



Columna vertebralis

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(H)øjre
(R)ight
Dx. (Dexter)



(V)enstre
(L)eft
Sin. (Sinister)

Anterior posterior
optagelse (AP) eller
PA optagelse
(Frontal optagelse)



(H)øjre
(R)ight
Dx. (Dexter)



(V)enstre
(L)eft
Sin. (Sinister)

Anterior posterior
optagelse (AP) eller
PA optagelse
(Frontal optagelse)

Billederne ses principielt som om man står over for personen. Personen står i anatomisk normalstilling. I klinikken skal der altid være sidemarkering på billederne, dette vil dog ikke altid være tilfældet ved billederne til forelæsningsne.



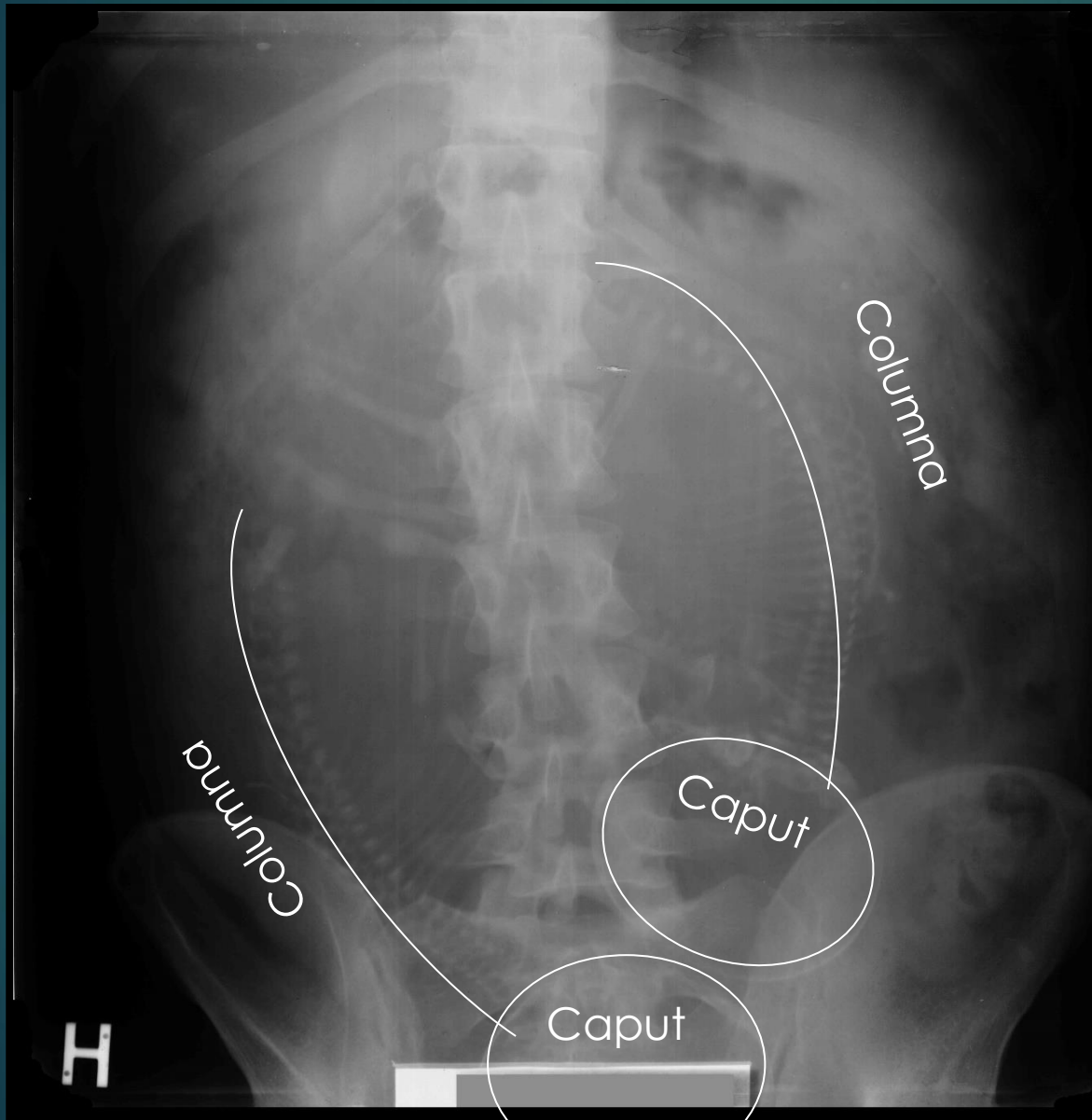
Columna vertebralis: Kurverne

Oversigt over abdomen, kvinde 32 år med gemelli



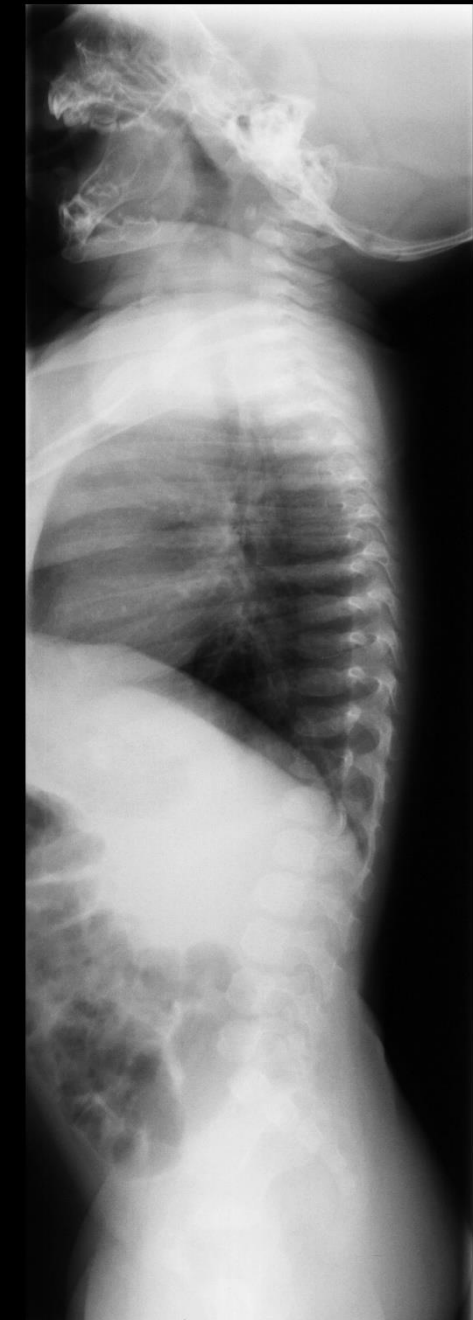
Kyfoser:
Primære

Oversigt over abdomen, kvinde 32 år med gemelli

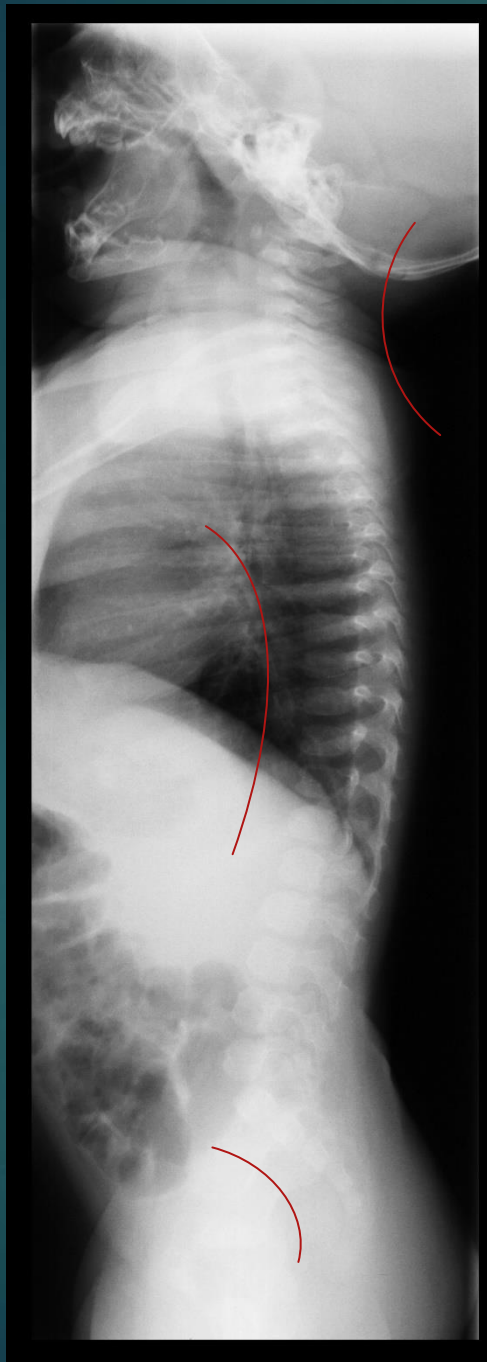


Kyfoserne er primære, idet fosteret i livmoderen ligger rullet sammen, således columna udgør en lang kyfose.

På billedet til venstre ses tvillinger (gemelli), med markering af hovedet og columna. Knoglerne i arme og ben kan også ses. Røntgenbilledet er fra før ultralyd var tilgængelig, denne undersøgelse udføres ikke længere hos gravide.

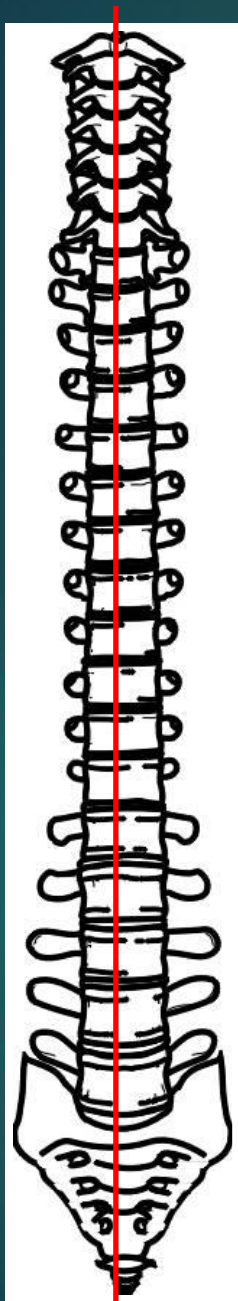


7 mdr. gammel pige.



7 mdr. gammel pige.

Her ses cervical lordose.
Der er vinkling mellem
columna lumbalis og
os sacrum, men fortsat
langstrakt torakolumbal kyfose.



