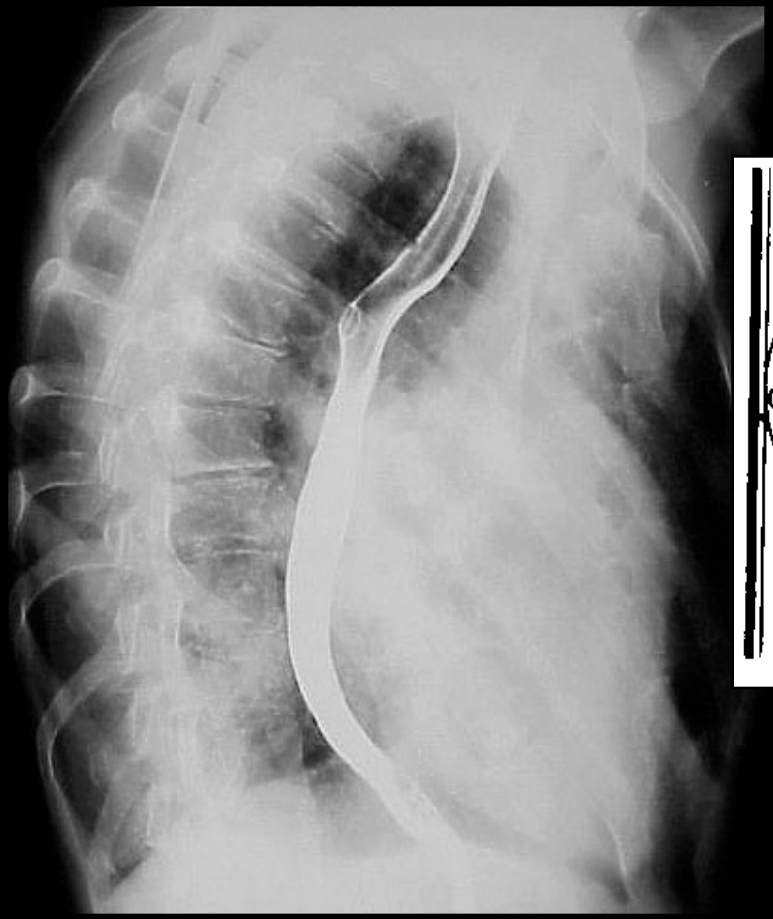
ZDK

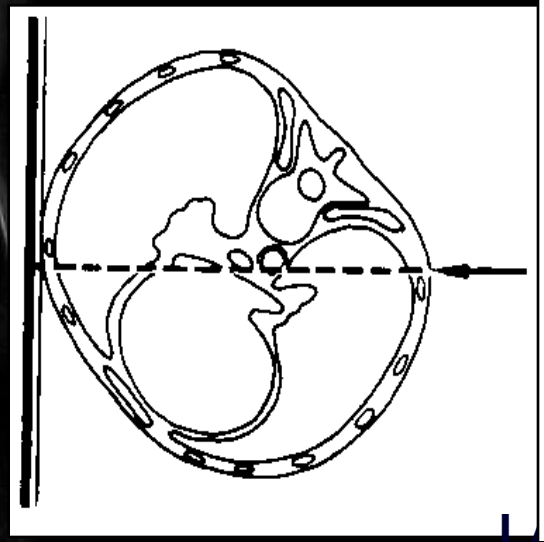
ZLK

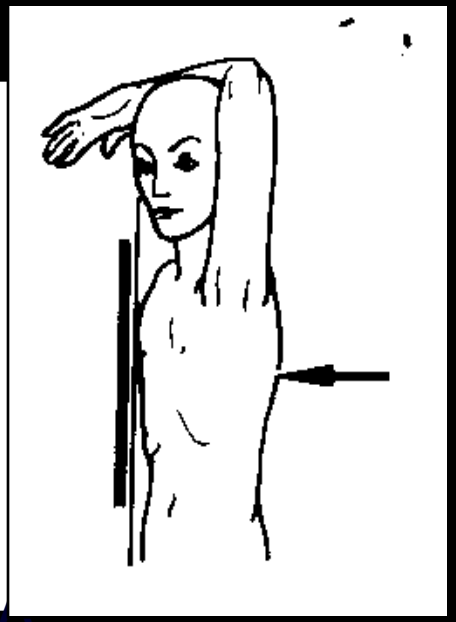




I kosi PDK



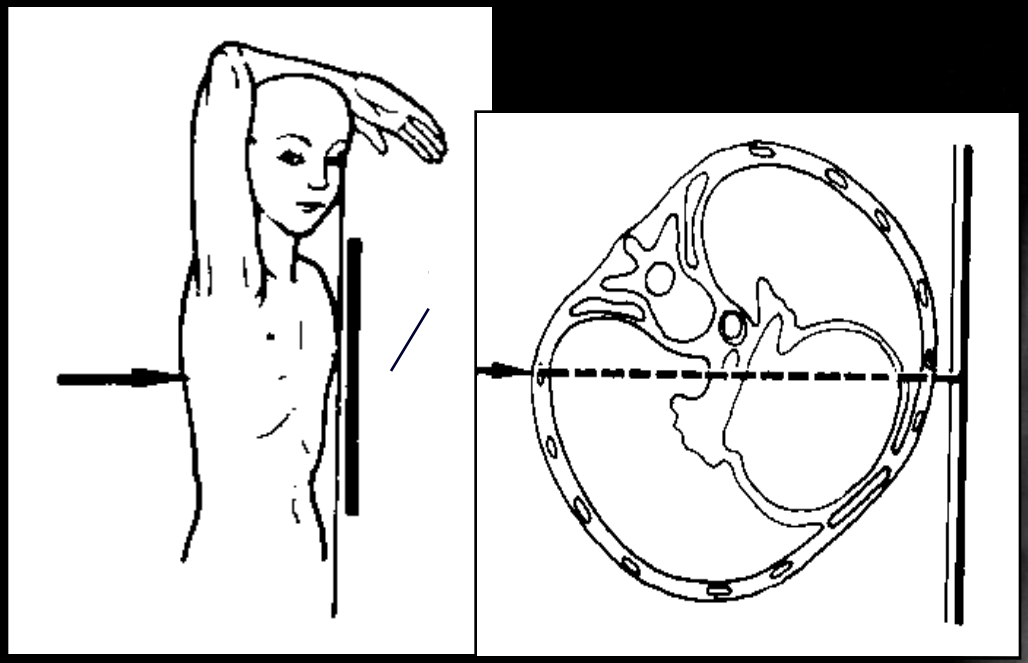


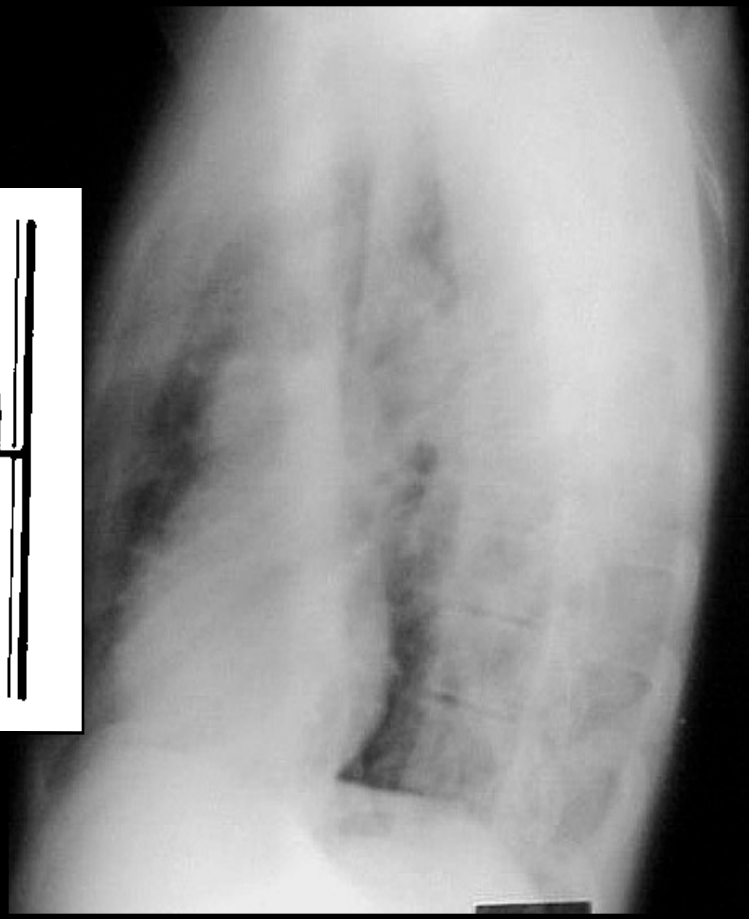


LV 45^0
RV 60^0

Procena uvećanja LA i LV

II kosi PLK





Procena promena svih srčanih šupljina

- # Radioskopija

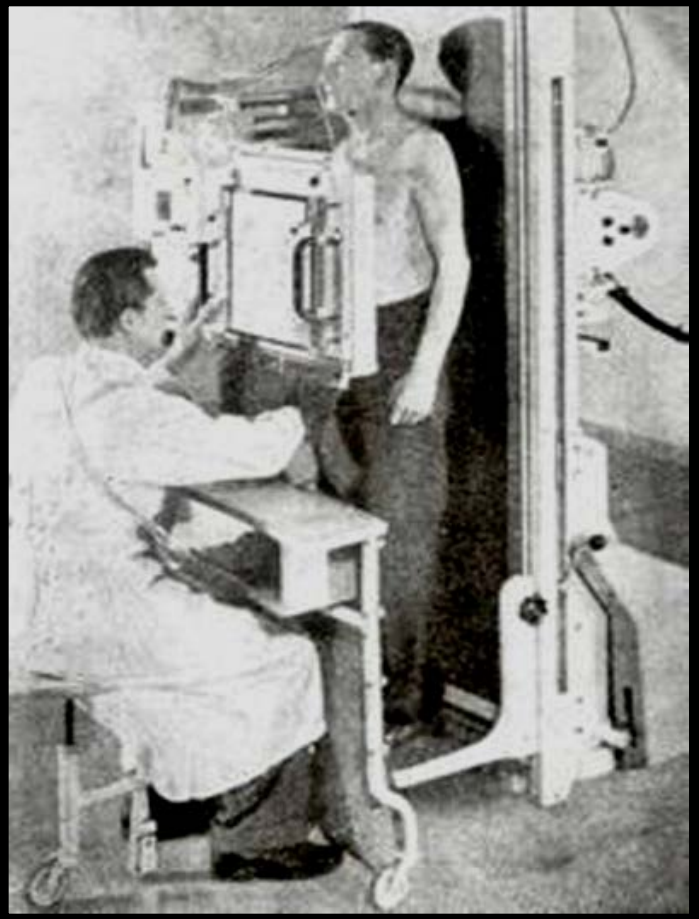
fluoroskopija

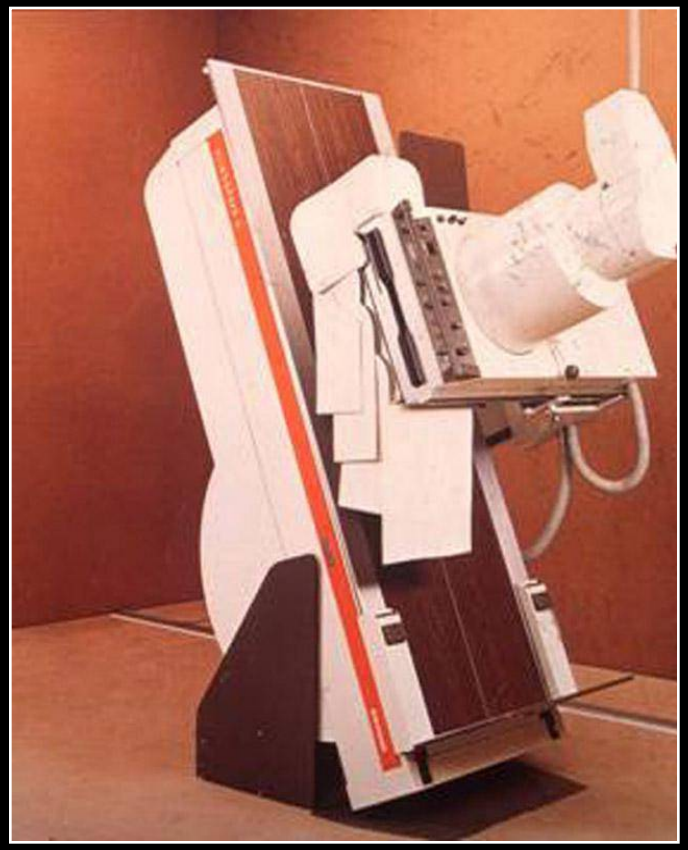
deo tela pacijenta direktno posmatra na ekranu

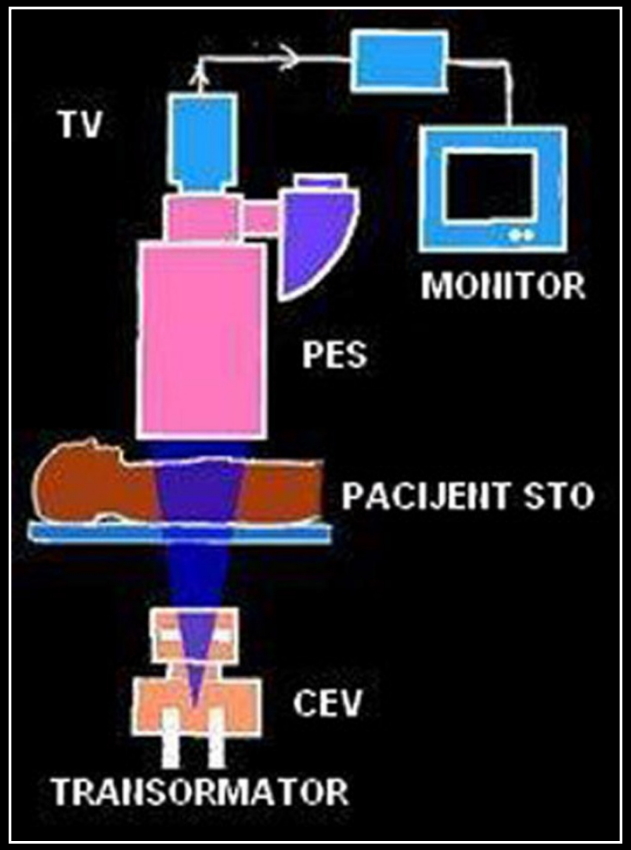
Pacijent i radiolog se izlažu produženom delovanju jonizujućeg zračenja.

Dopunski dijagnostički modalitet

- indikuje radiolog

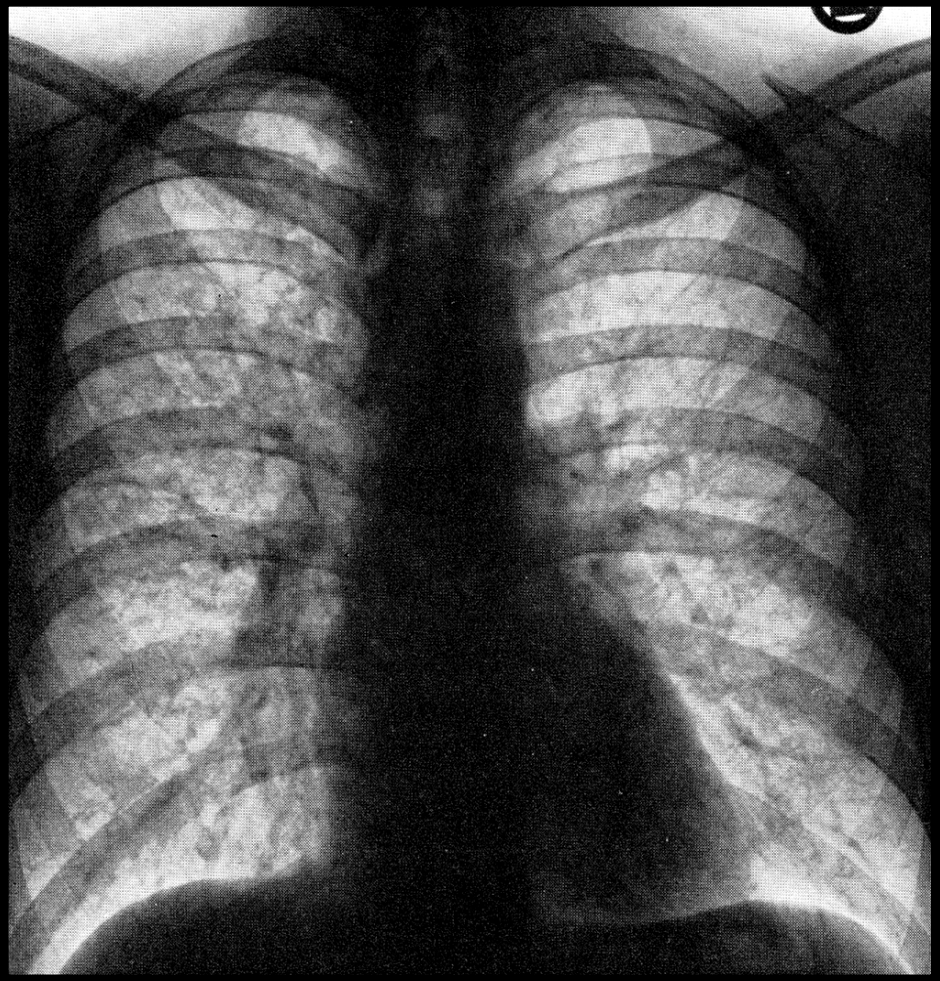





TV
MONITOR
PES
PACIJENT STO
CEV
TRANSORMATOR

Senka uvećana i deformisana

- ritam i amplitude
- pulzacije velikih krv.sudova
- concretio cordis
- acretio cordis
- mali izlivi
- veštačke valvule



Prednosti

Rendgenografija

- rtg film registruje fine detalje i promene

  (osetljiviji od mrežnjače oka)
- 10 X više detalja od skopije

  (veći kontrast i oštrina slike)
- trajni dokument

  (stručne konsultacije,sudska expertiza,...)