Frontalt ses
ingen
krumning

Thorakal
kyfose
(Primær)

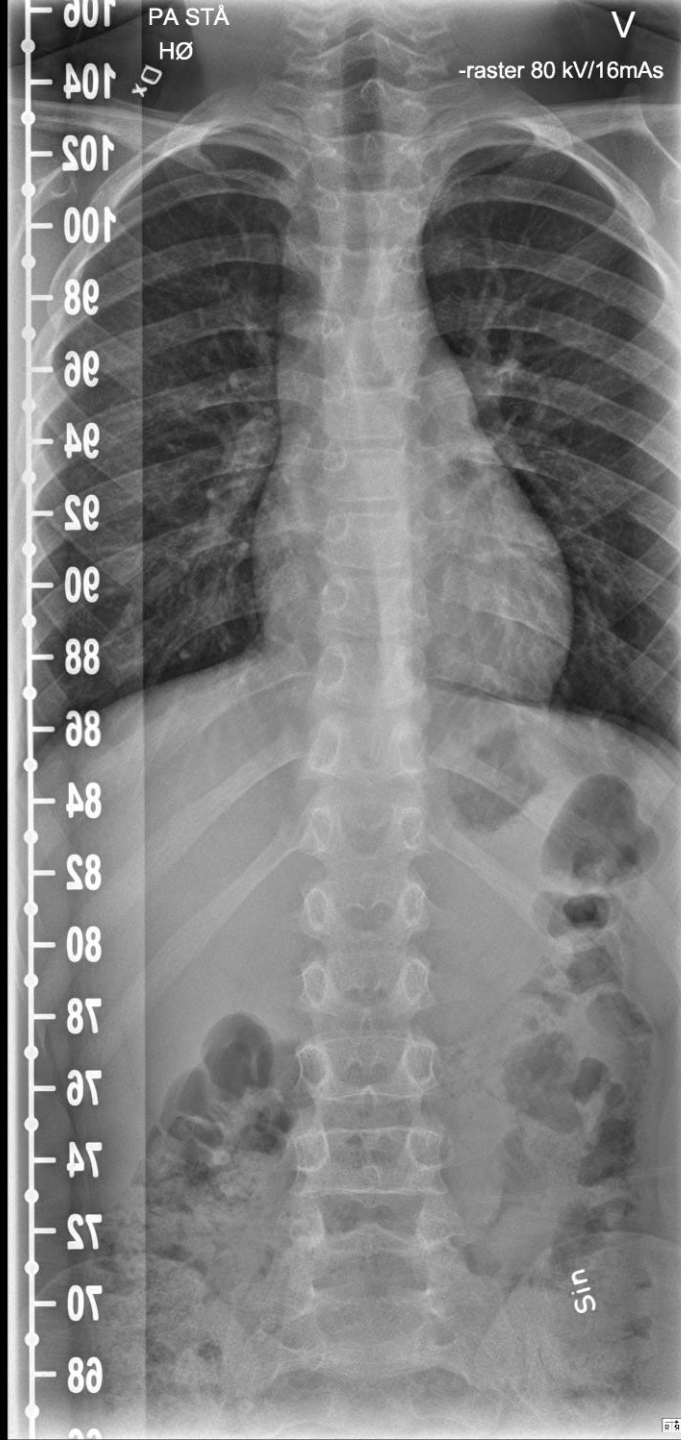
Sakral
kyfose
(Primær)

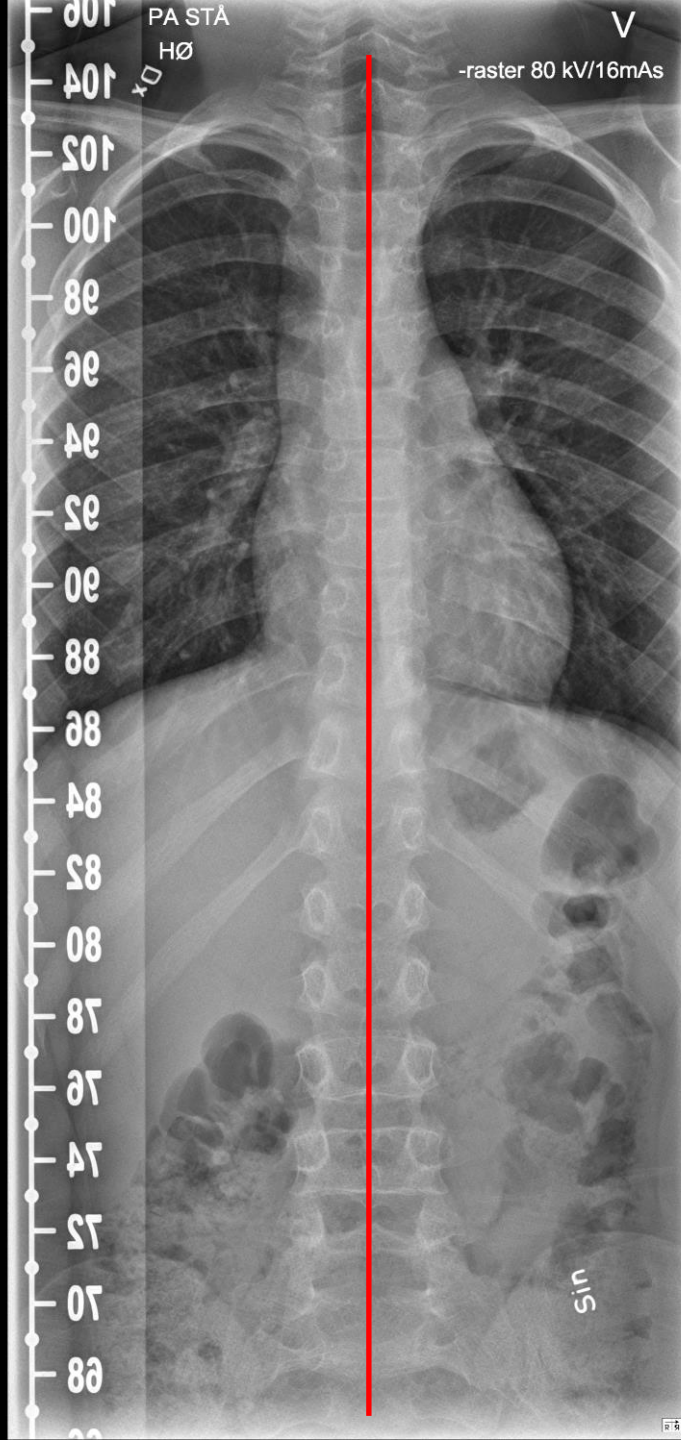


Cervikal
lordose
(Sekundær)

Lænde
lordose
(Sekundær)

Bevægeapparatets
anatomi



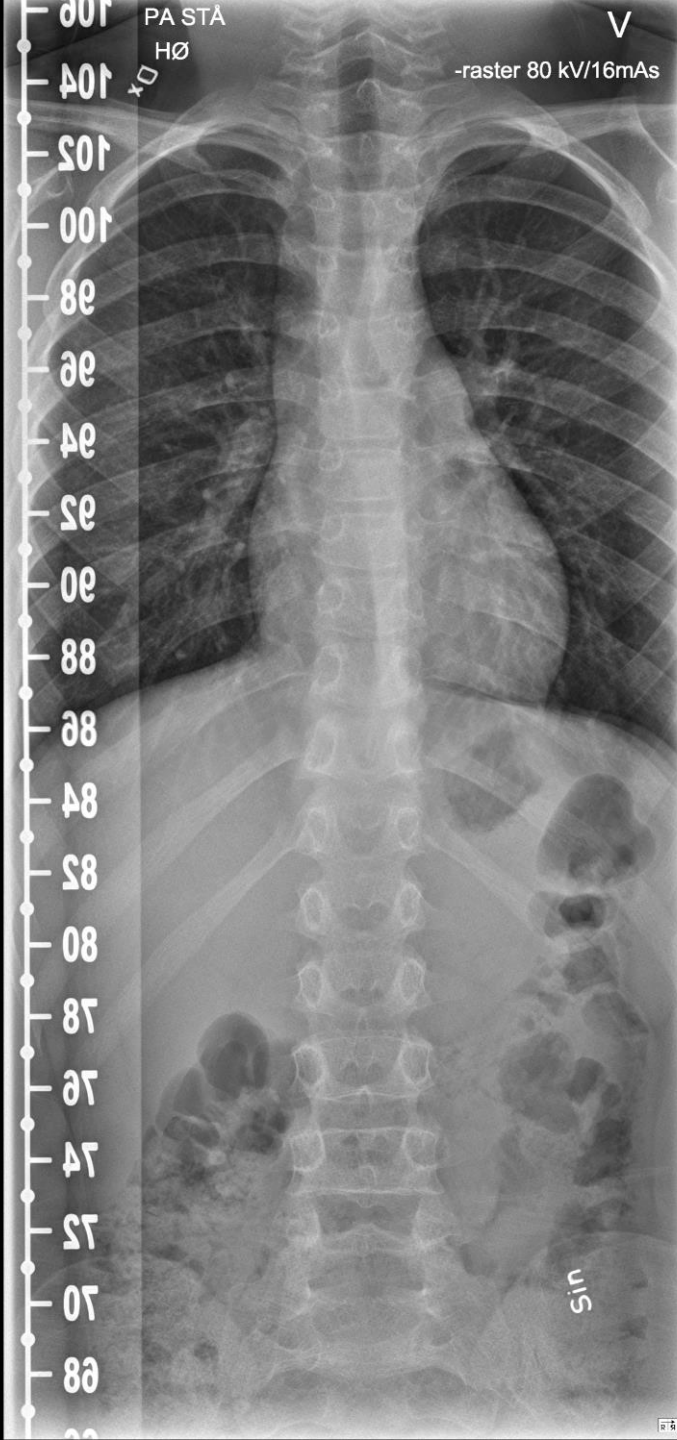


Cervikal lordose
(Sekundær)

Thorakal kyfose
(Primær)

Lændelordose
(Sekundær)

Sakral kyfose
(Primær)



Th4-Th12:
37° (30°-50°)

Normal område
for torakal
kyfose og
lændelordose

L1-L5:
43° (14°-69°)

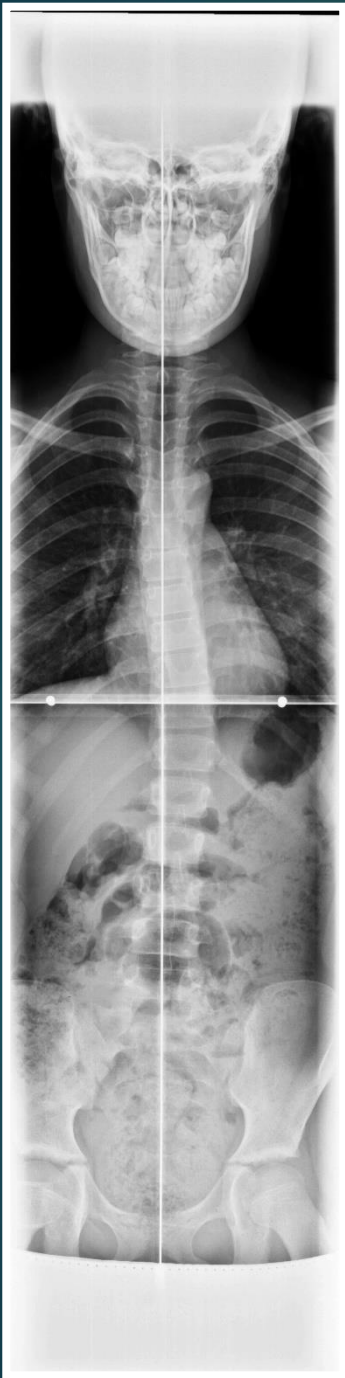
Stå

VE

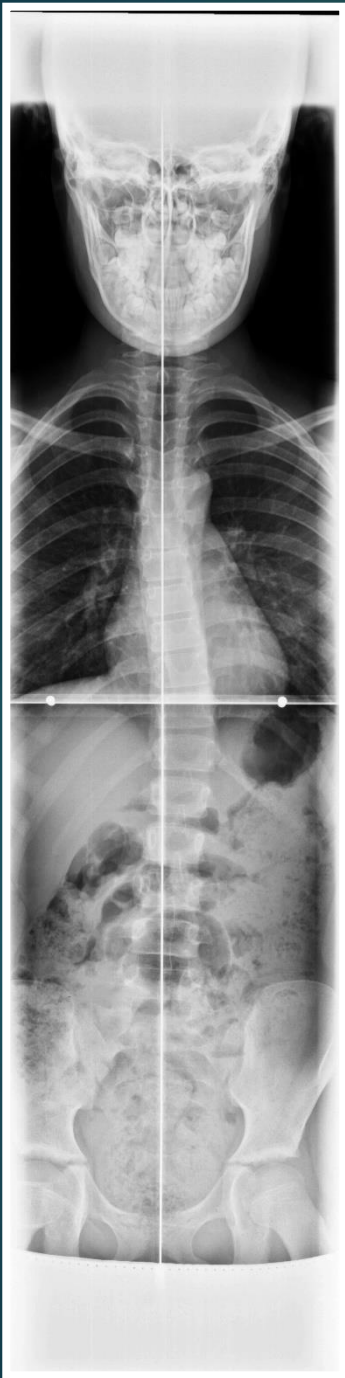
-raster 85kV/20mAs



Columna vertebralis:
Skolioser
(Scoliosis: gr. krumning)