Radioskopija

- omogućava prostornu lokalizaciju pat. promene
- uvid u odnos sa okolnim strukturama
- senka uvećana i deformisana



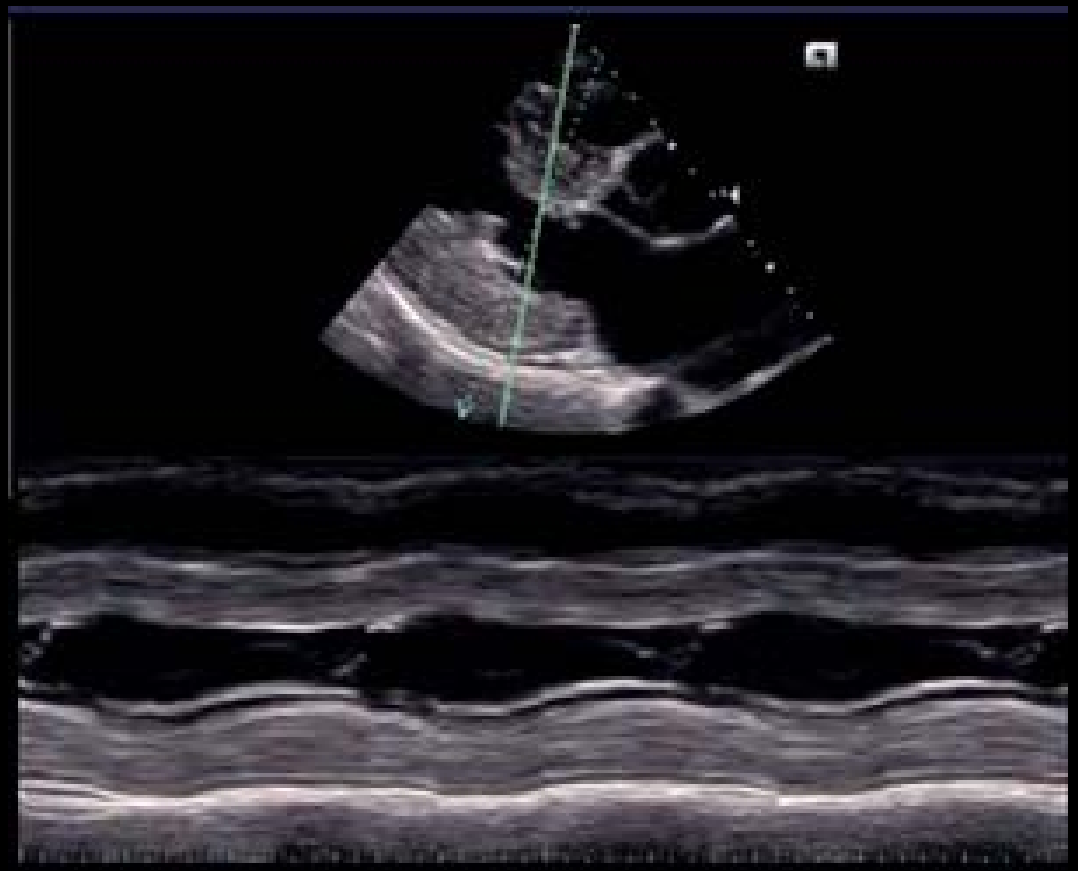
• Ehokardiografija

intercostalnim skenovima

B "brightnes" - mode
dijametar srčanih šupljina
anatomski odnosi
sist-dijast. pokretljivost

M "motion" - mode
pokreti miokarda
stanje valvula

Dual - mode

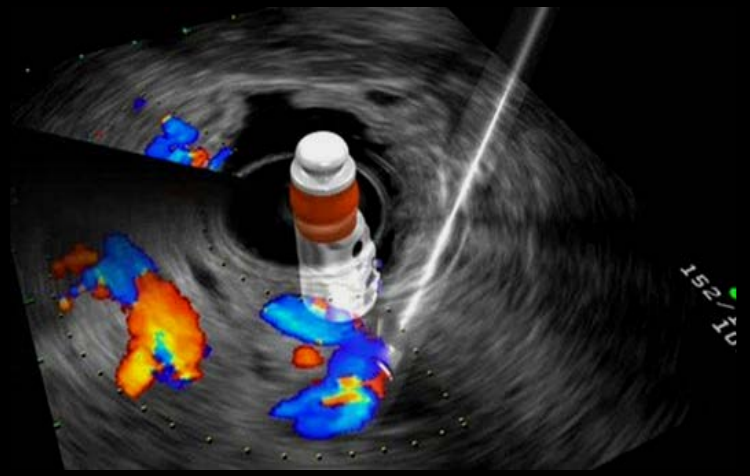


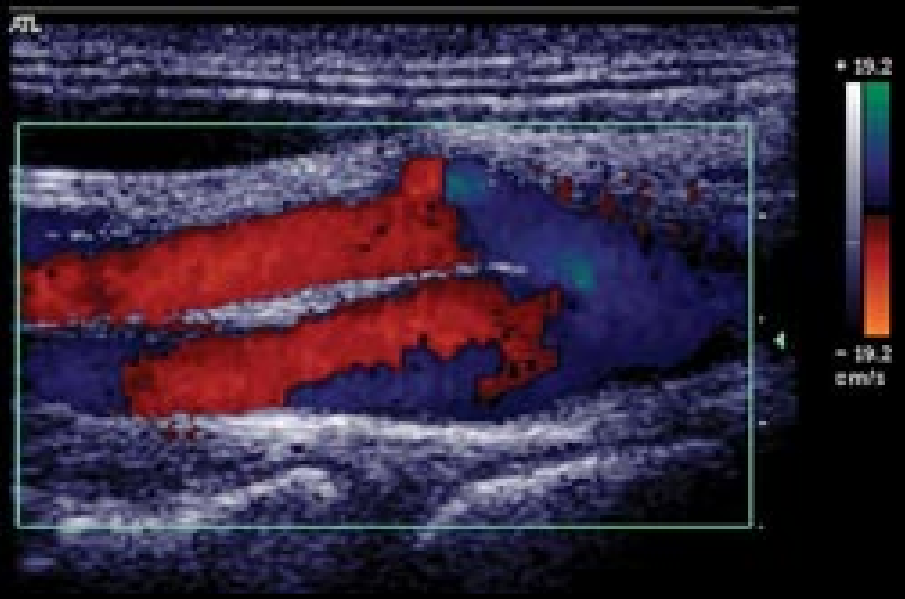
- **Color Doppler**

brzina i pravac toka krvi

- **EUS** endoscopic ultrasound transezofagelnim pristupom





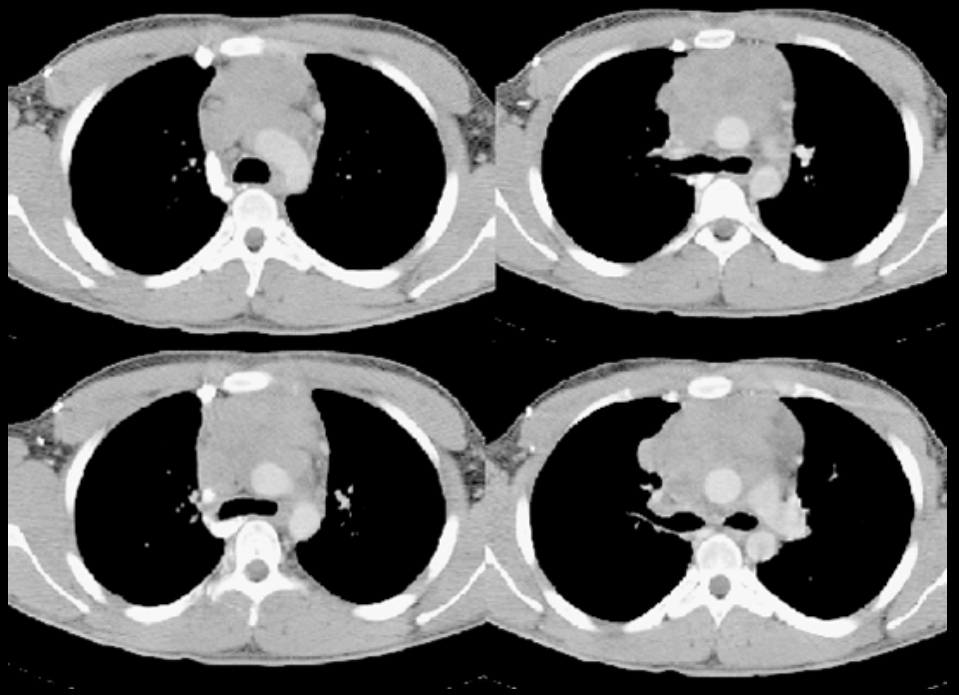


- **Kompjuterizovana tomografija**

Standardni CT pregled
aksijalni preseci

- otkrivanje kalcifikacija

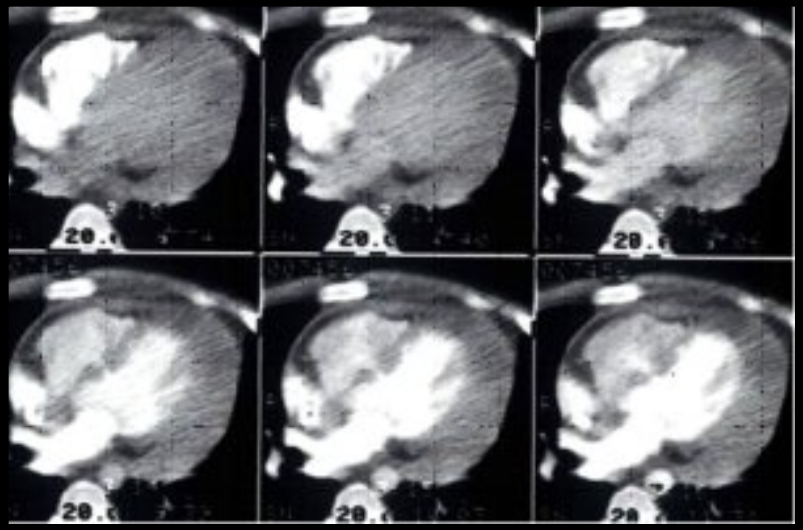




Angio CT

nakon ubrizgavanja kontr.sredstva

- suveren u dg. oboljenja aorte
- aneurizme
- stepen zahvaćenosti okolnih struktura







MSCT (multy slice CT)

veći broj detektorskih redova

- skrining prikaza koronarnih art. sa znacima koronarne bolesti.



rekonstrukcija

MIP (max. intensity projection)



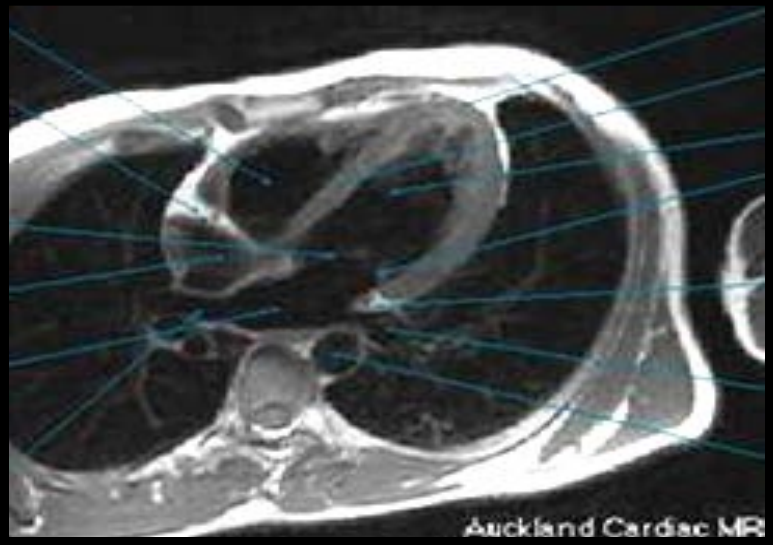
• Magnetna rezonancija

Sličan prikaz kao na CT ali bez upotrebe jonizujućeg zračenja.

Visok kvalitet dobijenih slika.

Odabir željenog preseka bez pomeranja pacijenta.





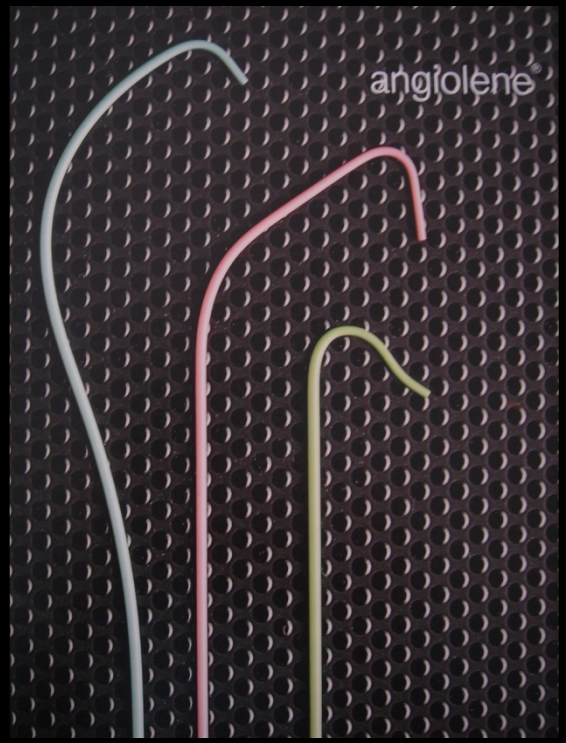
- morfologija srčanih šupljina
- funkcionalnost miokarda nakon provokacije medikamentima

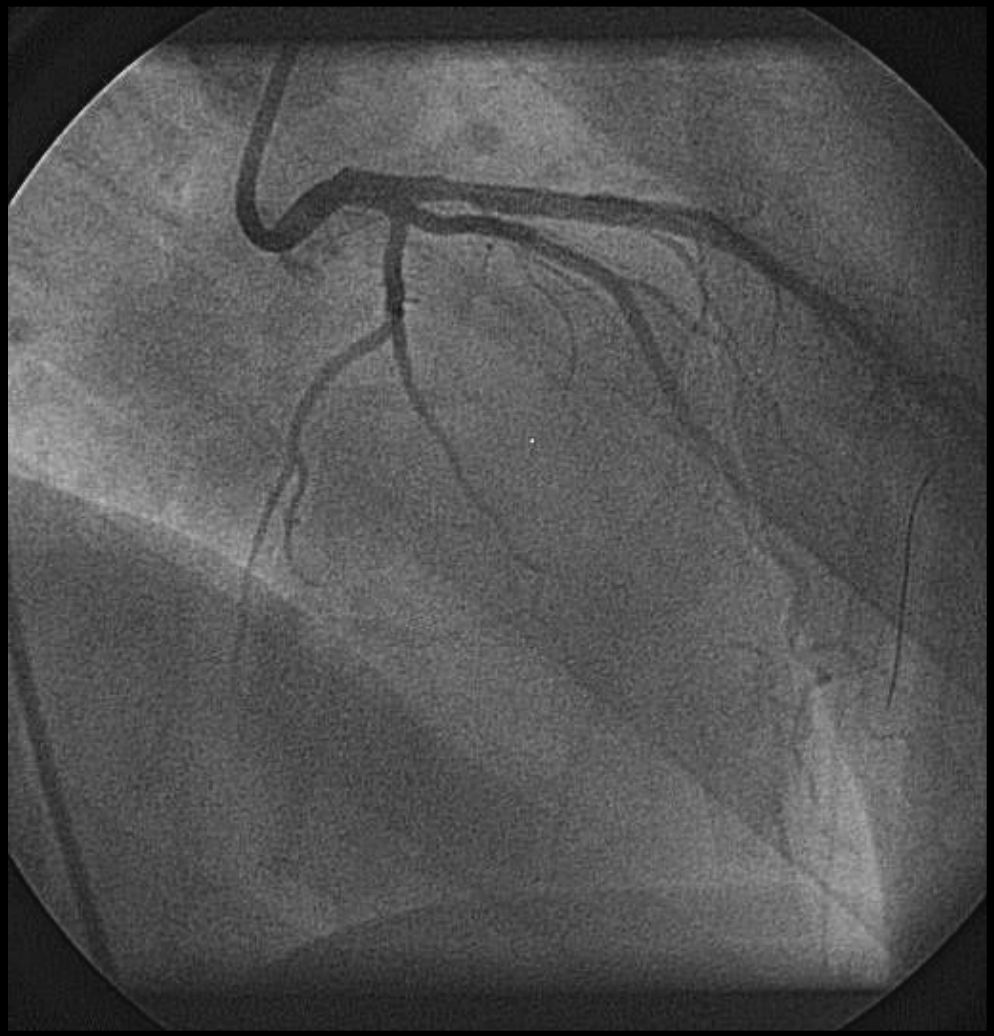


SCMR

- **Angiografija - koronarografija**

Dg.
Ishemijska bolest srca



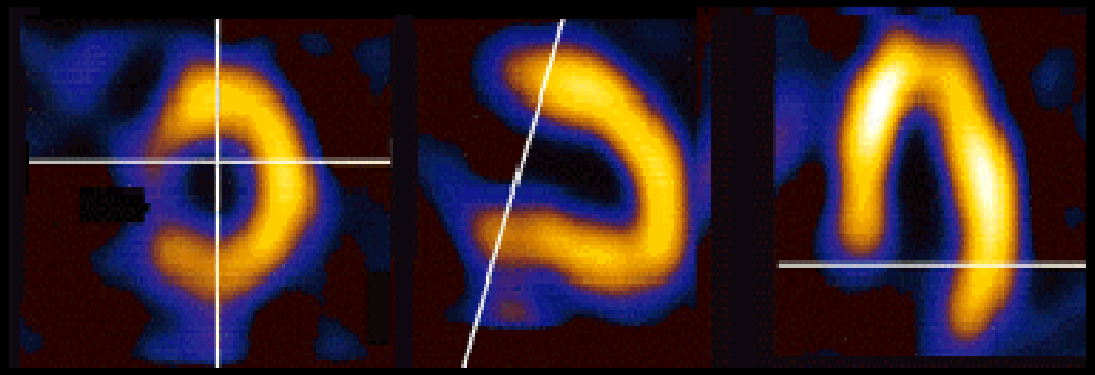


• Nuklearna medicina

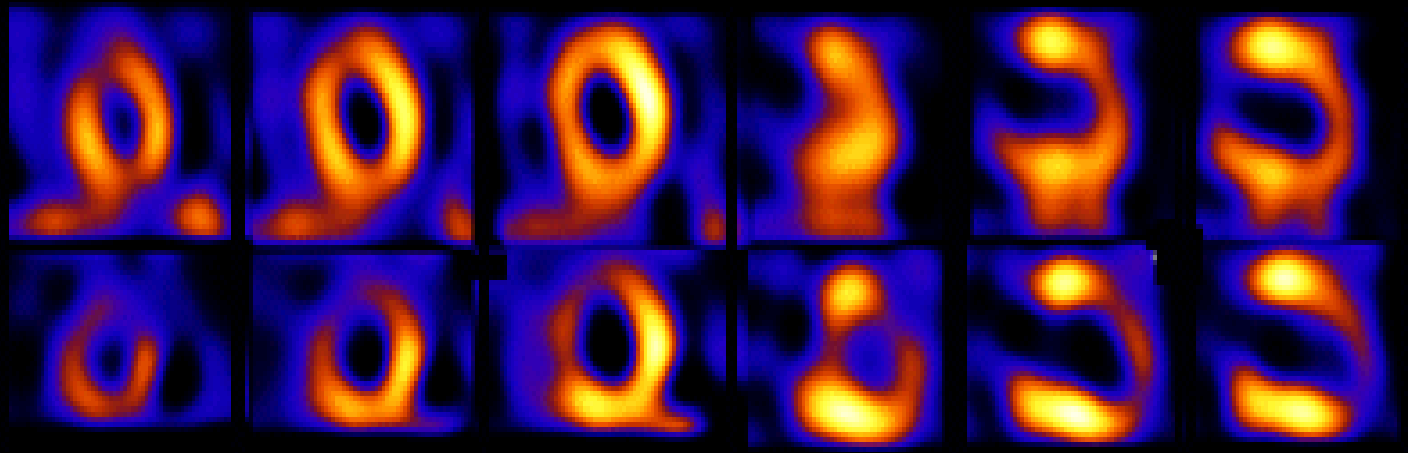
Ta-99 selektivno vezuje za miokard

perfuzija miokarda
pokretljivost
stanje srčanih šupljina
kod IBS

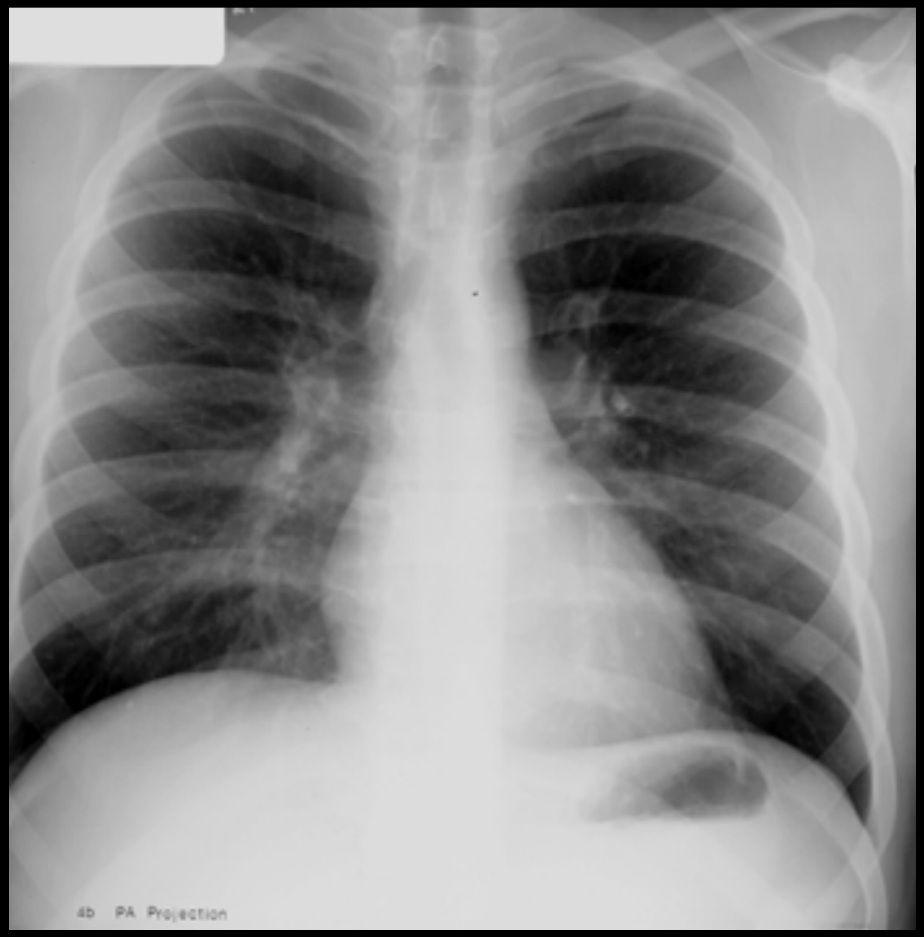
SPECT normalan



SPECT ishemija



Rendgenanatomija srca



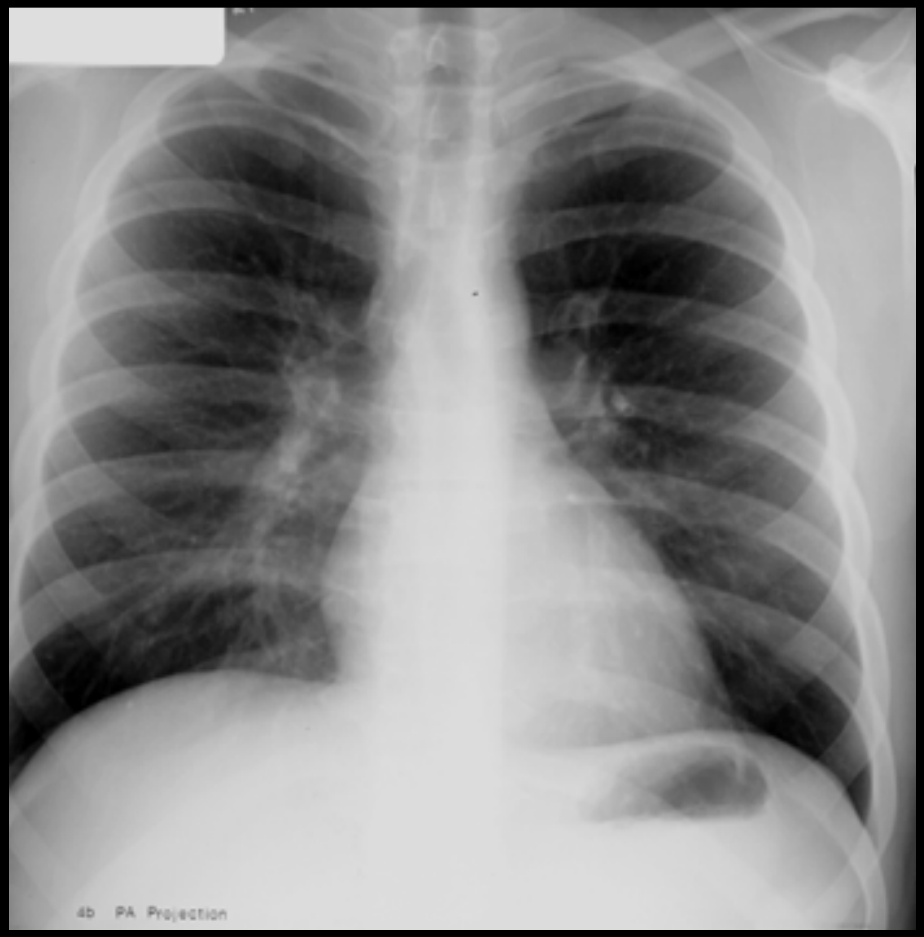
- **Postavljanje filma na negatoskop**

  kao da se bolesnik nalazi naspram nas

- **Provera tehničkih parametara**

  Doza

  Pozicija pacijenta

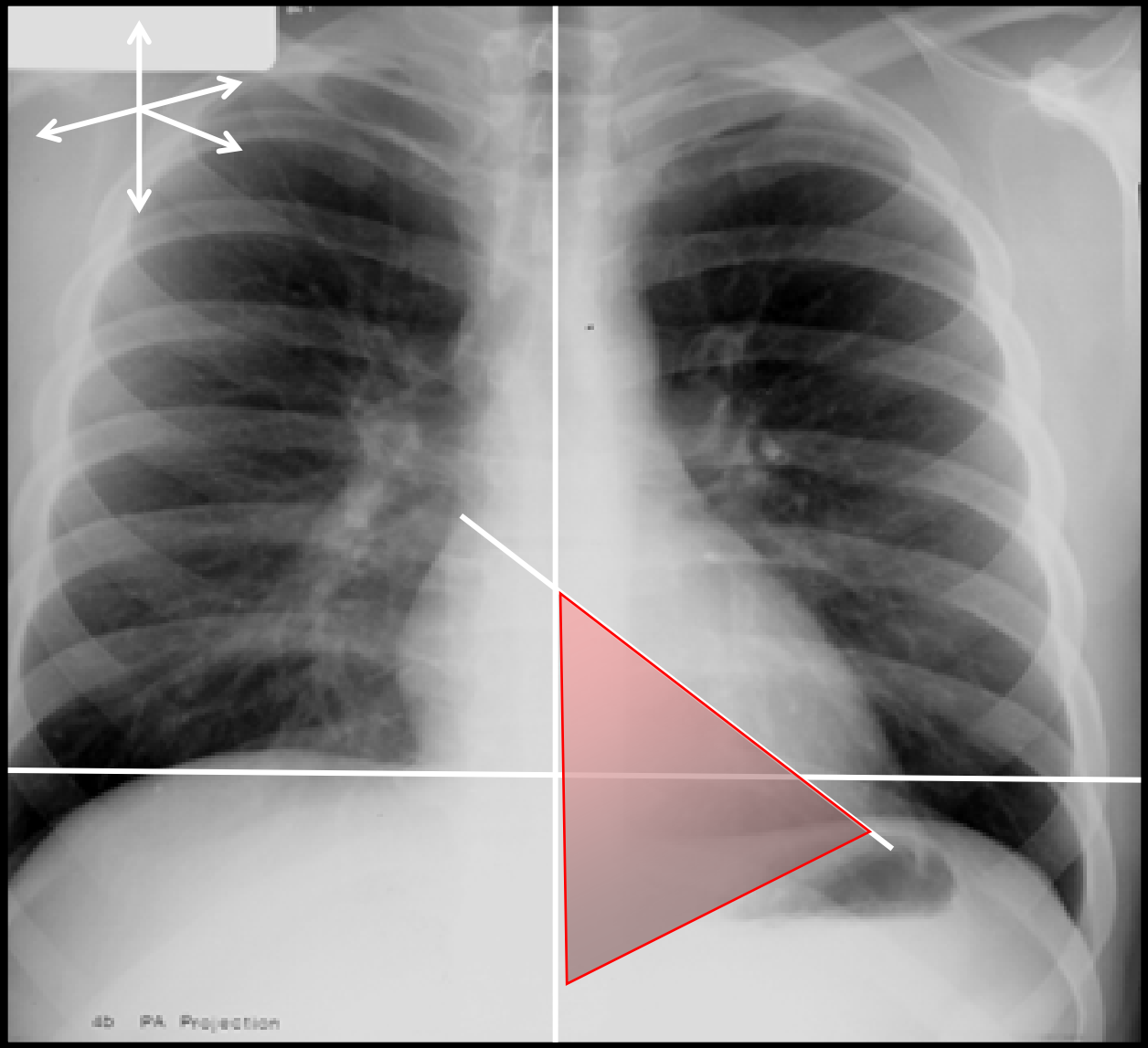


- **Naslov**

  teleradiografija srca

  (telekardigrafija, snimak srca i pluća sa dominantnom patologijom na srcu)

- **Meka tkiva**
- **Koštano-zglobni sistem**



- **POLOŽAJ srca**

<u>položaj dijafragme</u>

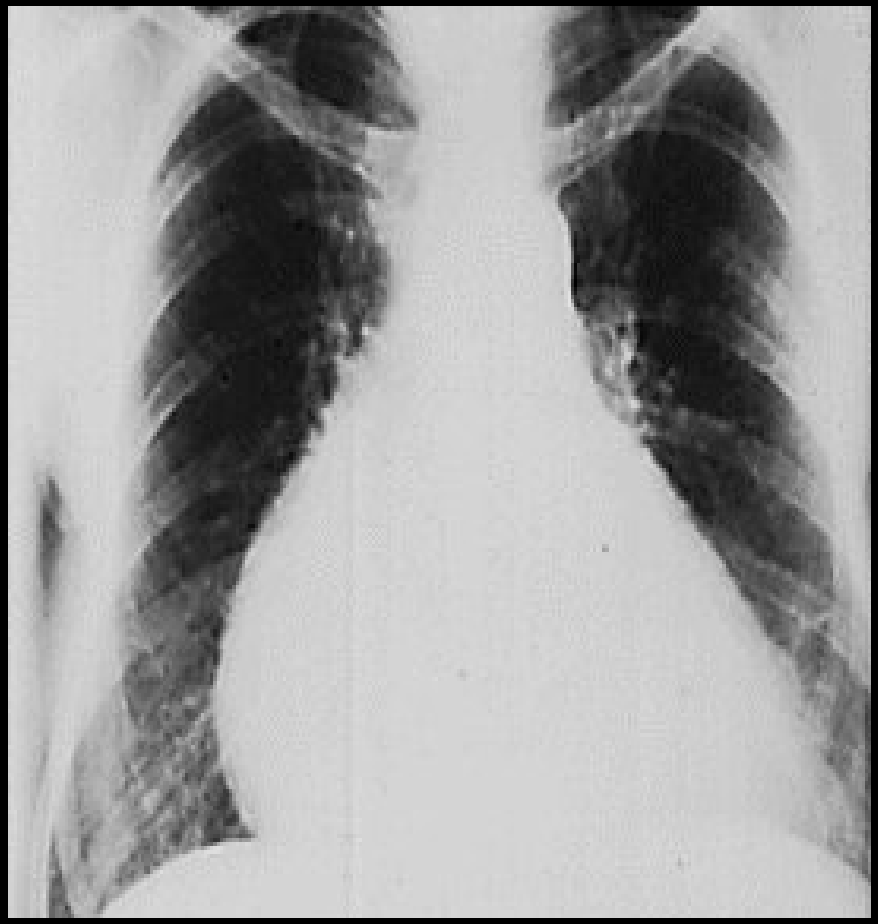
desna hemidijafragma gornja ivica 5 do donje ivice 6 *