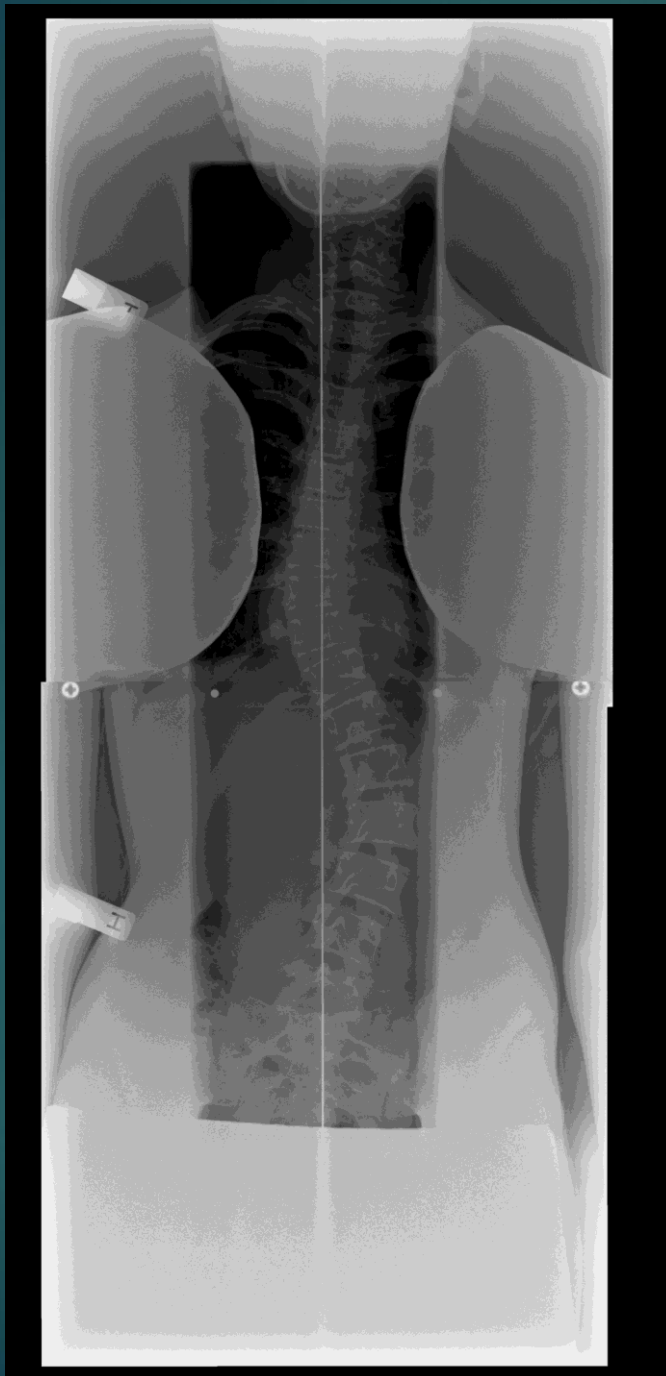


11-årig pige med let idiopatisk
skoliose



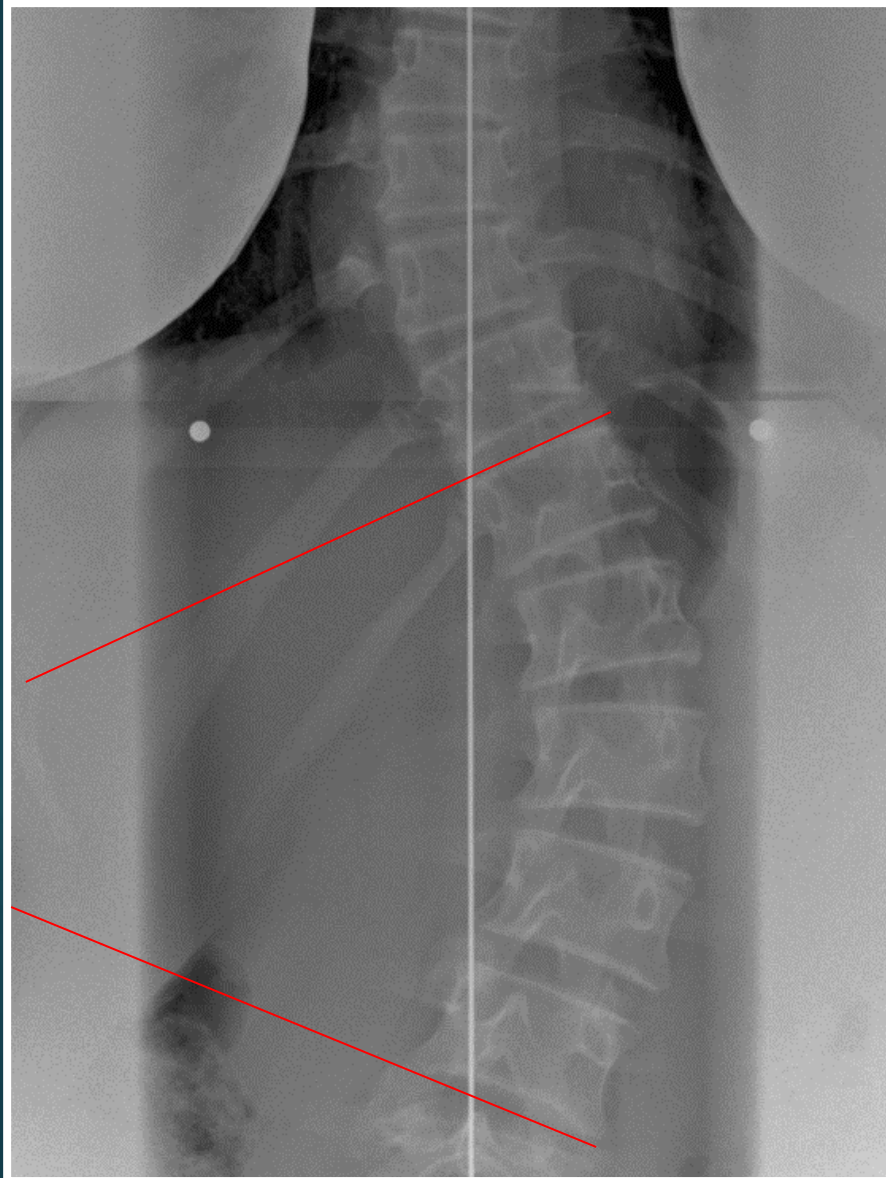
11-årig pige med let idiopatisk skoliose

Idiopatisk: Lidelse der optræder selvstændigt uden påviselig afhængighed af andet eller overhovedet uden påviselig årsag. Hvis der f.eks. var anisomeli (forskellig benlængde), ville der være en årsag til skoliosen. En anden årsag kunne være et hemivertebræ.