leva hemidijafragma jedan međurebarni prostor niže

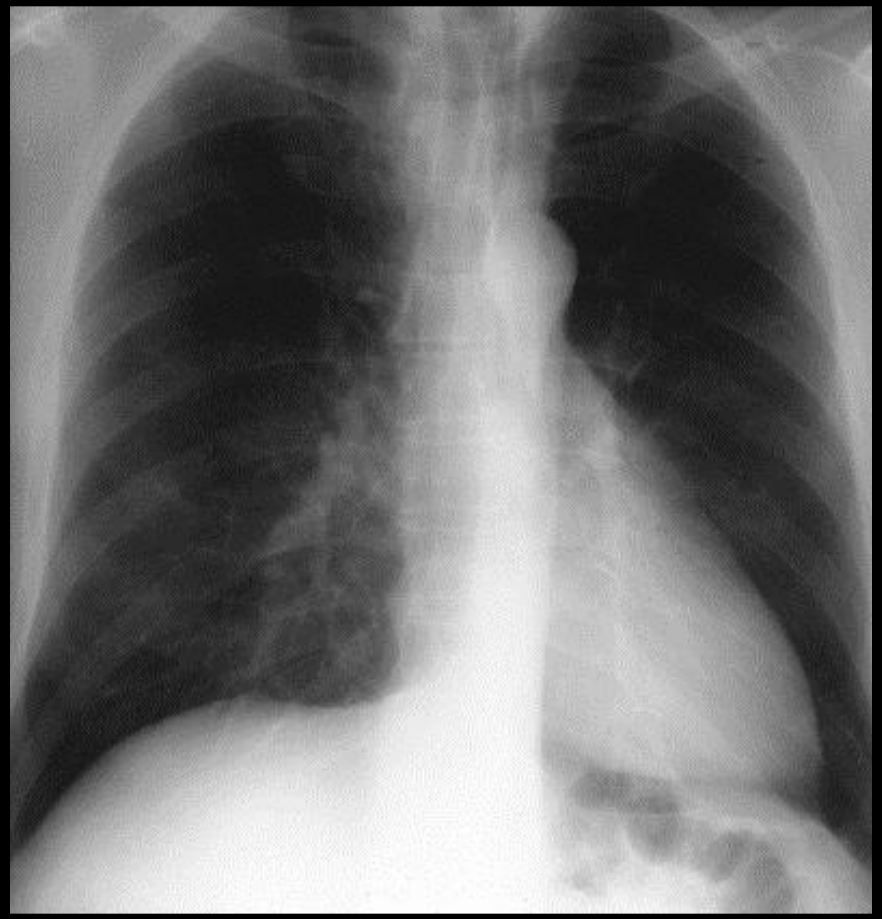
<u>desno-levo odnos</u>

<u>ugao</u> α 45^0 - 50^0 normostenično

Dextropositio

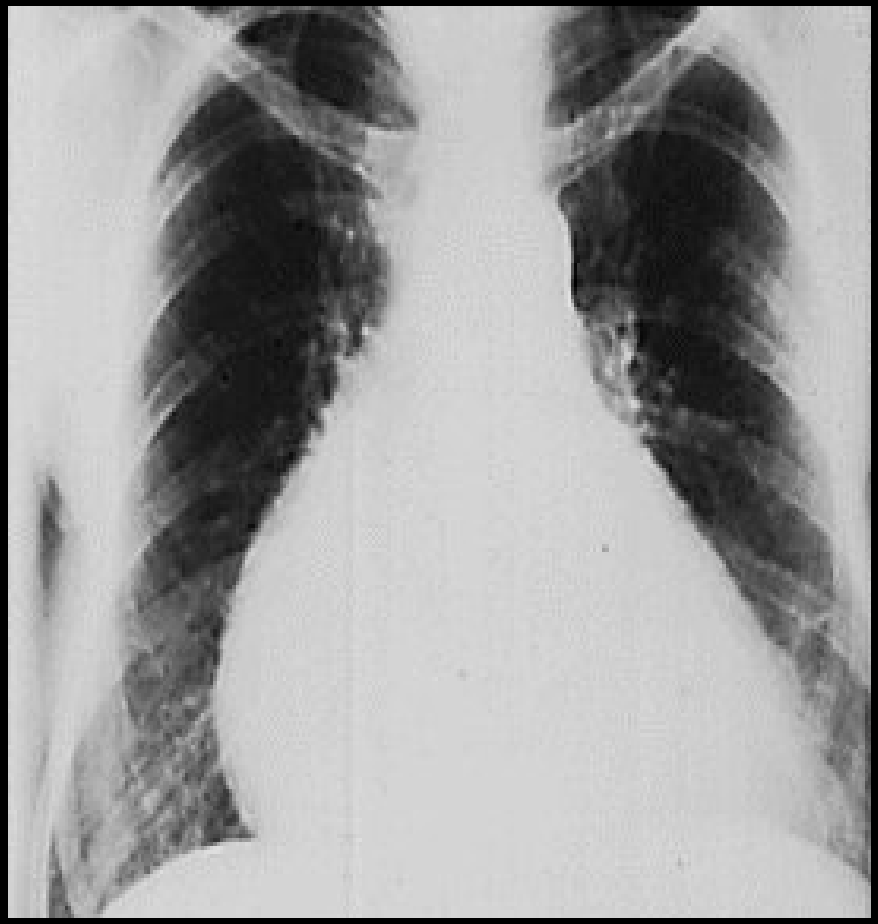


Sinistropositio

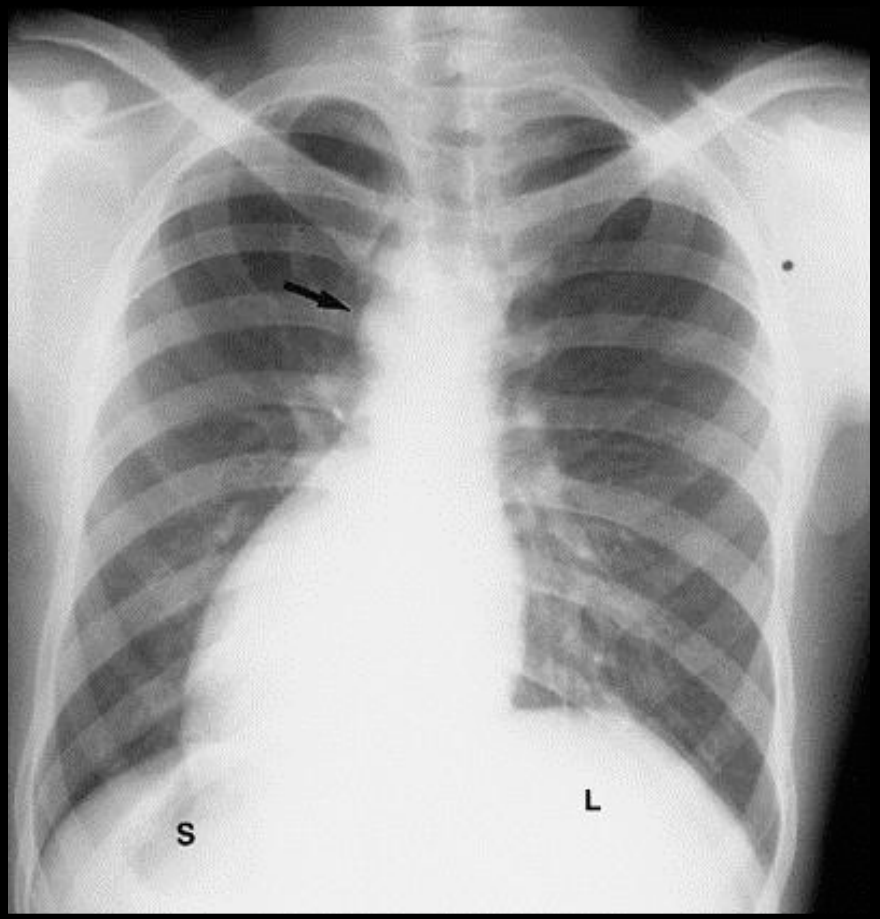


urođeno 20%
patološka stranja (privlačenje, potiskivanje)

Dextropositio

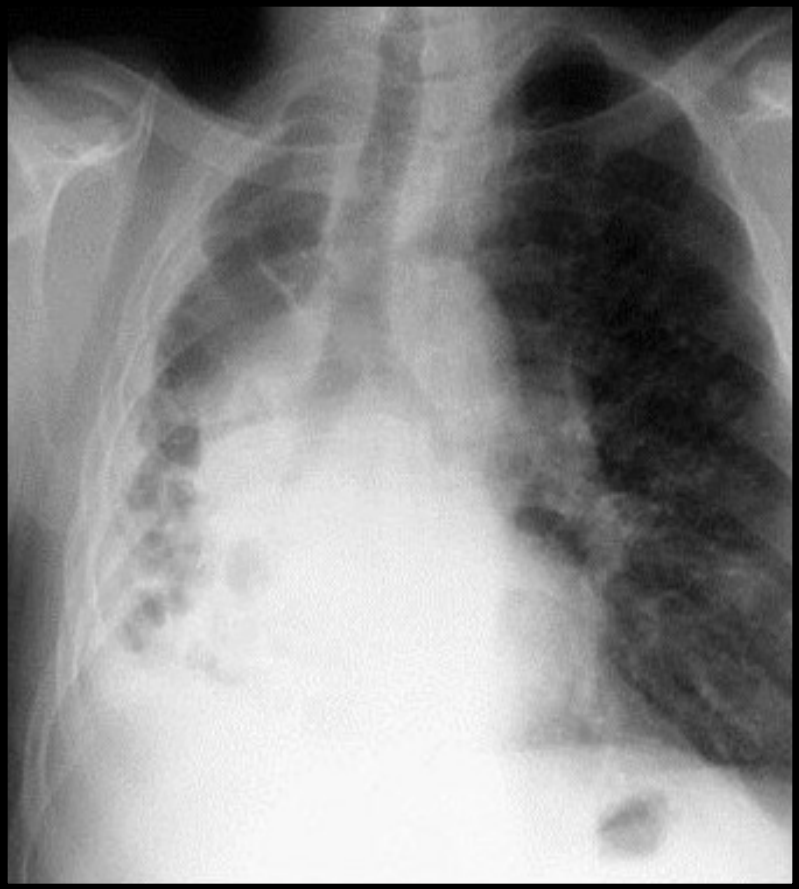


Dextrocardio



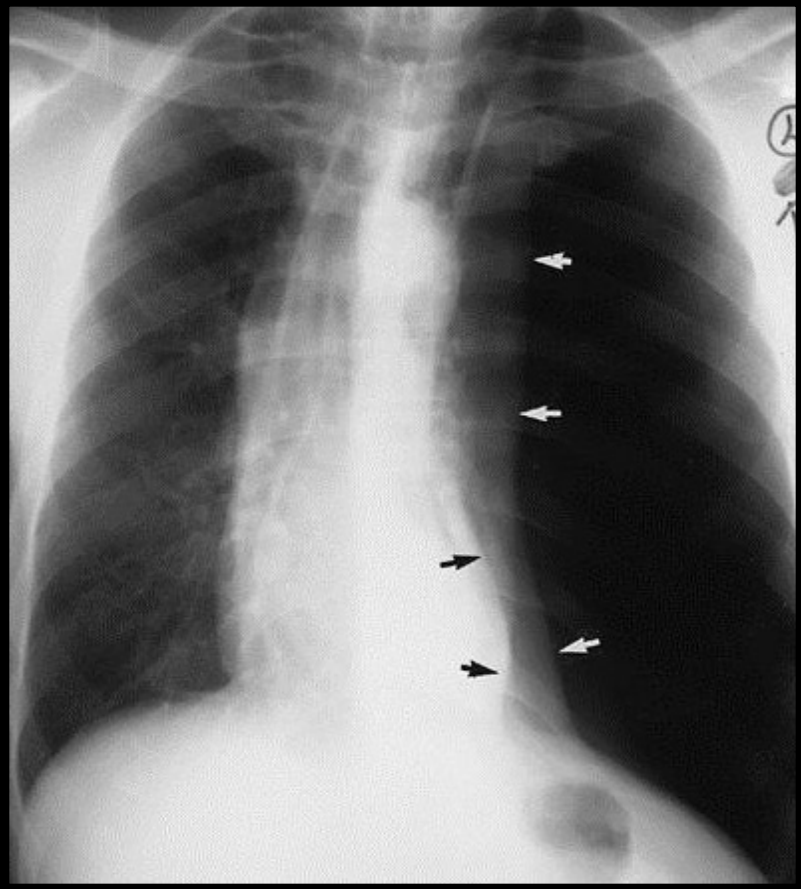
Situs viscerum inversus

privlačenja - Atractio cordis



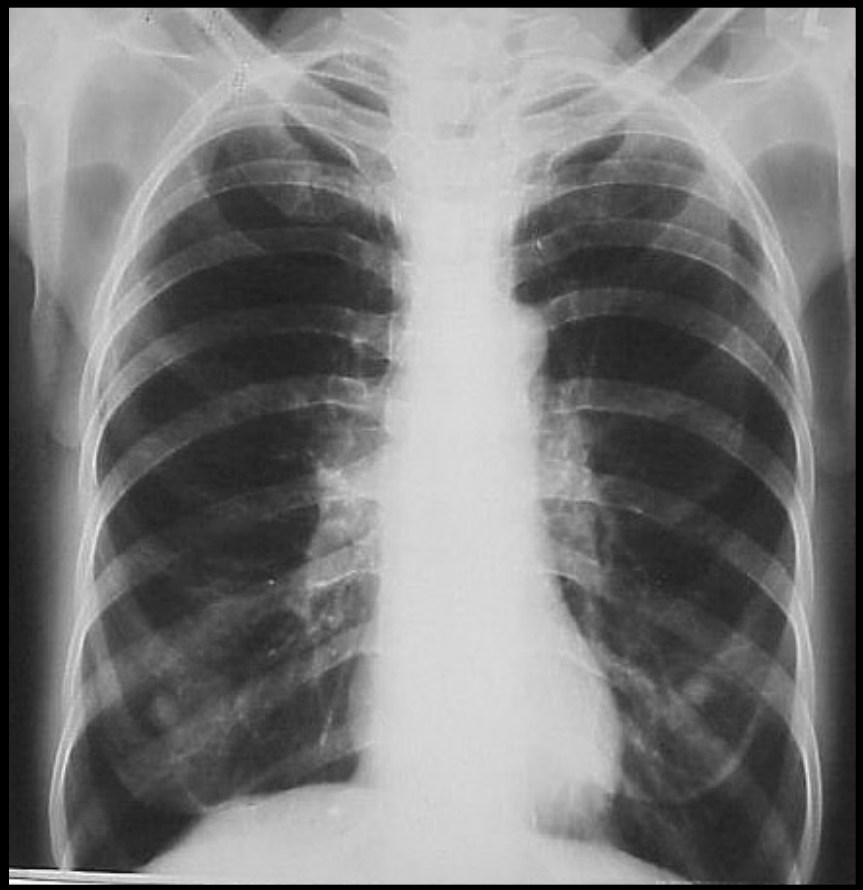
fibrotorax
pleuroperikardne adhezije
atelektaza