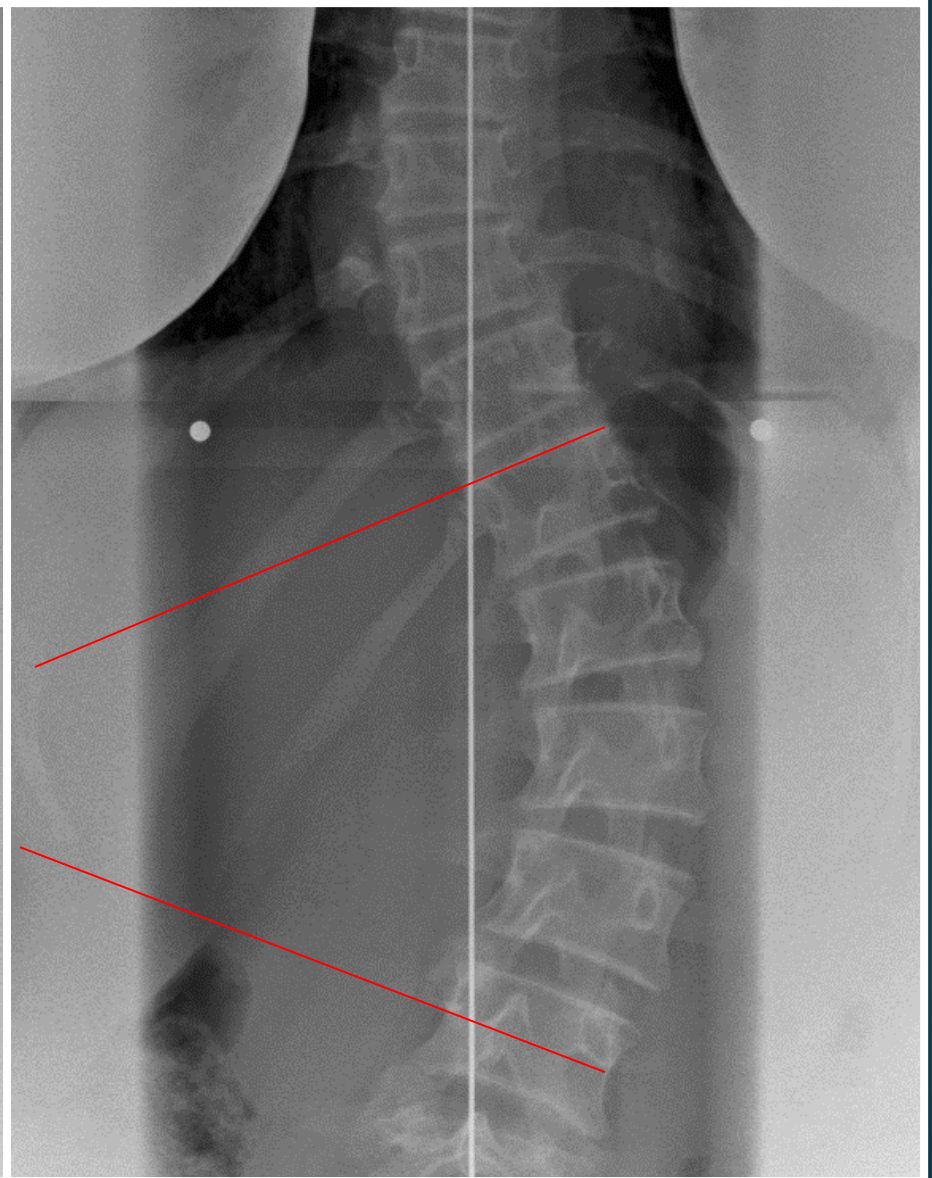


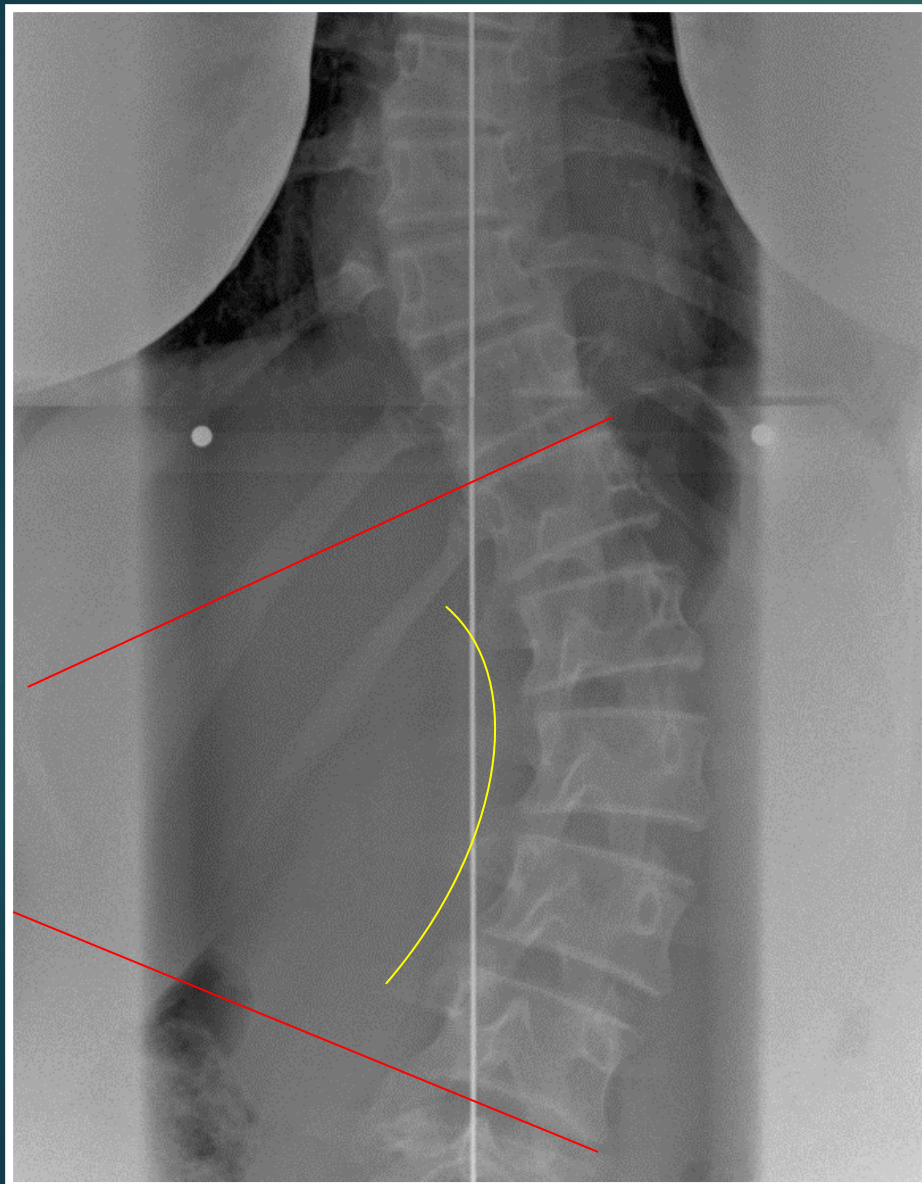
Skolioseudmåling ad
modum Cobb

Dækpladen



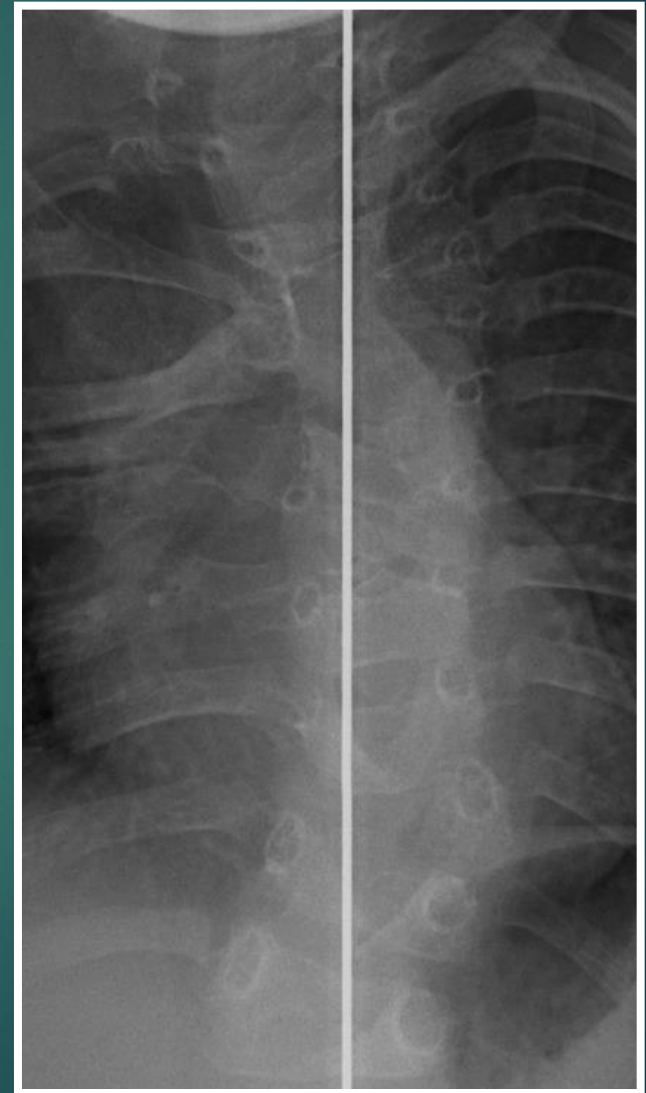
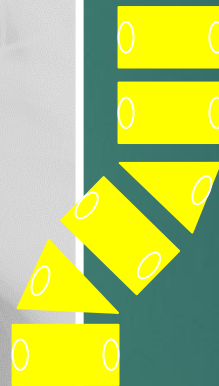
Pediklerne



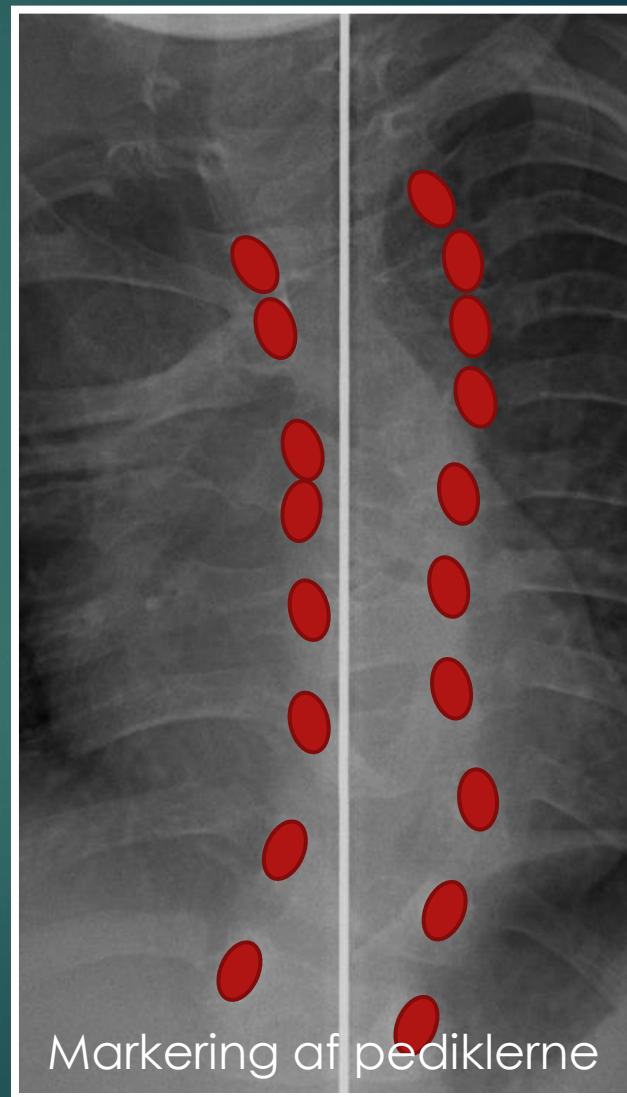
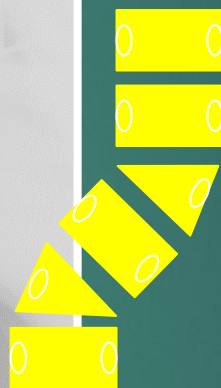


Ved skolioseudmåling benyttes dækpladerne på de hvirvler, der vender ind i konkaviteten. Såfremt der er en kraftig rotation og det er svært at se dækpladerne, kan det være nødvendigt, at benytte pediklerne i stedet. I tilfælde med ekstrem rotation, må estimeres en linie vinkelret på columnas længdeakse.

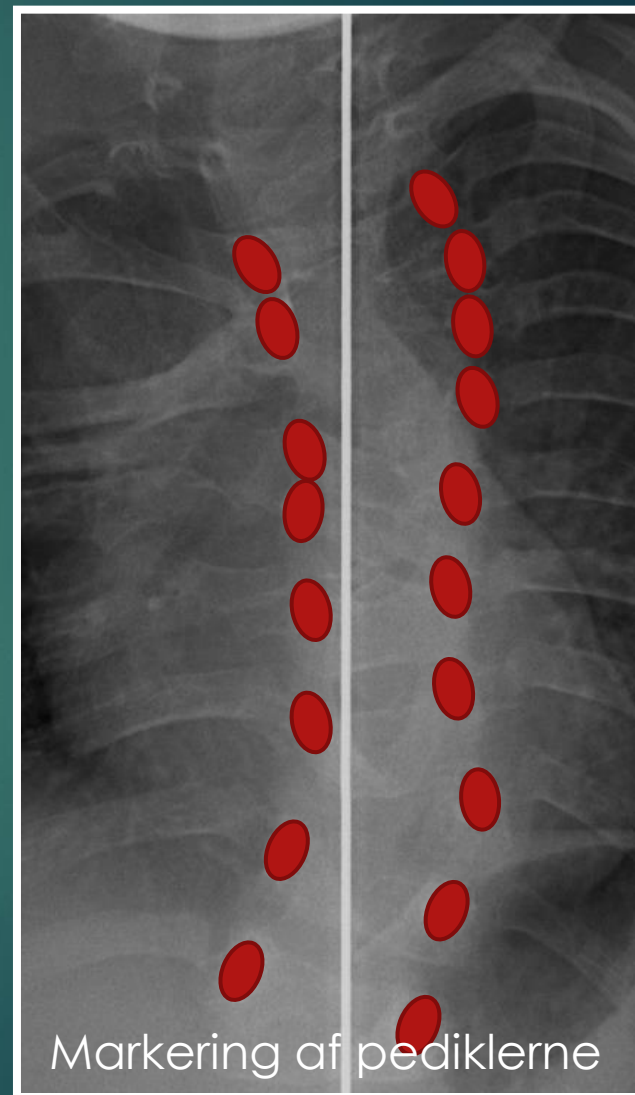
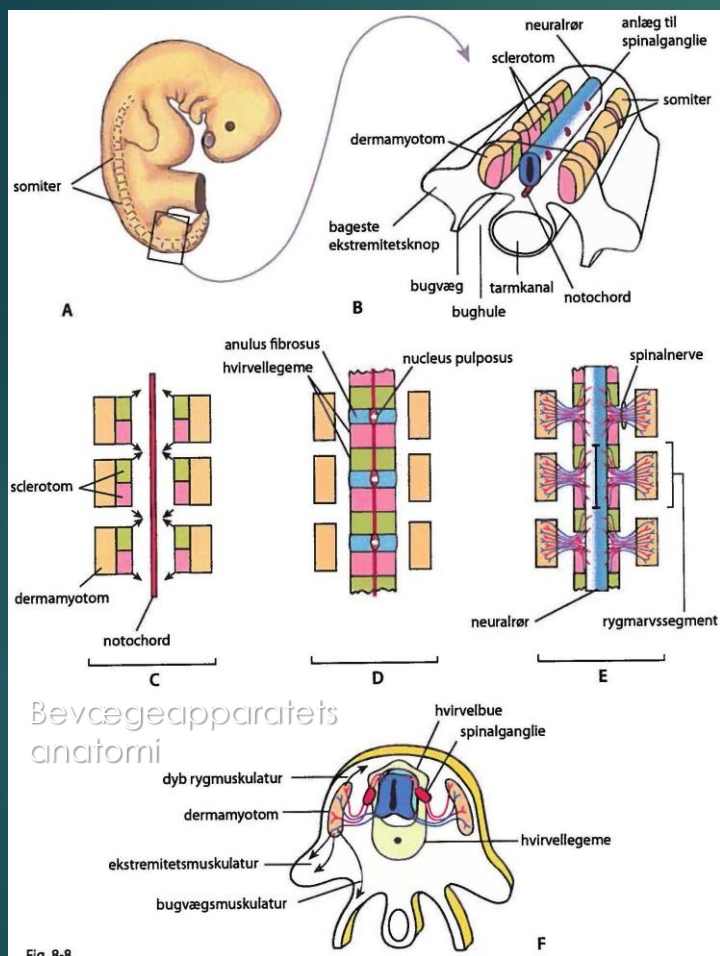
Strukturel skoliose: Hemivertebrae (Kongenit malformation)



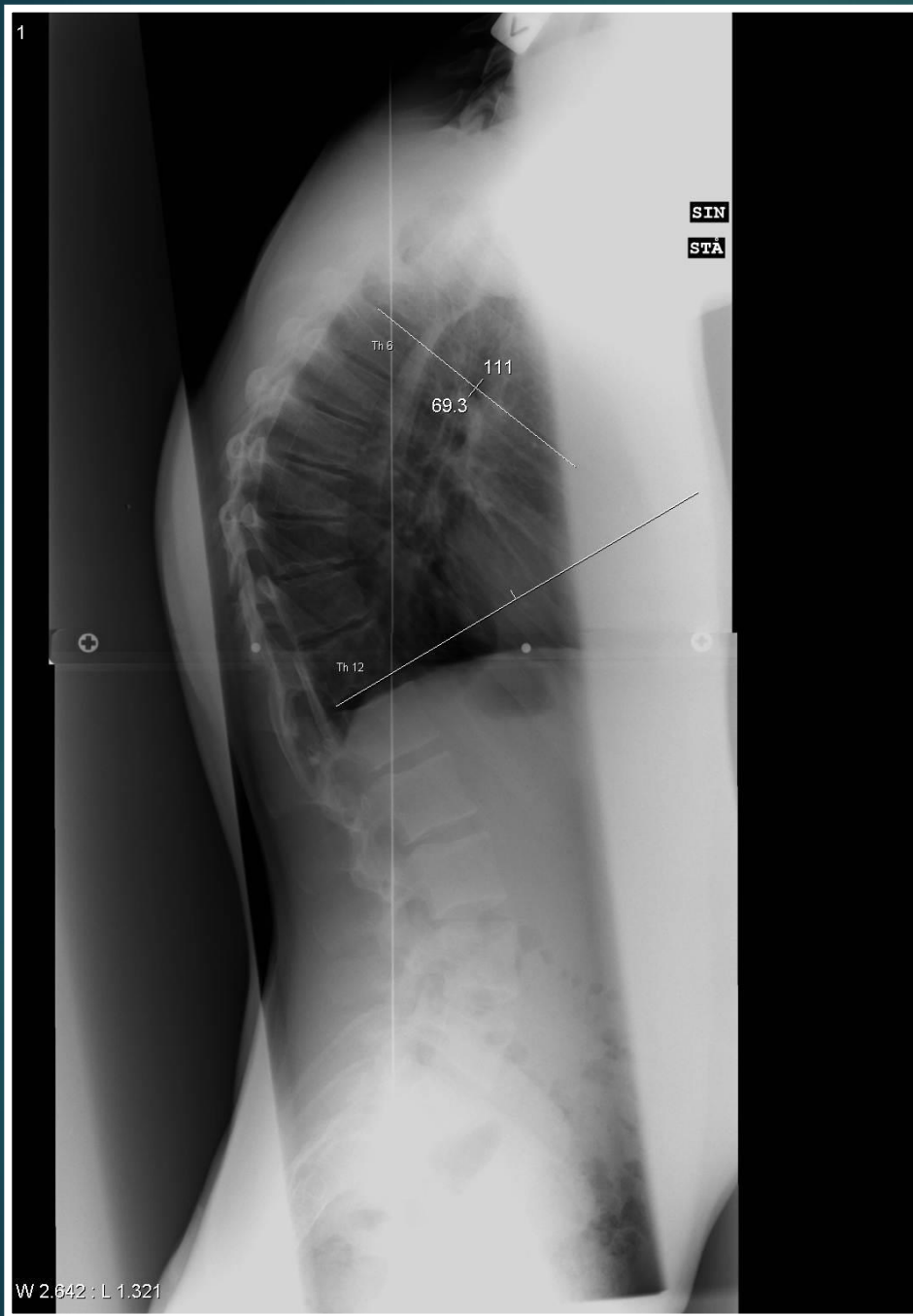
Strukturel skoliose: Hemivertebrae (Kongenit malformation)



Strukturel skoliose: Hemivertebrae (Kongenit malformation)



For at forstå misdannelserne, skal man tænke på hvirvlernes embryologiske udvikling



Mb. Scheuermann med
øget thoracal kyfose
(Kyfoskopiose)



Morbus Scheuermann (Scheuermanns sygdom).

Dækpladerne ses uregelmæssige, og diskus hernierer ("buler") ind i disse. Hvirvlerne får kileform, og patienten får en mere eller mindre udtalt af den thoracale kyfose, også kaldet en kyfoskopiose.

Mb. Scheuermann med
øget thoracal kyfose
(Kyfoskopiose)





Columna vertebralis

UDVIKLING



6 mdr. gammel
pige.





6 mdr. gammel
pige.

Arcus anterior atlantis er
endnu ikke ossificeret hos
dette barn



C1

C2

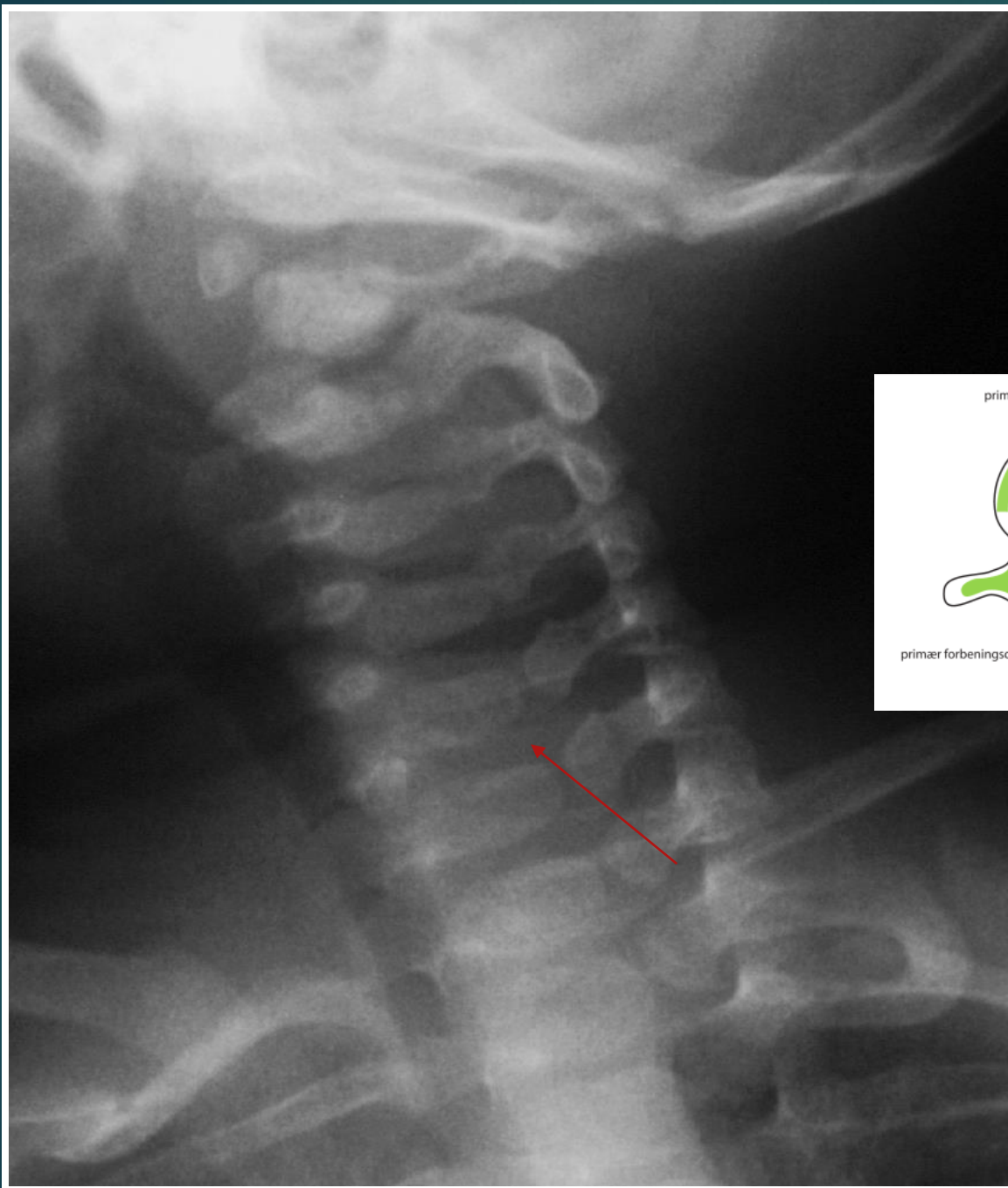
C3

C4

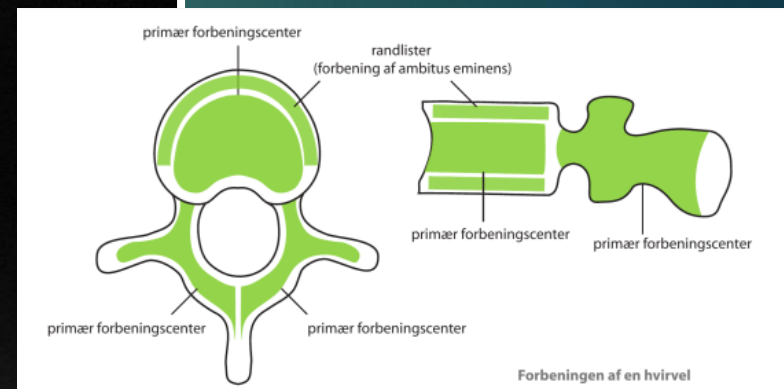
C5

Dens axis endnu ikke
fusioneret med corpus af
C2





7 mdr. gammel
pige.

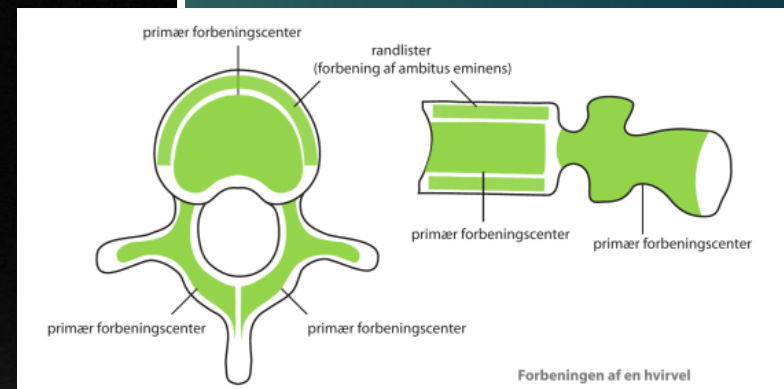


Bevægeapparatets anatomi, 13. udg.

7 mdr. gammel
pige.

Der er endnu en
synchondrose mellem
de primære
ossifikations centre.
Denne er af brusk, og
kan ikke ses på
røntgenbilleder

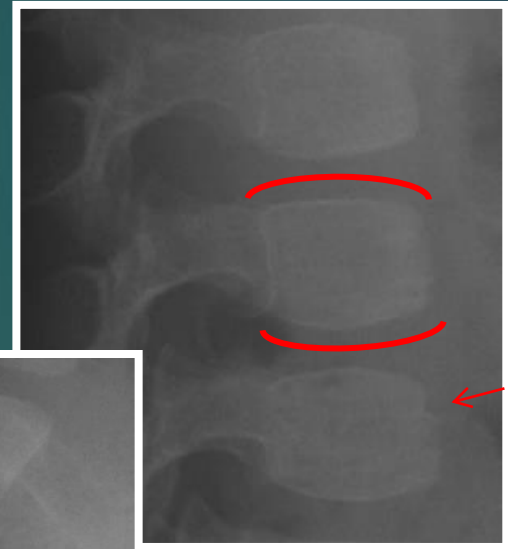
Arcus
Corpus



Bevægeapparatets anatomi, 13. udg.