potiskivanje



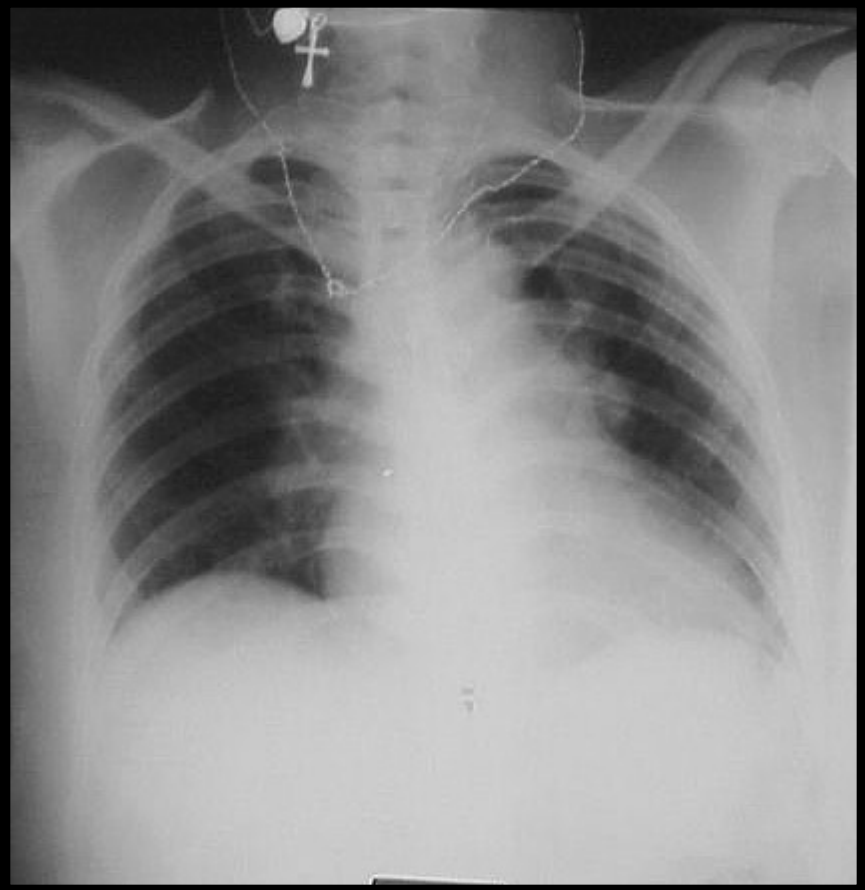
pleuralni izliv
pneumotorax
TU

stenično <50°
koso položeno srce

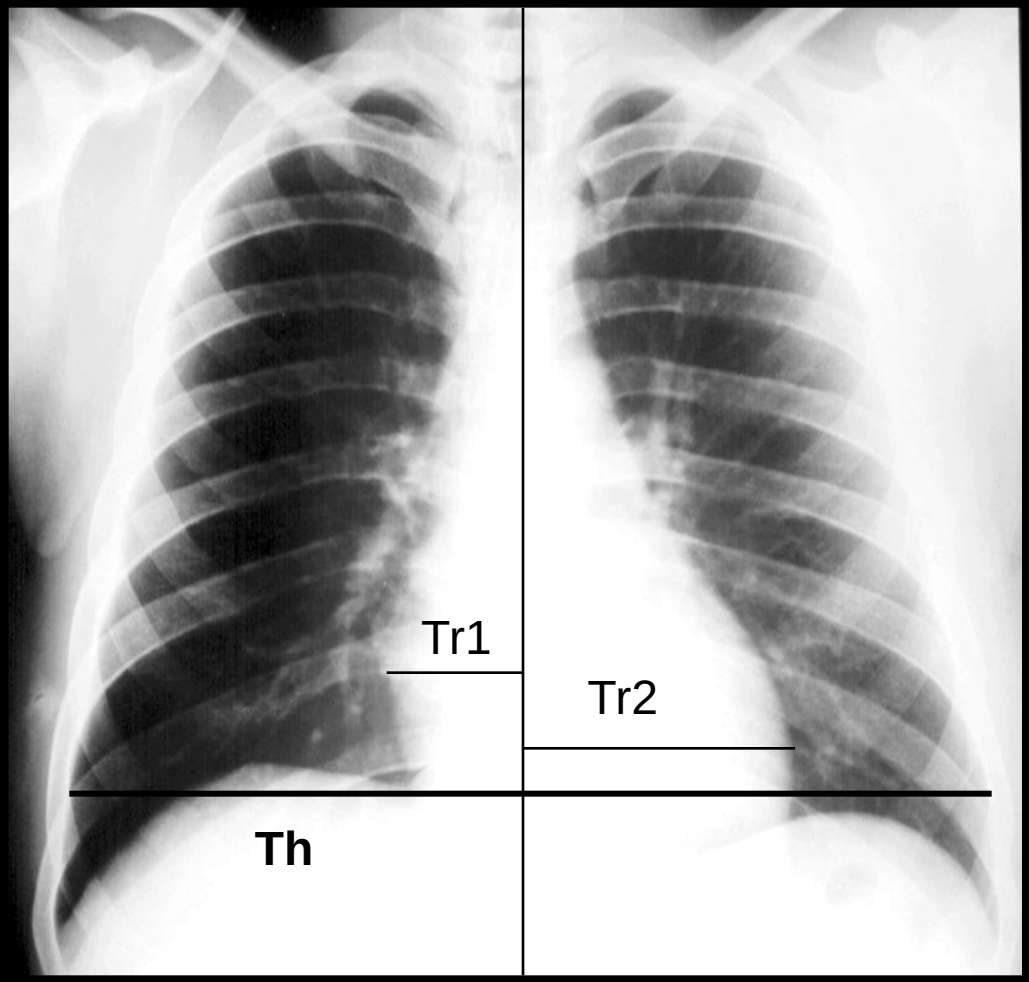


inspirijum, konstitucija
emfizem, pneumotorax
asmatični status

hiperstenično >50°
poprečno položeno srce



ekspirijum, gojaznost, trudnoća
ascit, hepatosplenomegalija,
TU



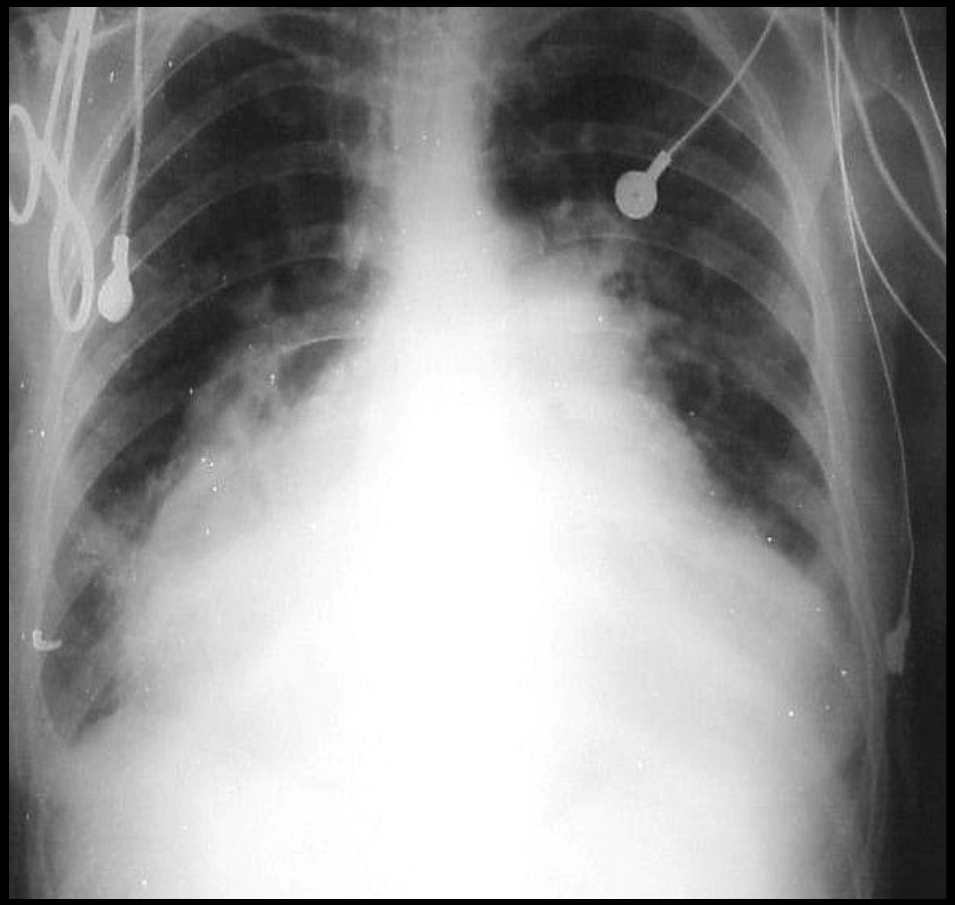
- **VELIČINA srca**

kardio-torakalni index ≈ 2

1,97 - 2,05

malo
omanje
normalno
povećano
veliko
bovino





Cor bovinum

Samo "obolelo srce" je uvećano.

Extra kardijalni uzroci

gojaznost, trudnoća, ascit,

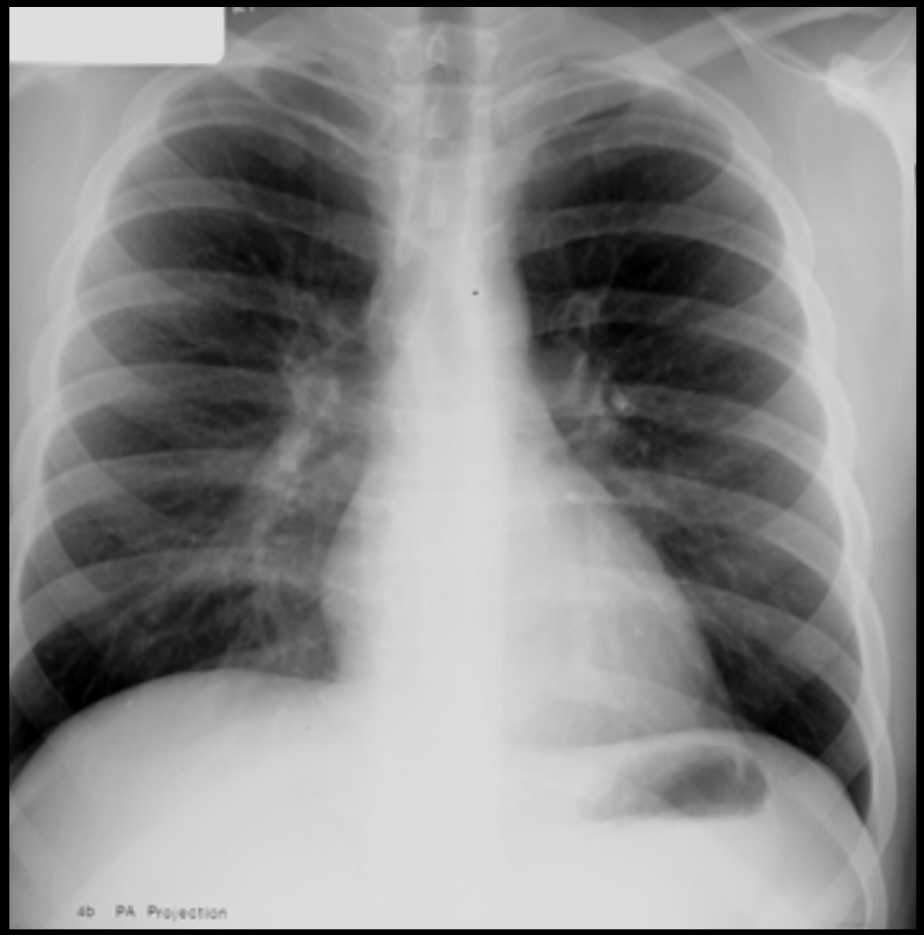
sy.pravih leđa, pectus excavatus

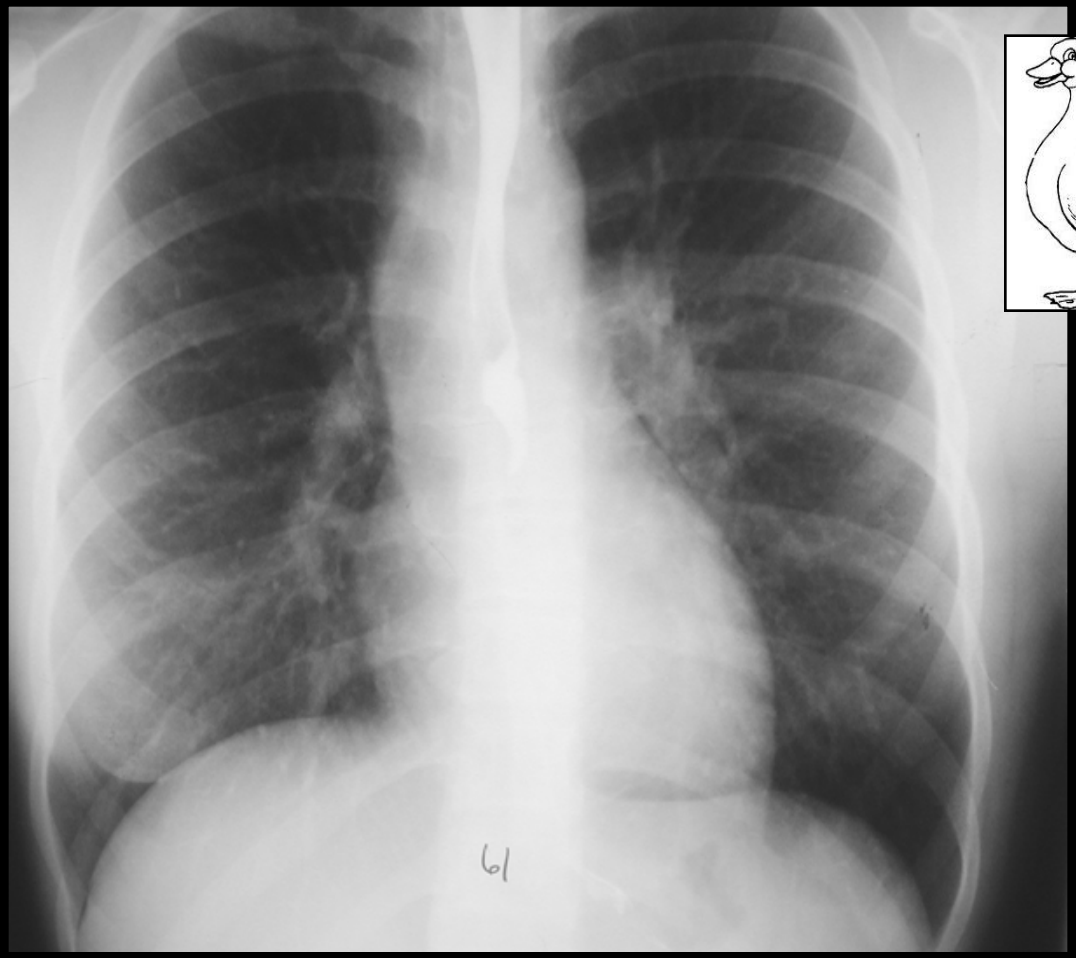
Kardijalni uzroci:

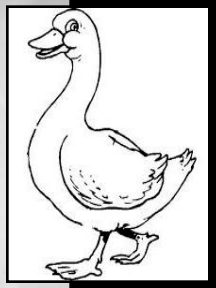
uvećanje pojedinih srčanih šipljina



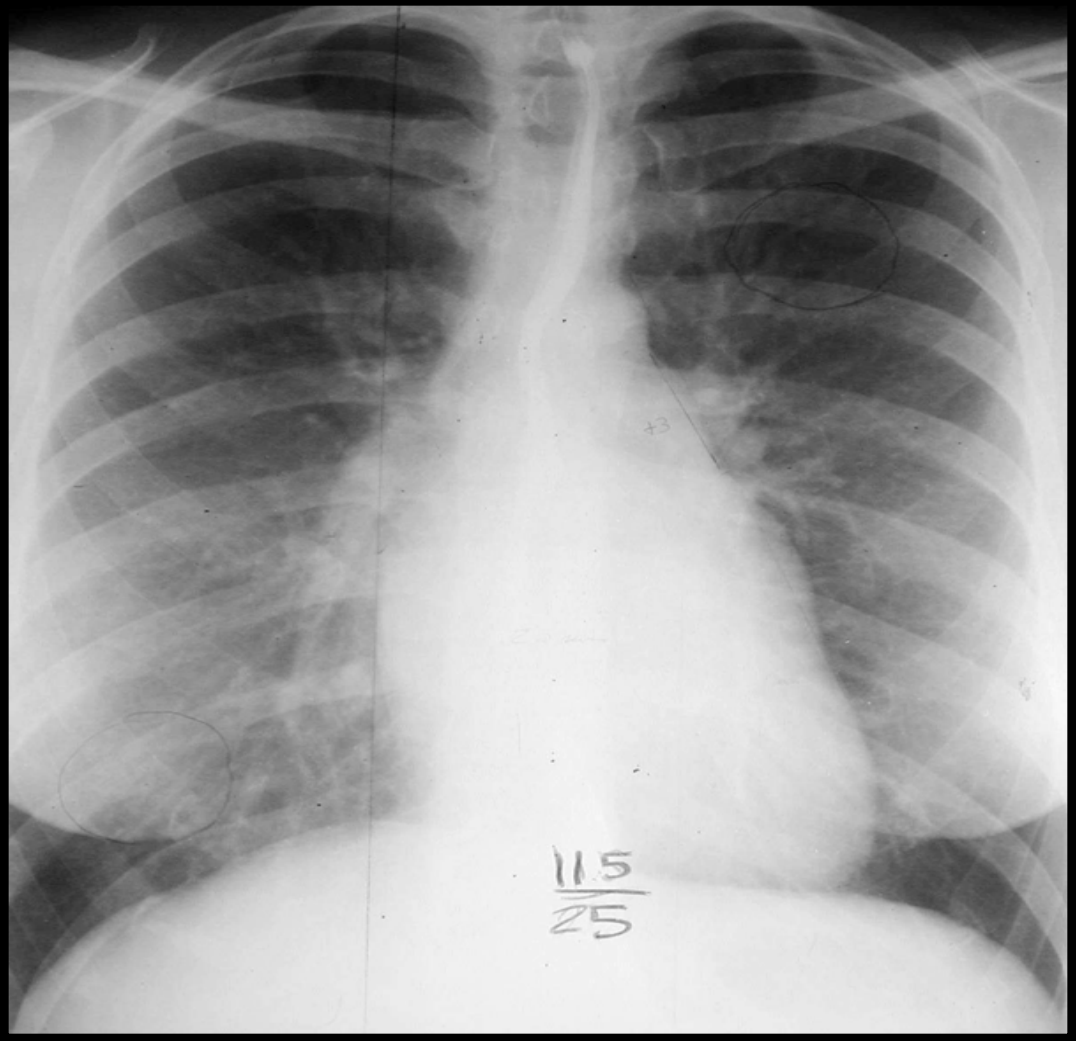
- **OBLIK srca**



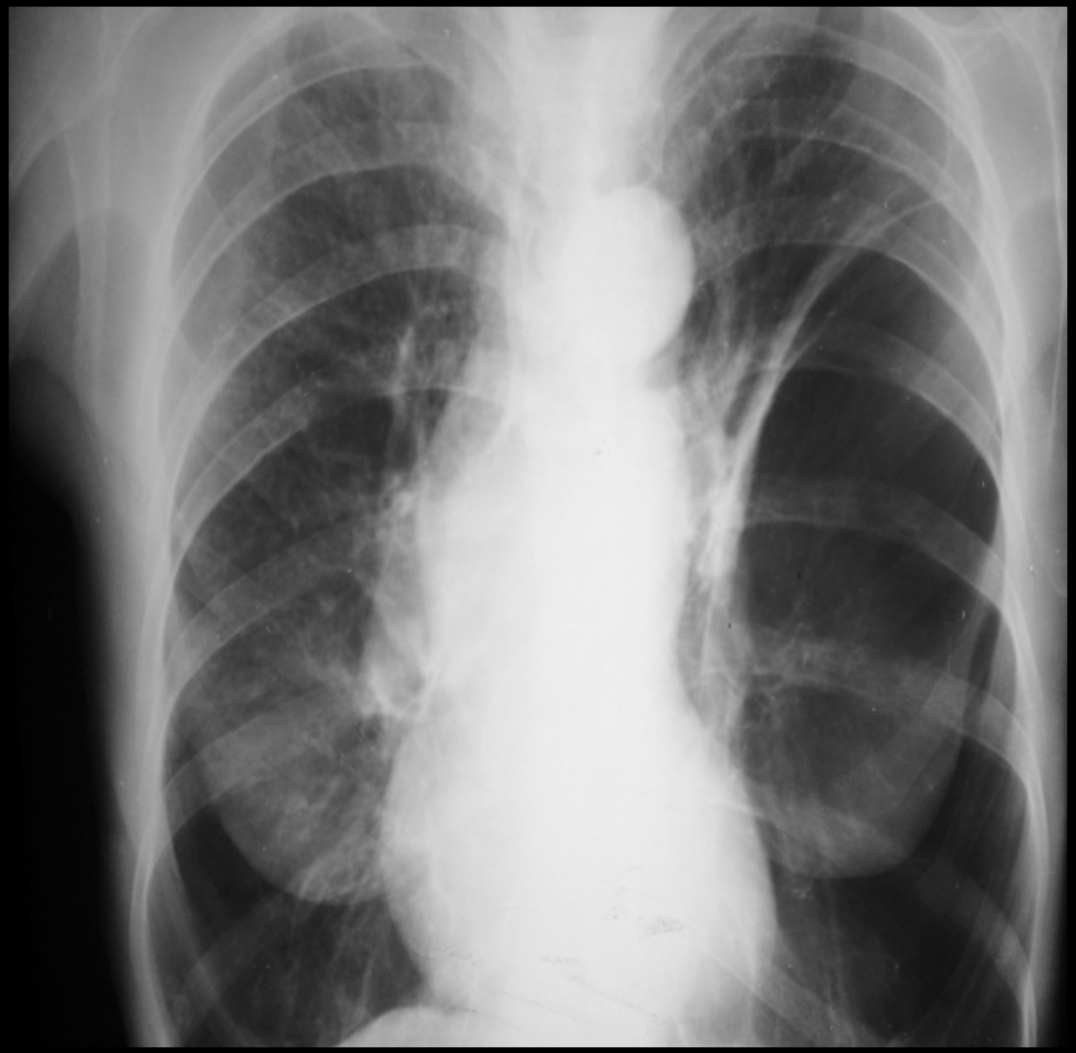




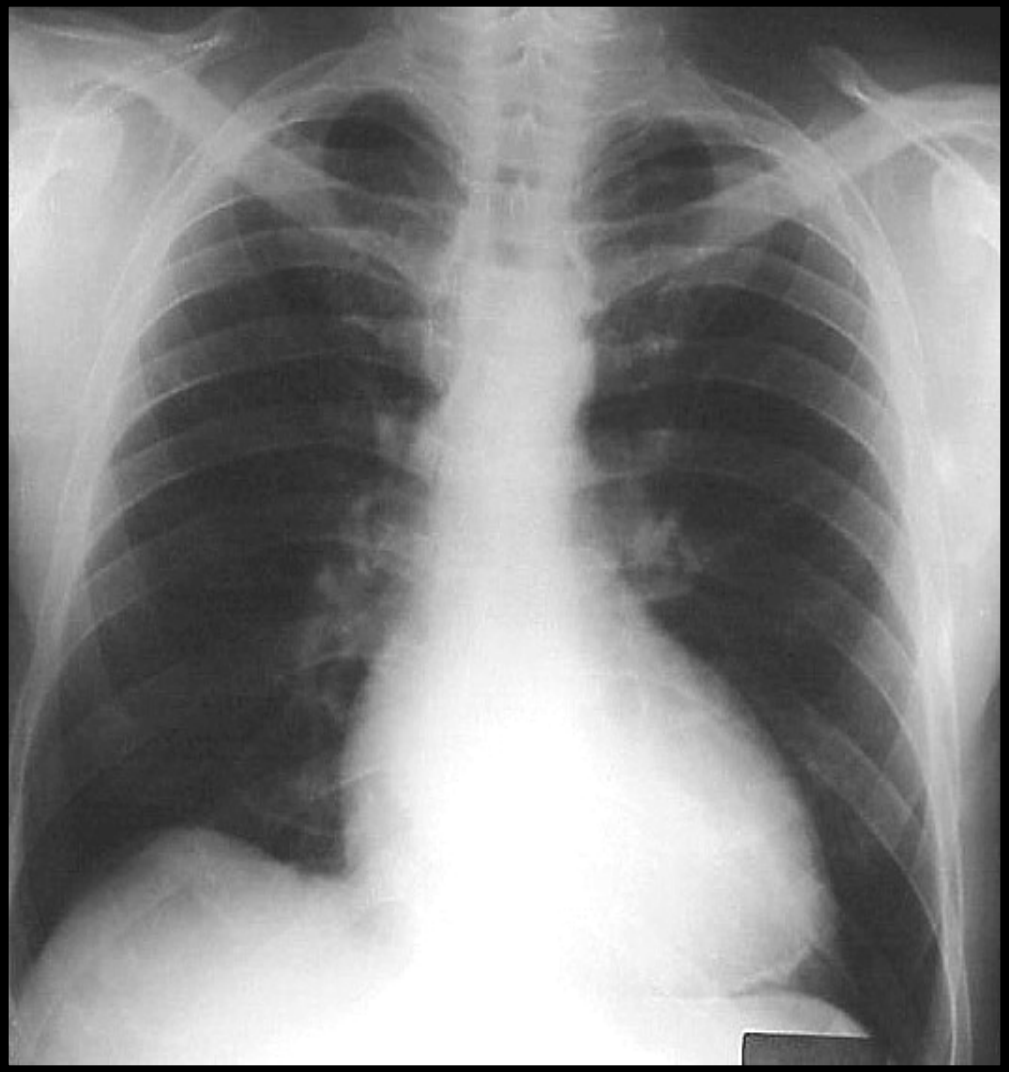
Aortnalne konfiguracije



Mitralne konfiguracije

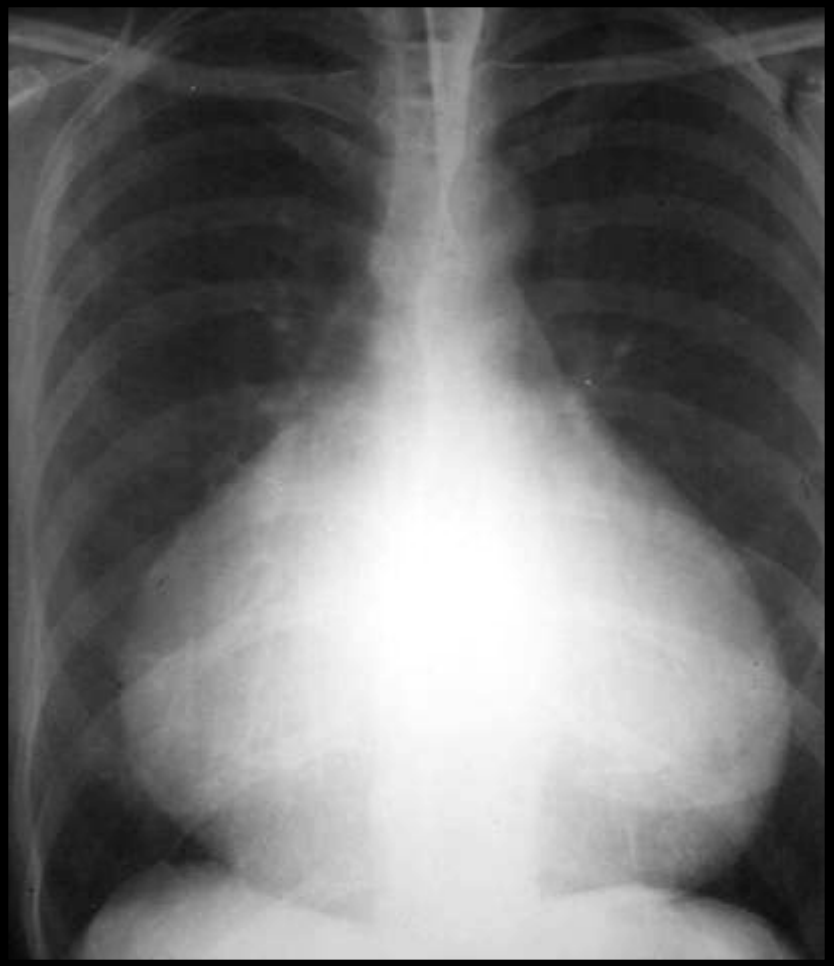


Chr. plućno srce

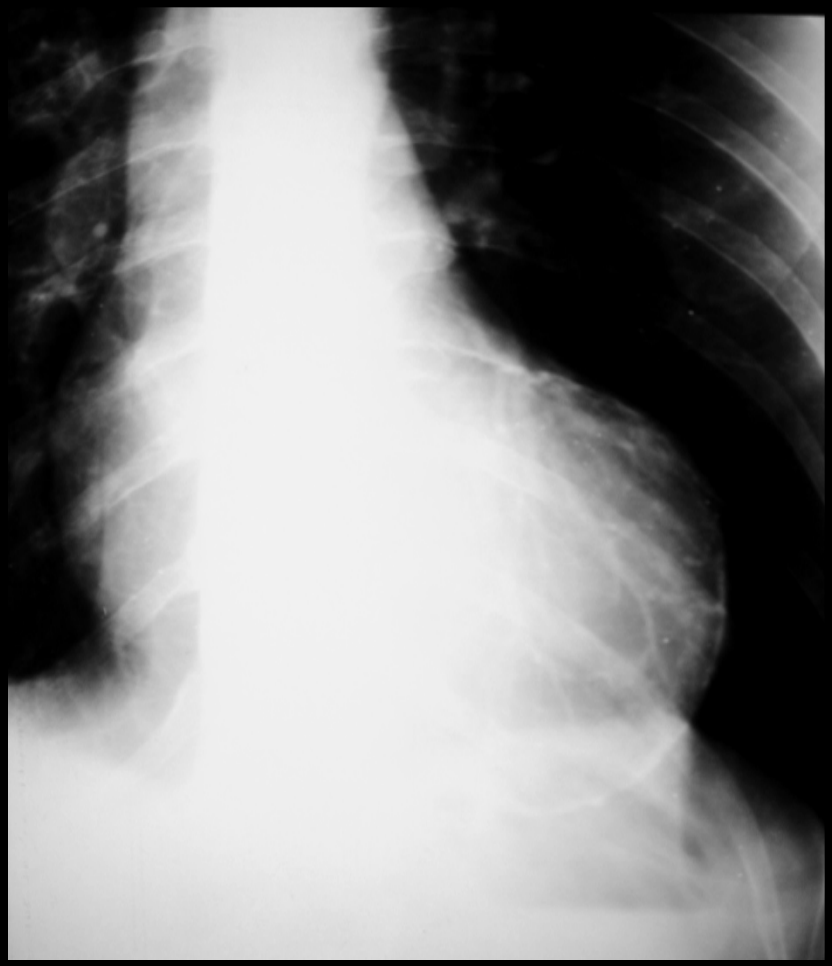


Dilatativna kardiomiopatija

Pericardial effusion

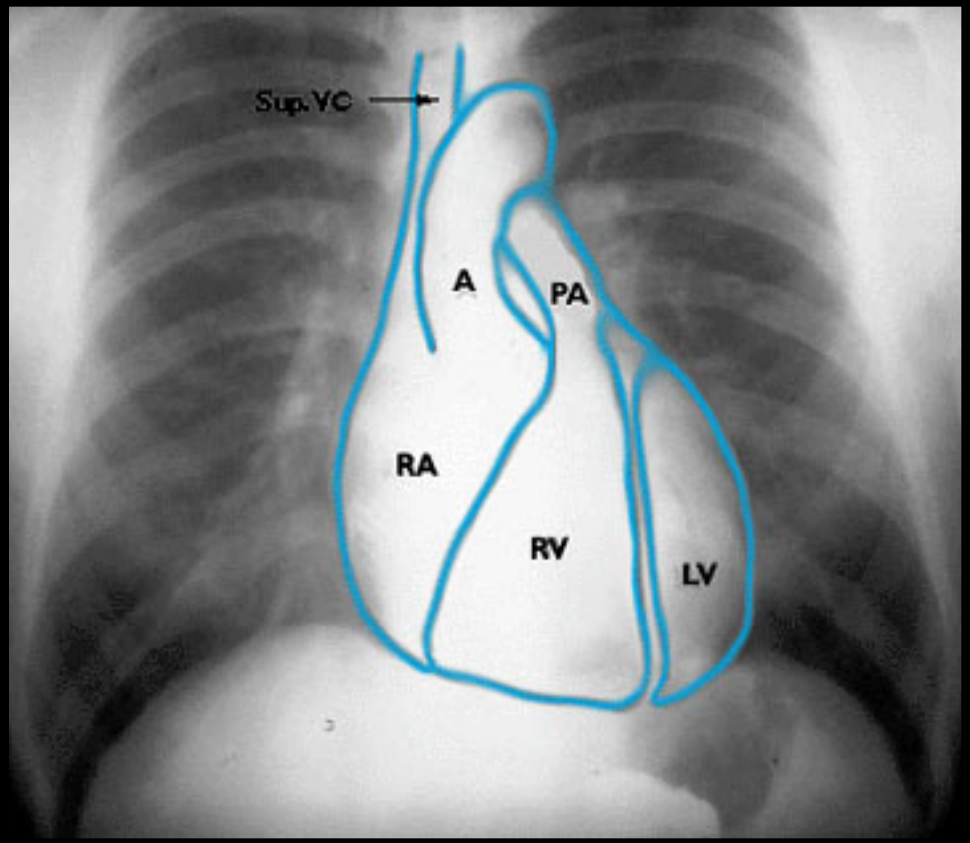


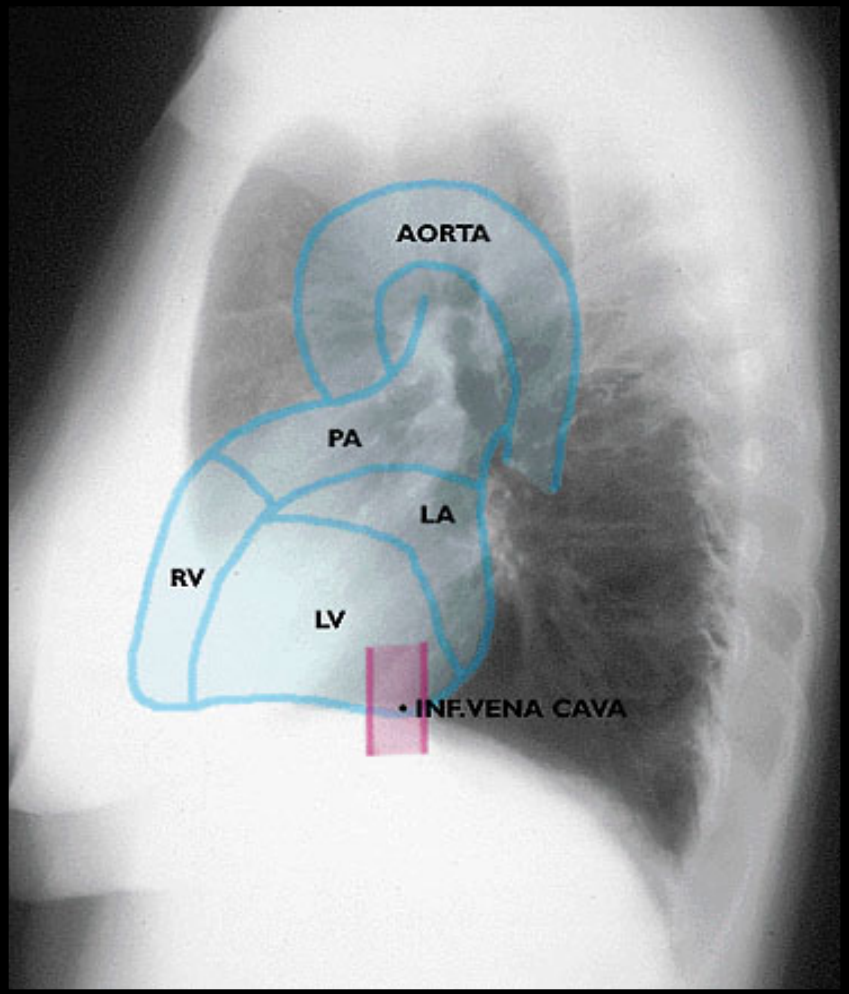
Konstriktivni perikarditis



Concretio pericardii oba lista srasla