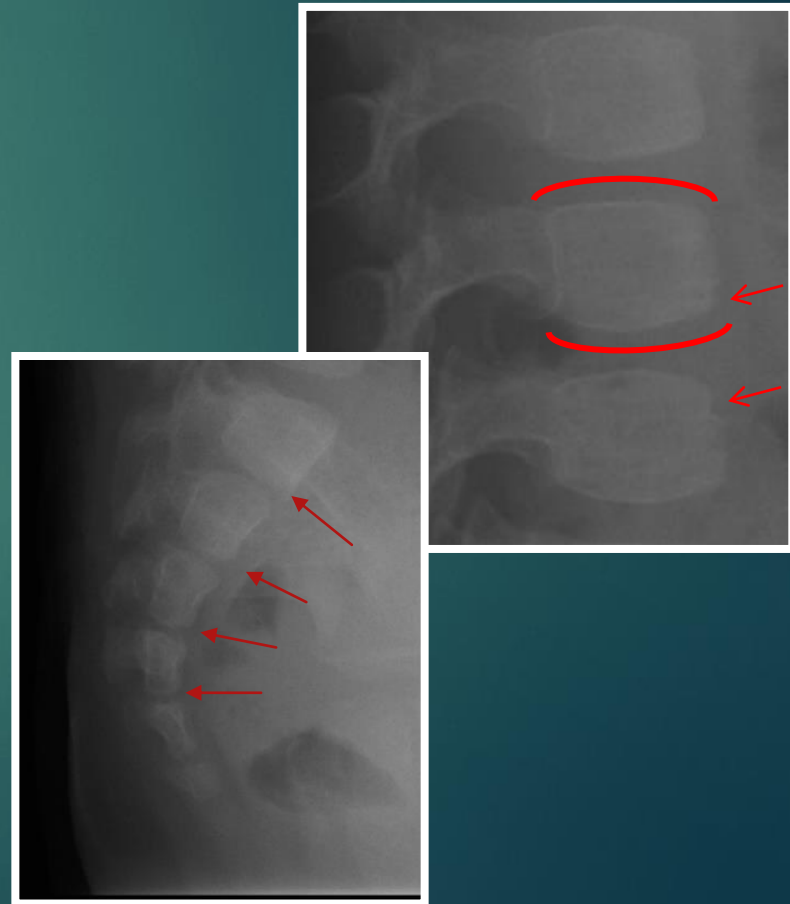
2-årig dreng.



2-årig dreng.

Bemærk de bikonvekse hvivler. Endvidere ses trappetrinskonfiguration svarende til forkanten af hvirvellegemerne. Dette er normalt i denne alder.

De enkelte segmenter i os sacrum er endnu ikke fusionerede (men forbunden med brusk).





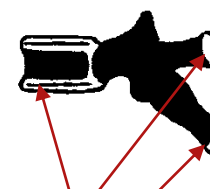
Pige
8 år



Ossifikationscentre

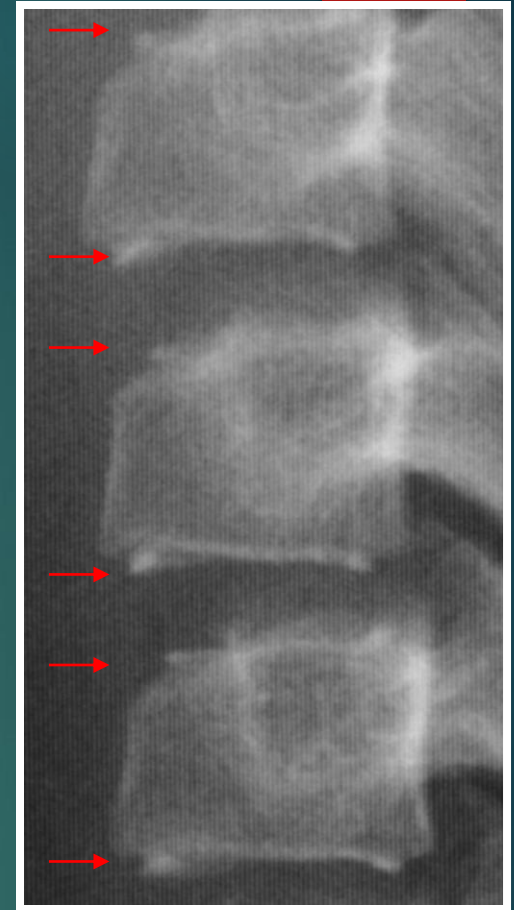
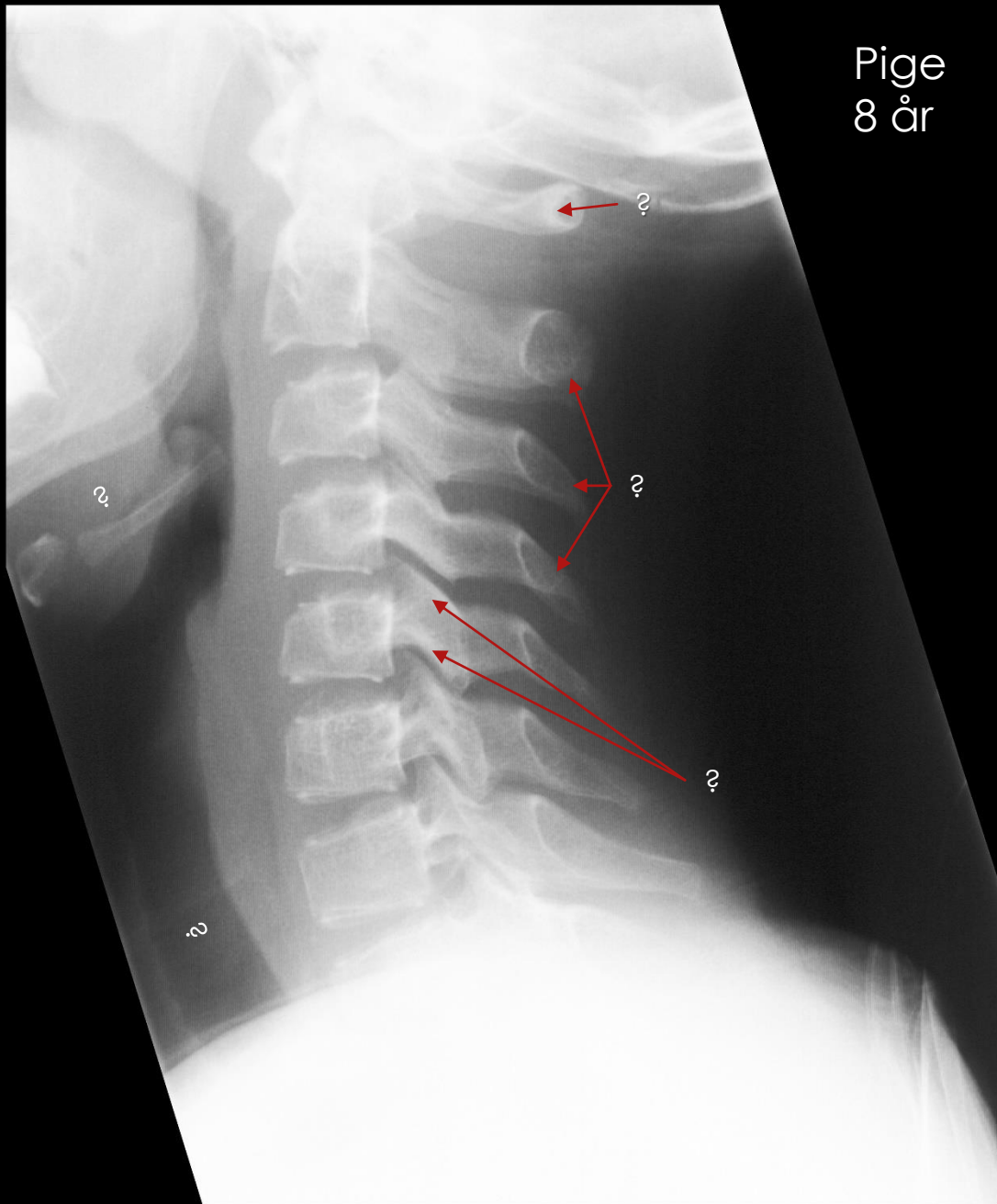


Primære



Sekundære

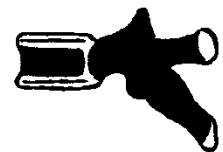
Pige
8 år



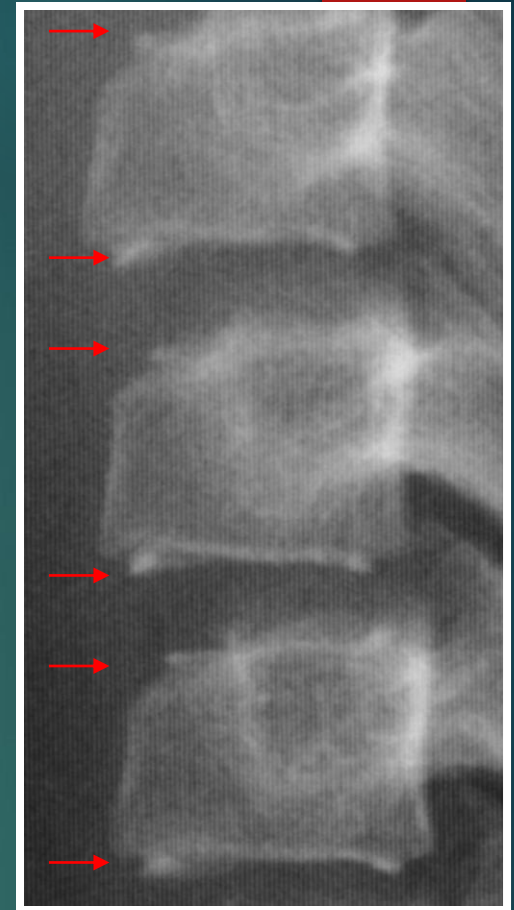
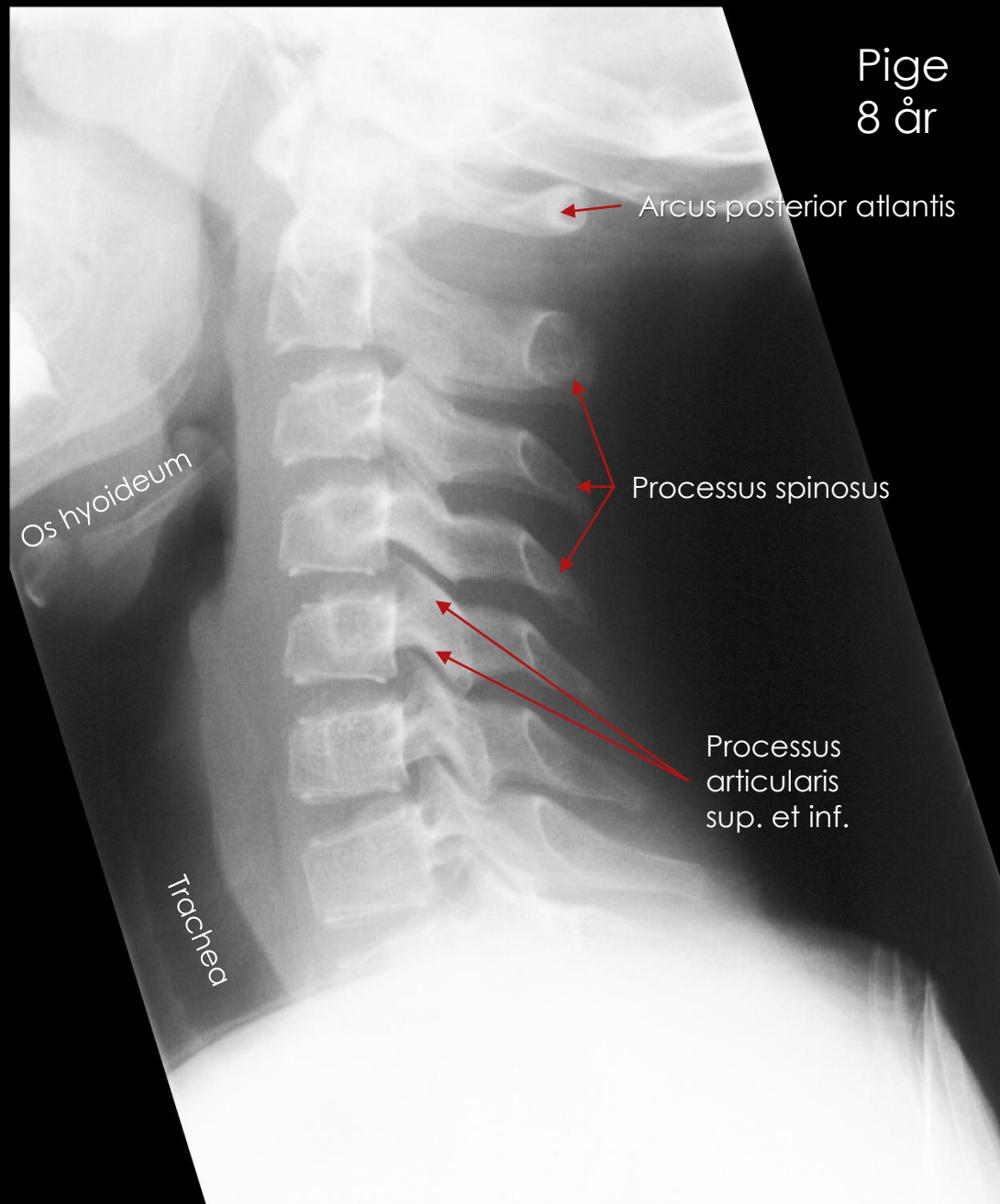
Ossifikationscentre



Primære

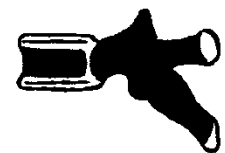


Sekundære



Primære

Ossifikationscentre



Sekundære



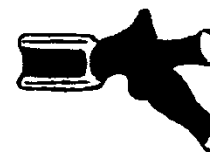
Dreng
16 år



Ossifikationscentre



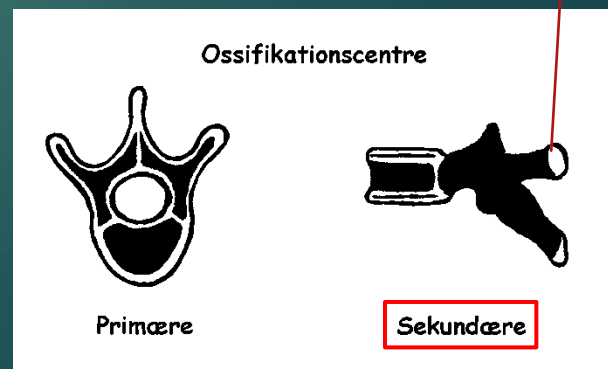
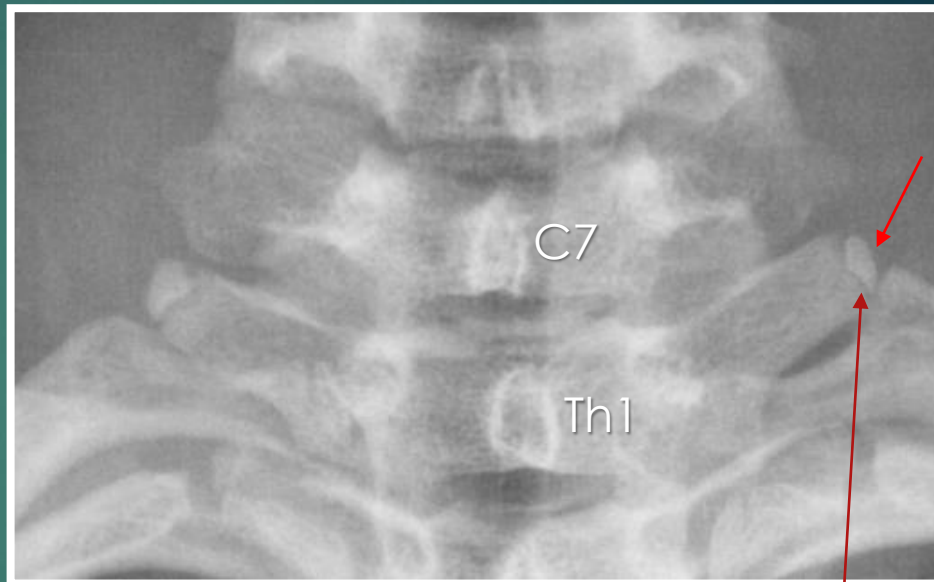
Primære

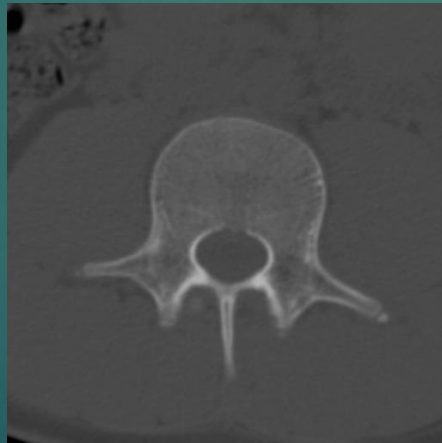
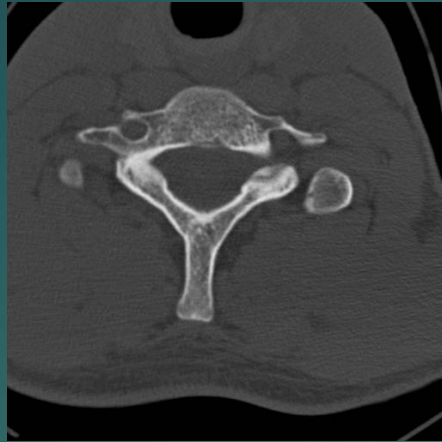


Sekundære



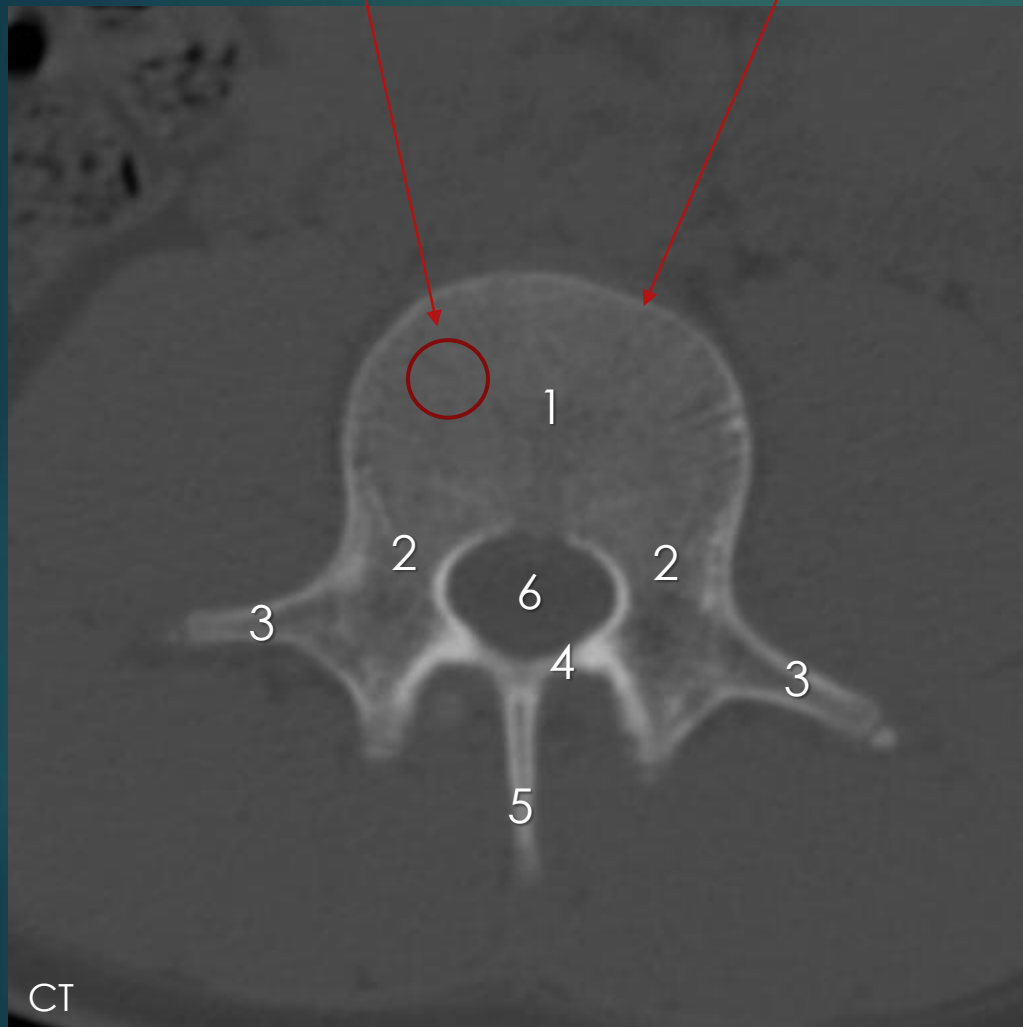
Dreng
16 år







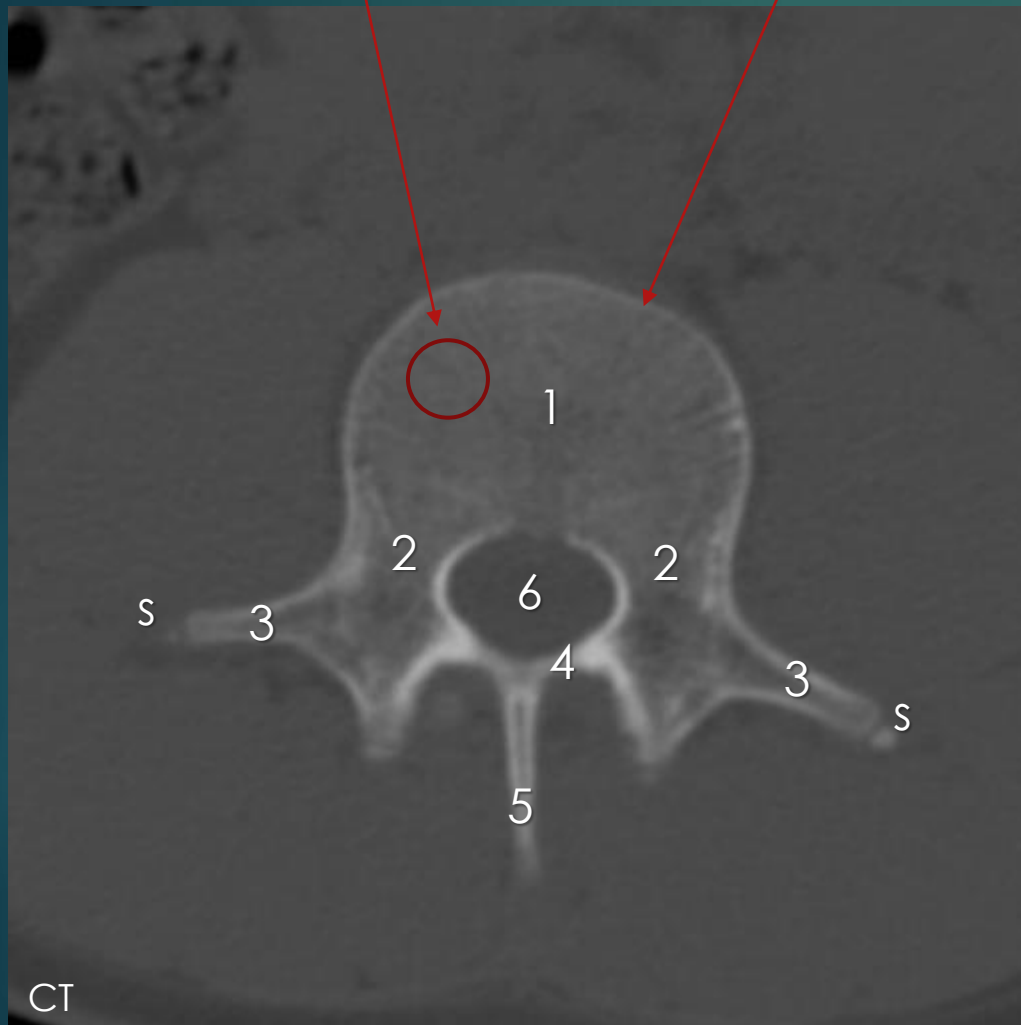
Dreng på 13½ år. Lumbal hvirvel.



Dreng på 13½ år. Lumbal hvirvel.