Accretio cordis priraslice sa okolinom

- **KONTURE srca**





Desna predkomora

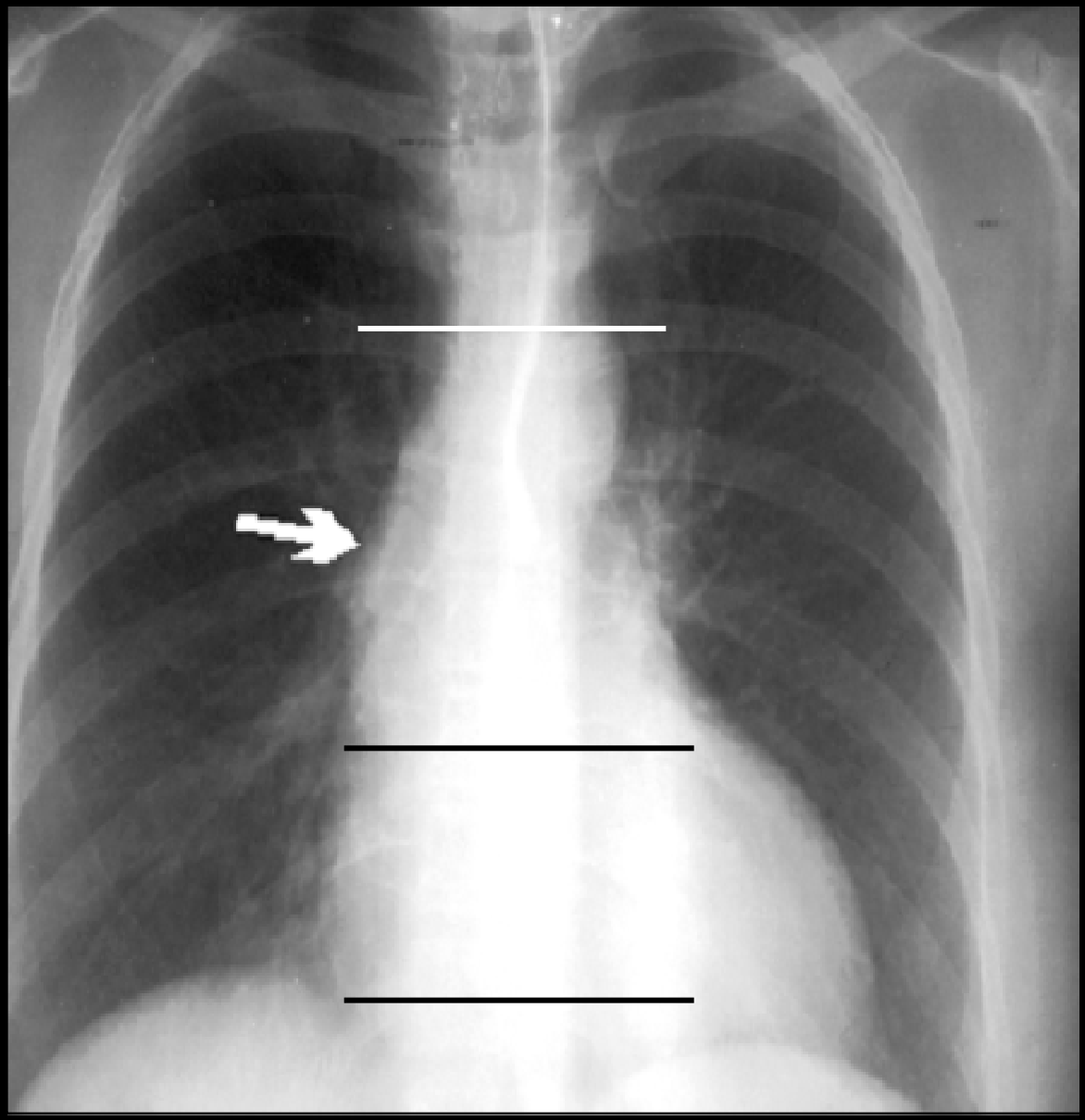
- Urođene mane
- Miokardiopatija



Ascendentna aorta

- HTA
- Ao.stenoza
- Ao.regurgitacija
- Aneurizma

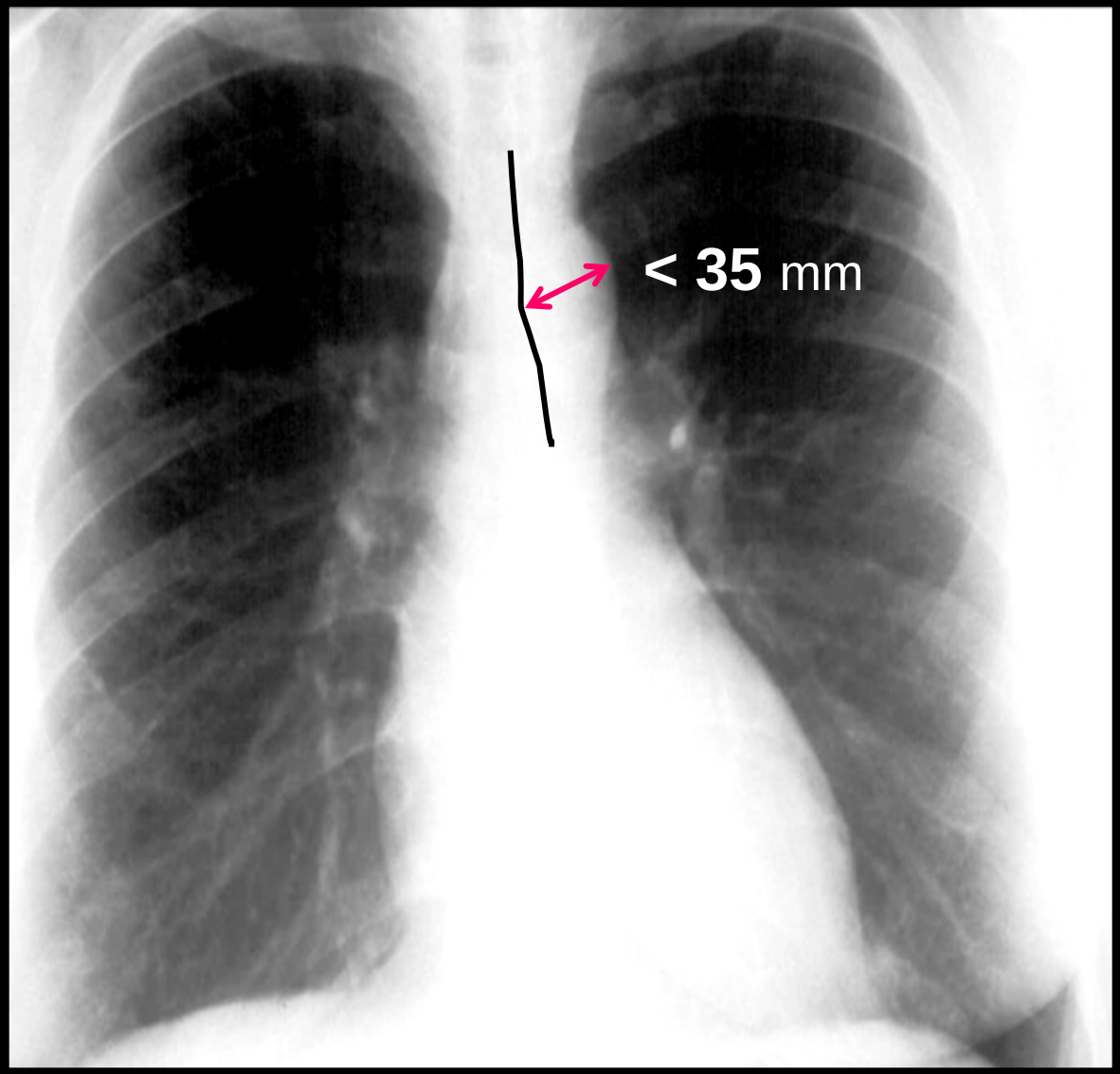
srčano - sudovni odnos
1:1



Arkus aorte

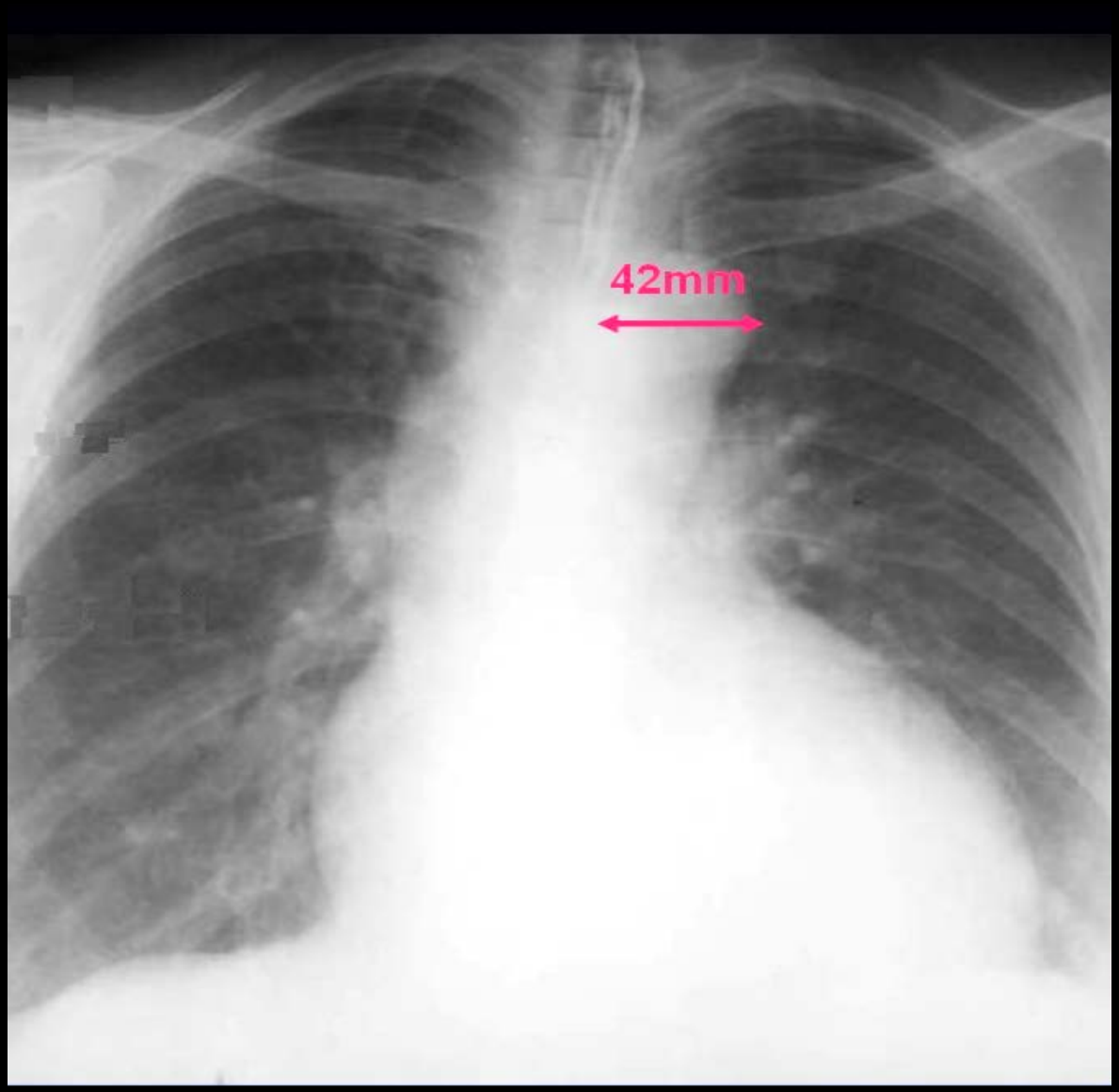
od lat.ivice traheje do najisturenije tačke luka

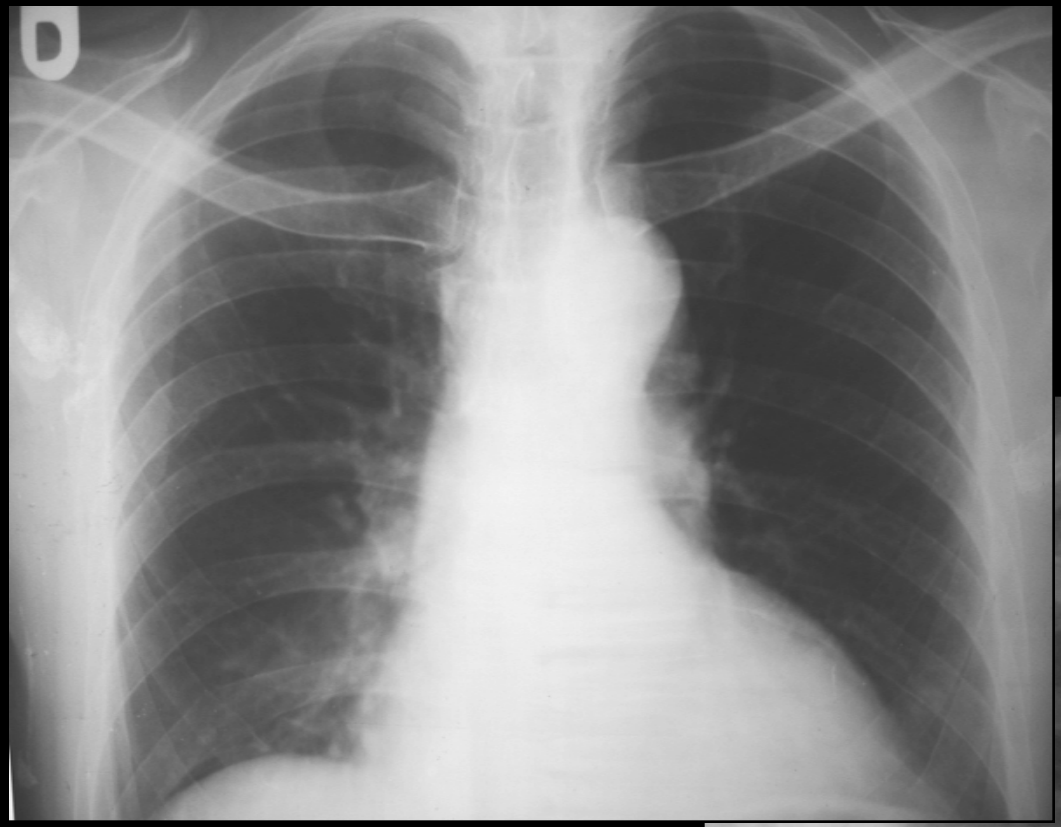
norm < 35 mm



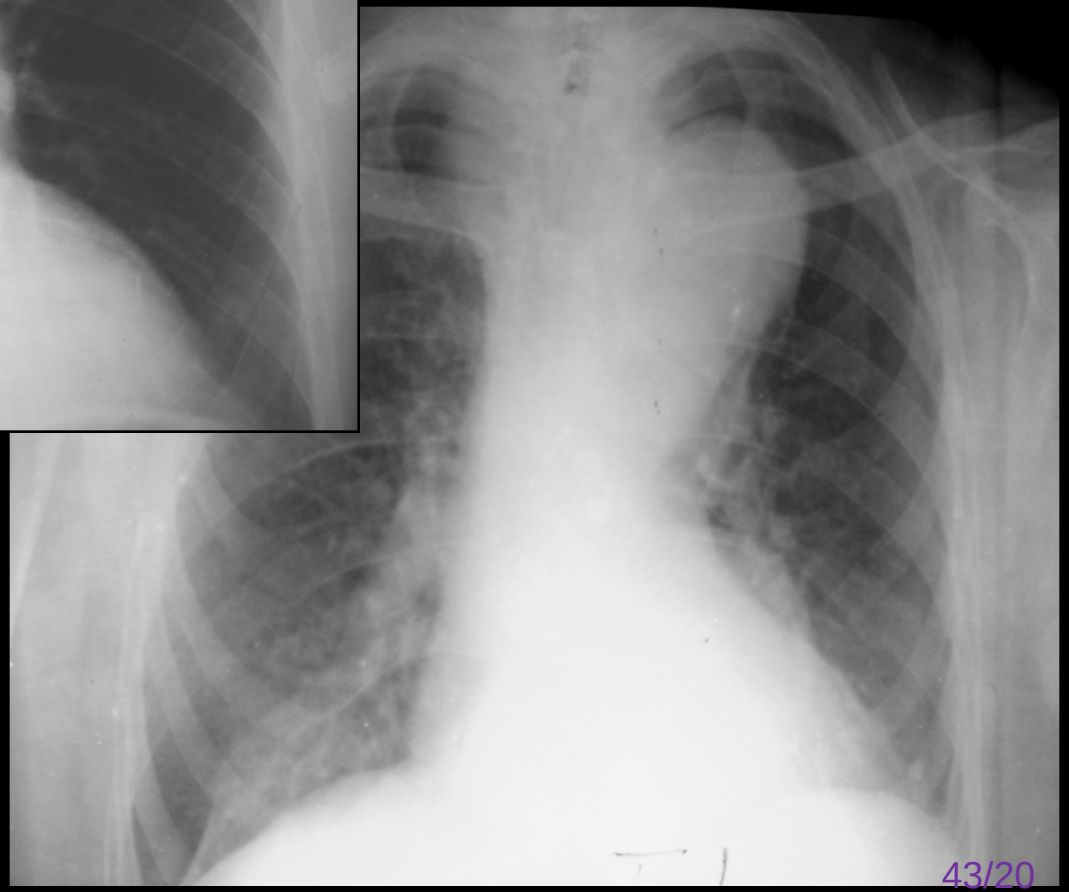
Uvećanje arkusa

- HTA
- Aneurizma
- Ao regurgitacije (Povećanog protoka)



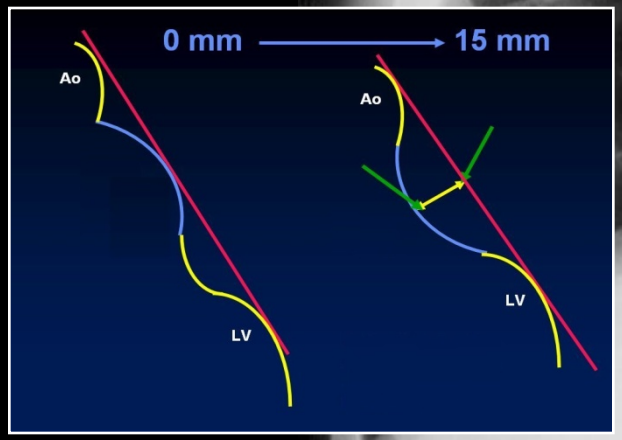


HTA



Aneurizma

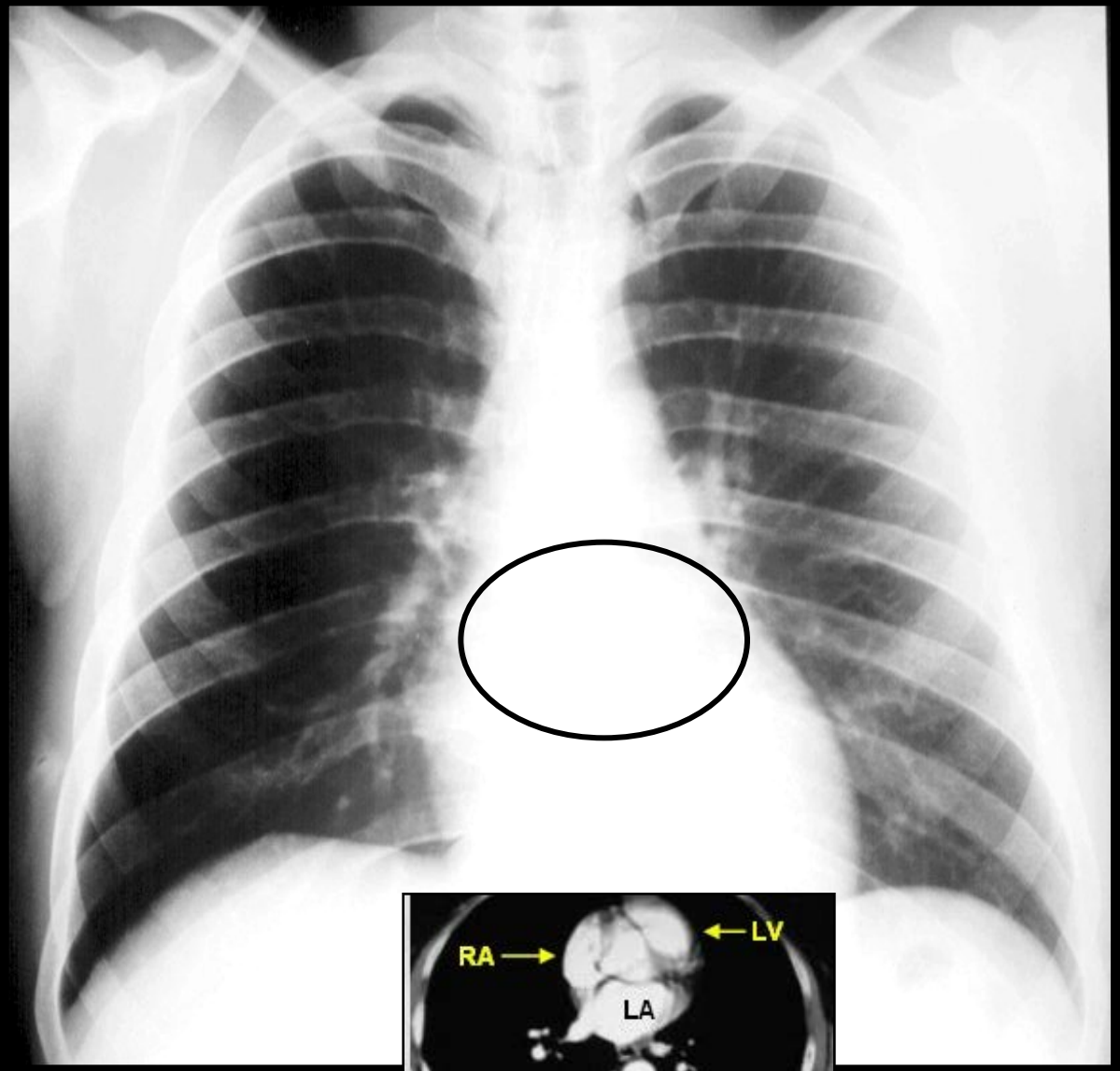
Plućna arterija

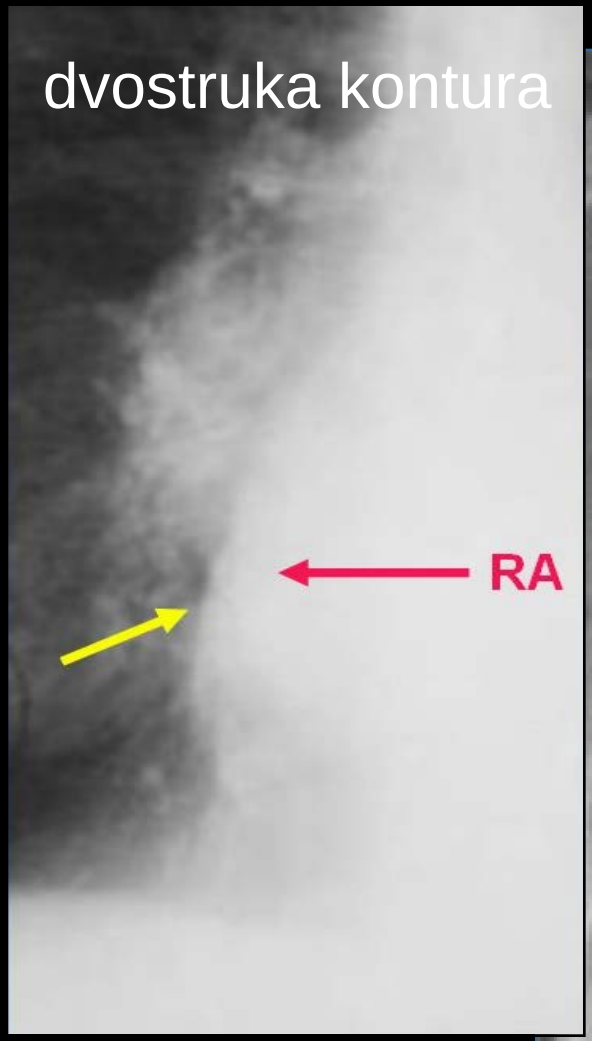


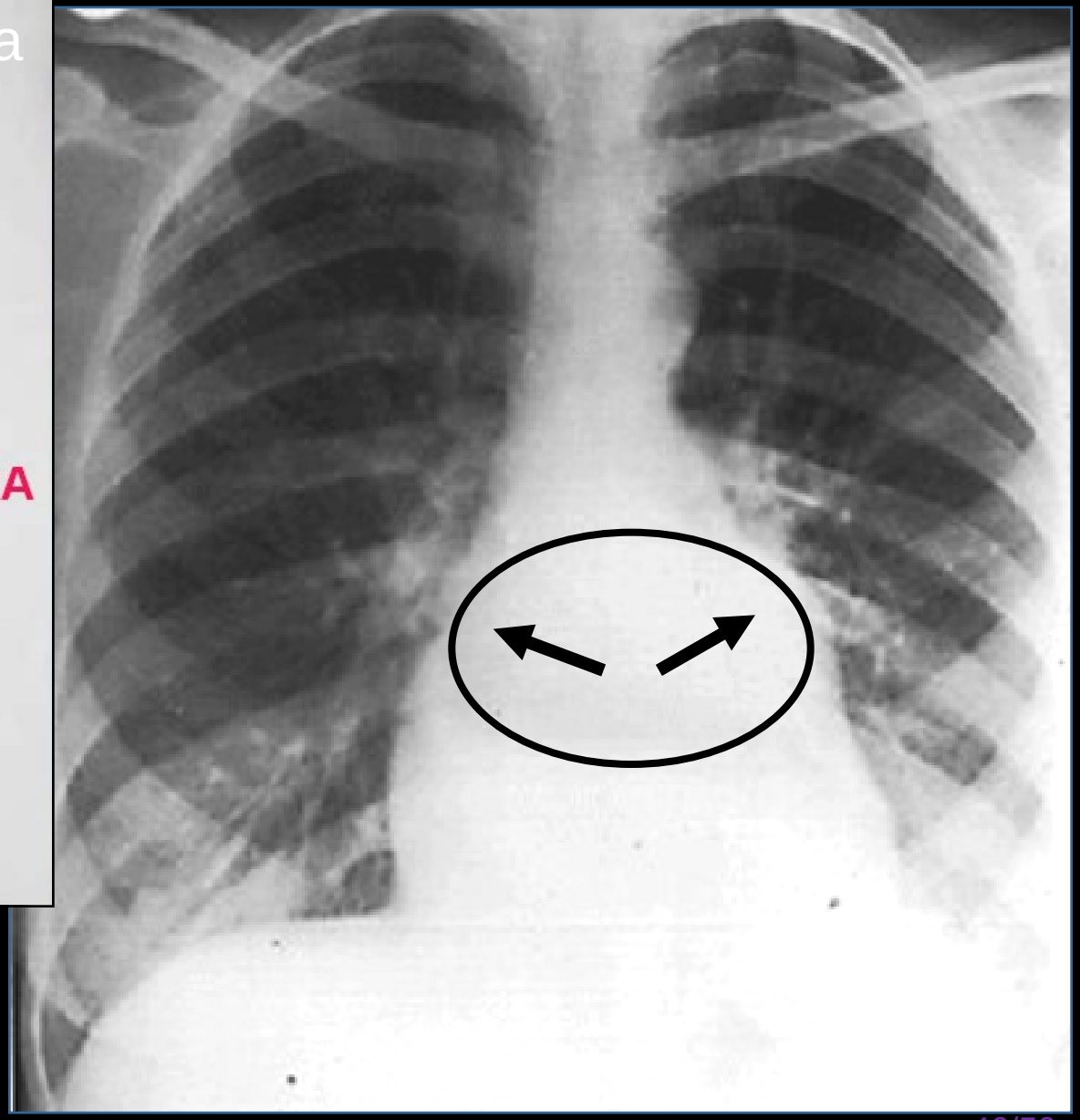
Leva predkomora

ne čini normalno konturu srca

centralno, pozadi u račvi traheje



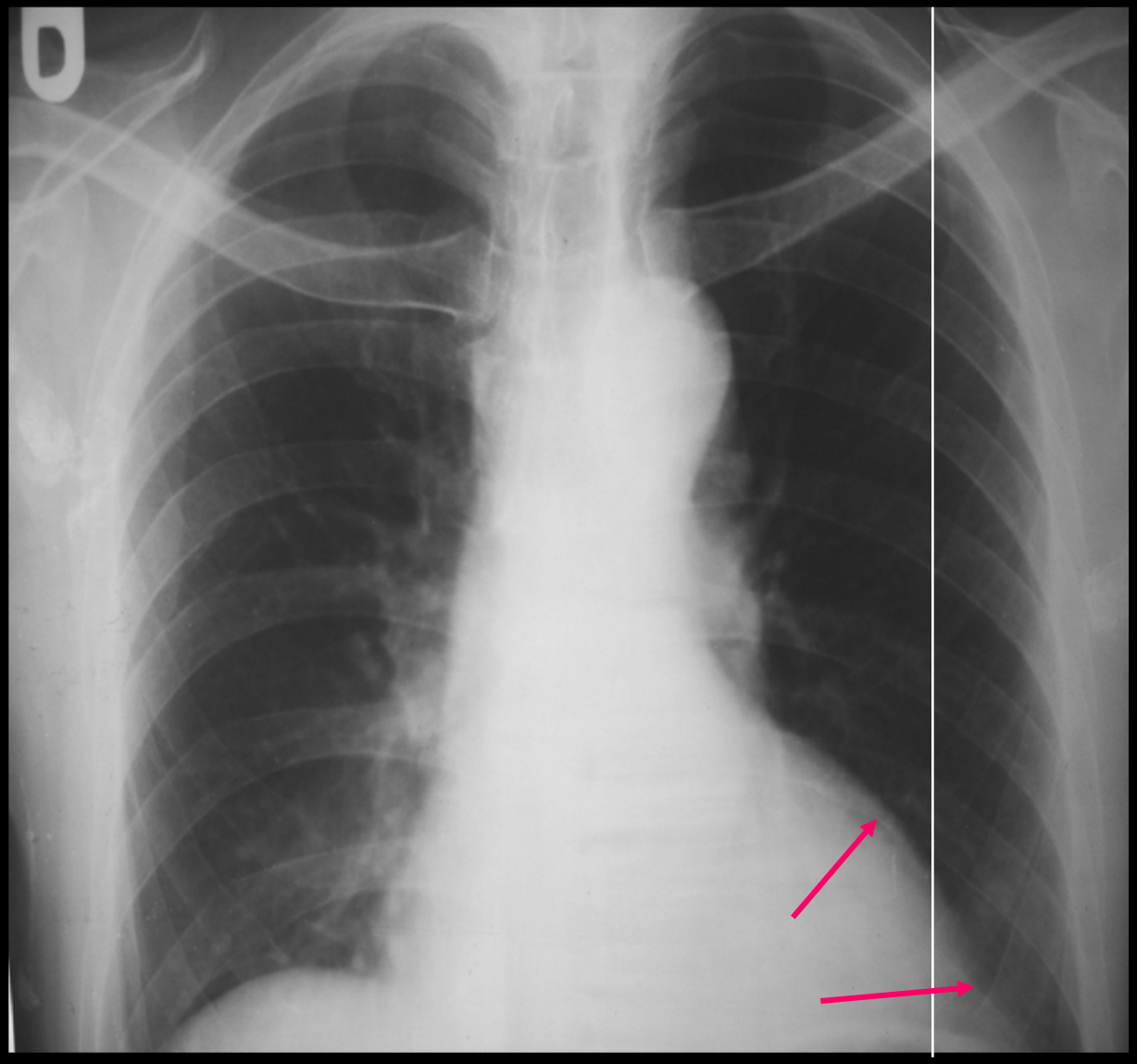




- Mitralna stenoza
- Mitralna regurgitacija

Leva komora

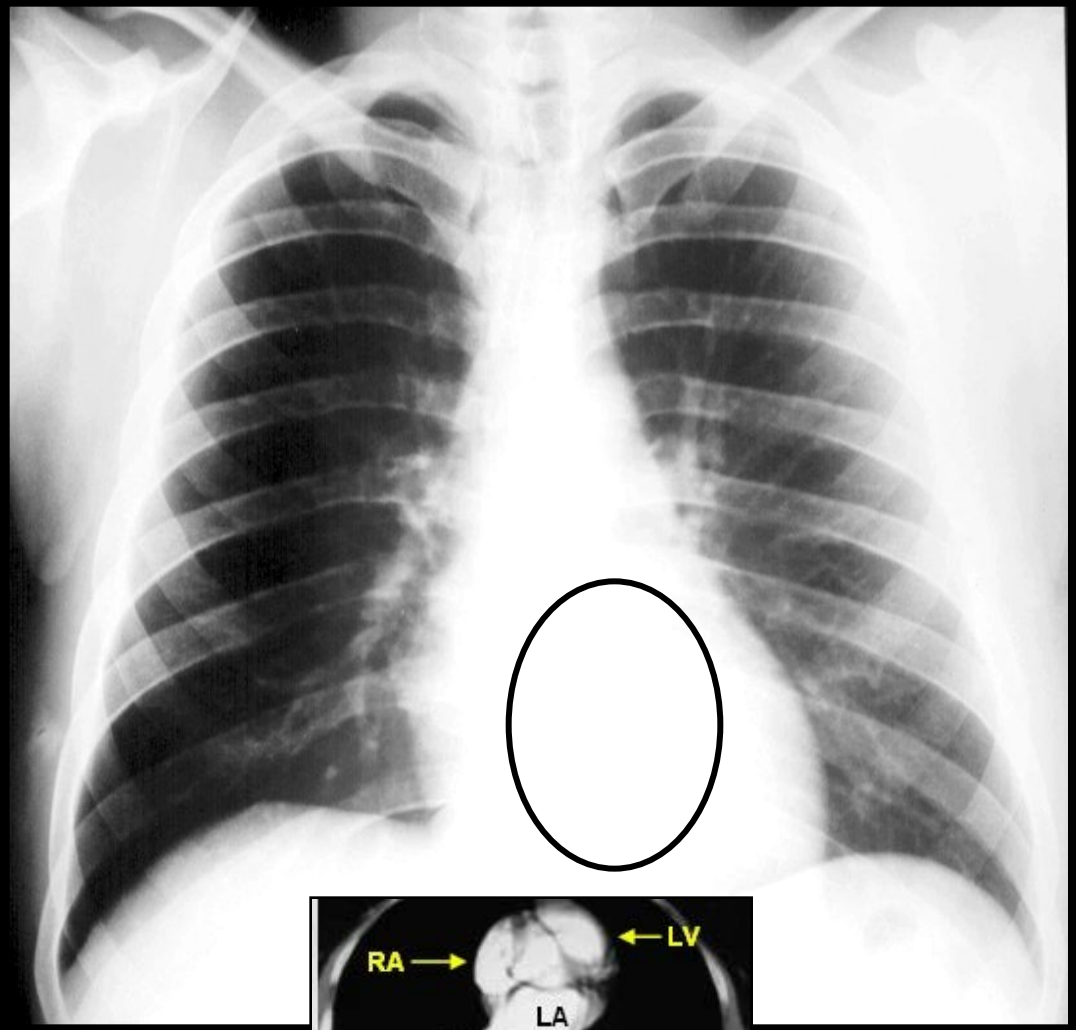
- HTA
- Ao.stenoza
- Ao.regurgitacija
- Kongestivna srčana insuficijencija

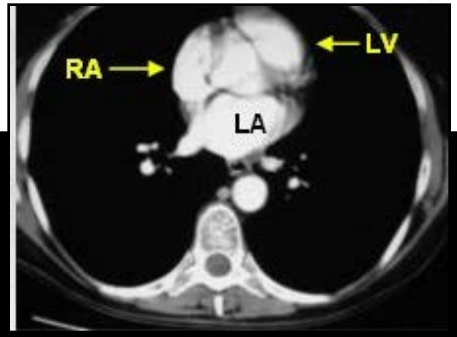


Desna komora

normalno se ne vidi

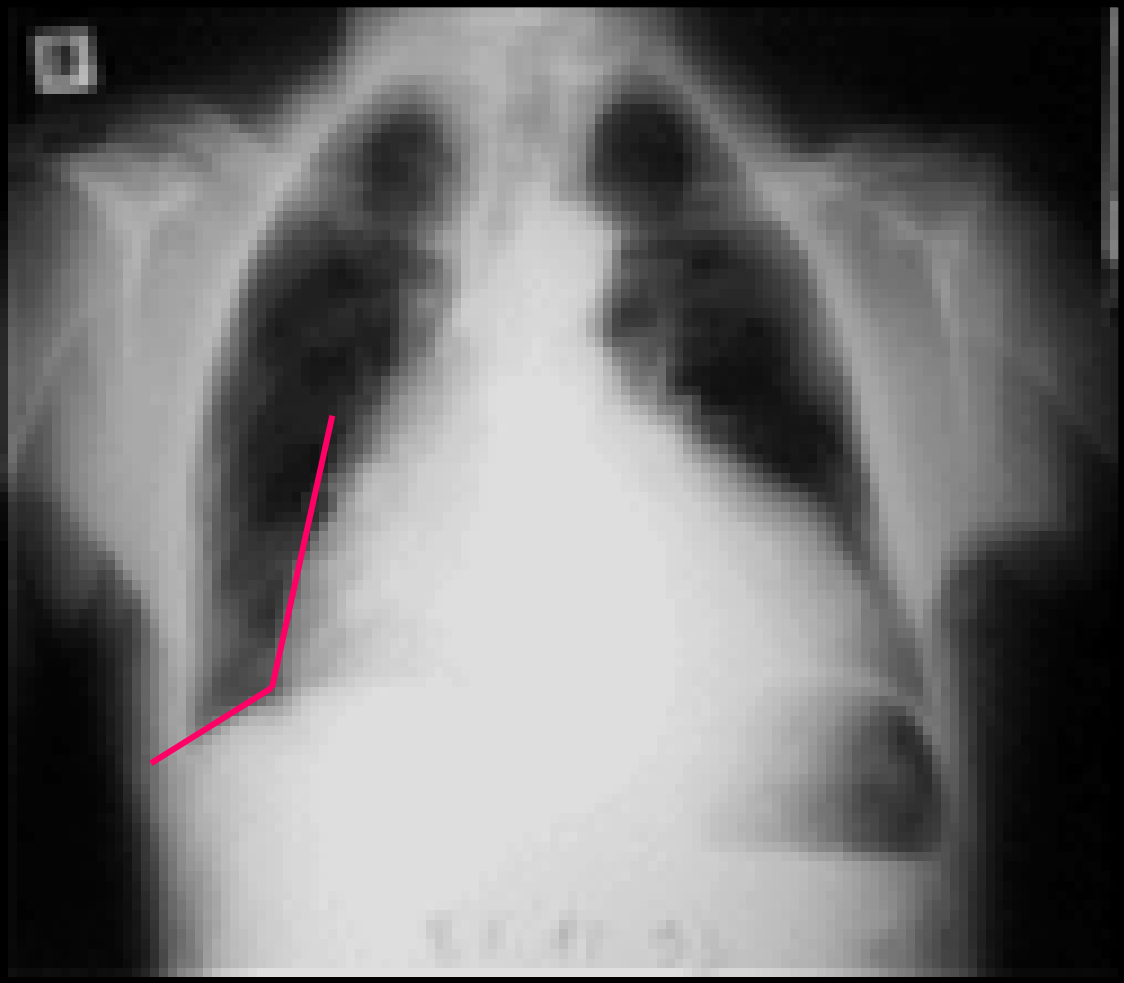
- Povećan protok (L-D šant)
- Povećan pritisak (plućna hipertenzija)





Obe komore

- Miokardiopatija
- Pl.hipertenzija
  sa D-L šantom





Univerzitet Priština - Kos.Mitrovica
Medicinski fakultet

Predmet **Radiologija**



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