Spongiosa

Corticalis

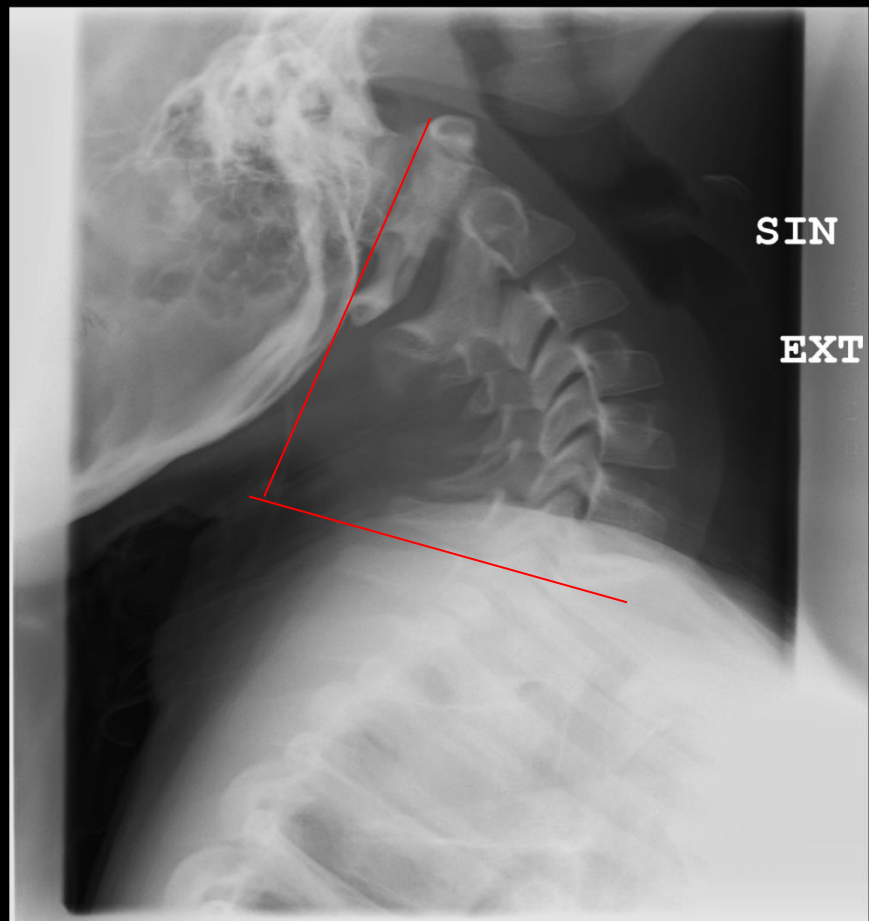


Corpus vertebrae (1)
Pediculus arcus vertebrae (2)
Processus transversus (3). Helt lateralt ses, især på venstre side, de sekundære (s) ossifikations centre.
Lamina arcus vertebrae (4)
Processus spinosus (5)
Foramen vertebrale (6)

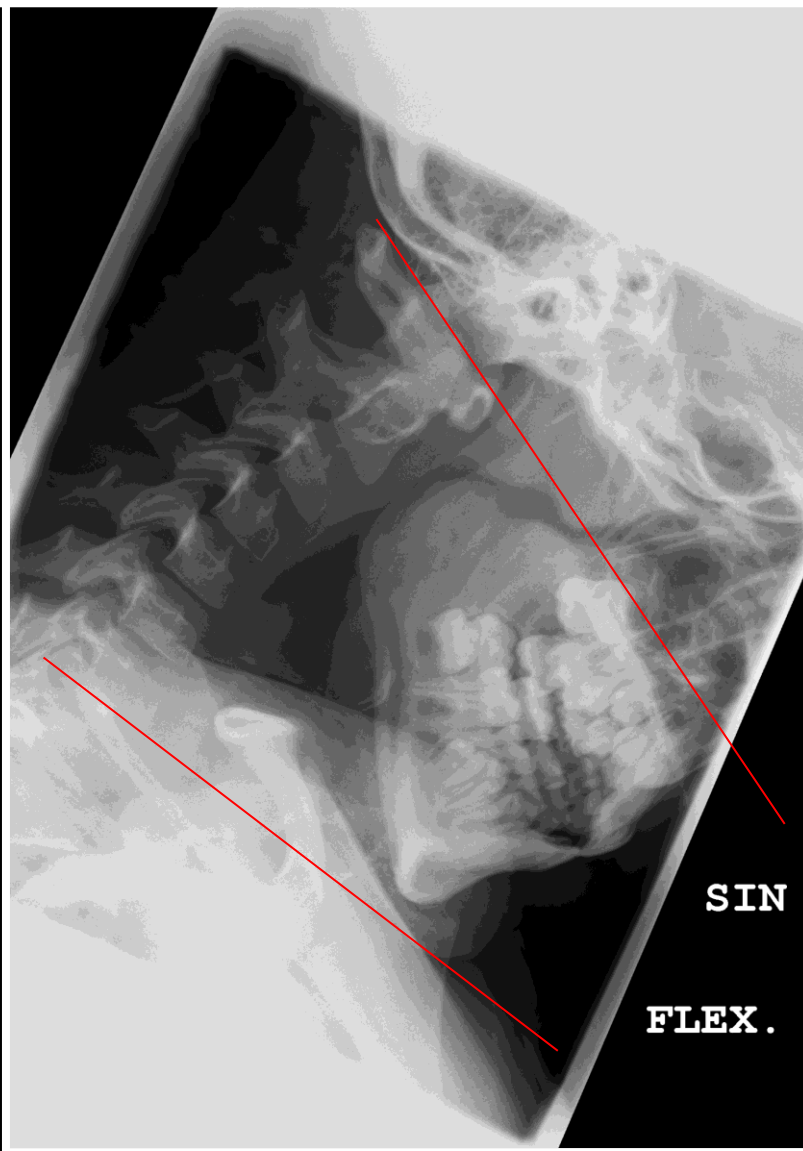
Dreng på 13½ år. Lumbal hvirvel.

Columna cervicalis

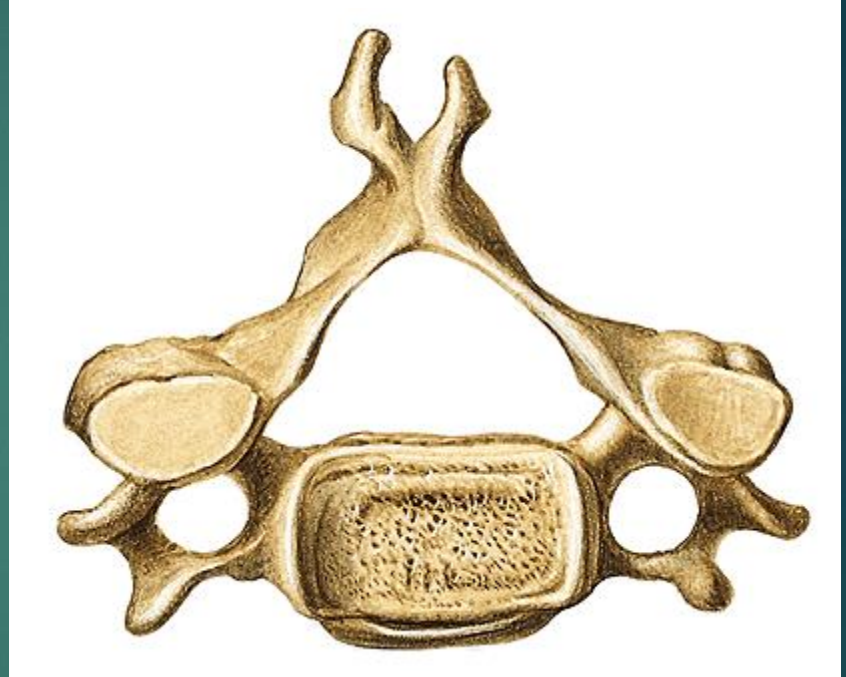


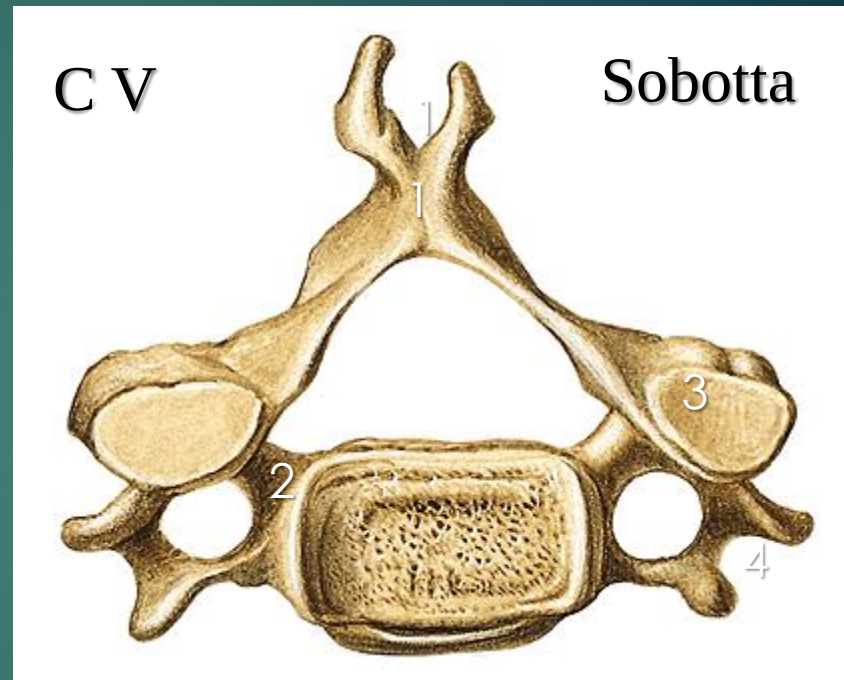
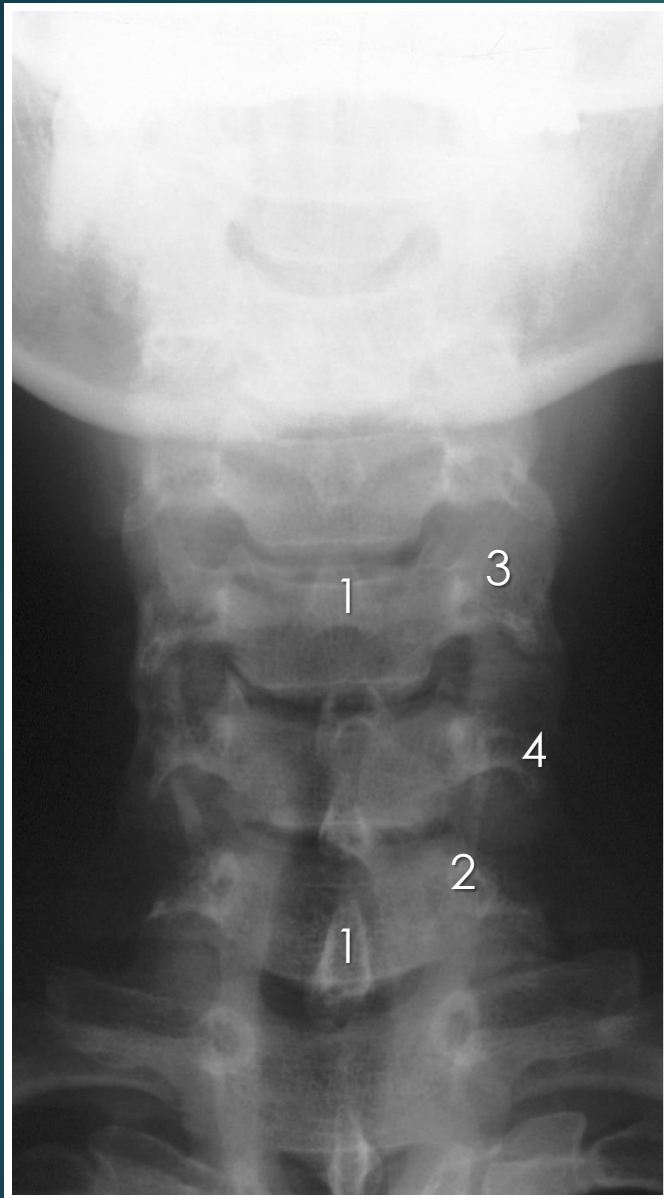


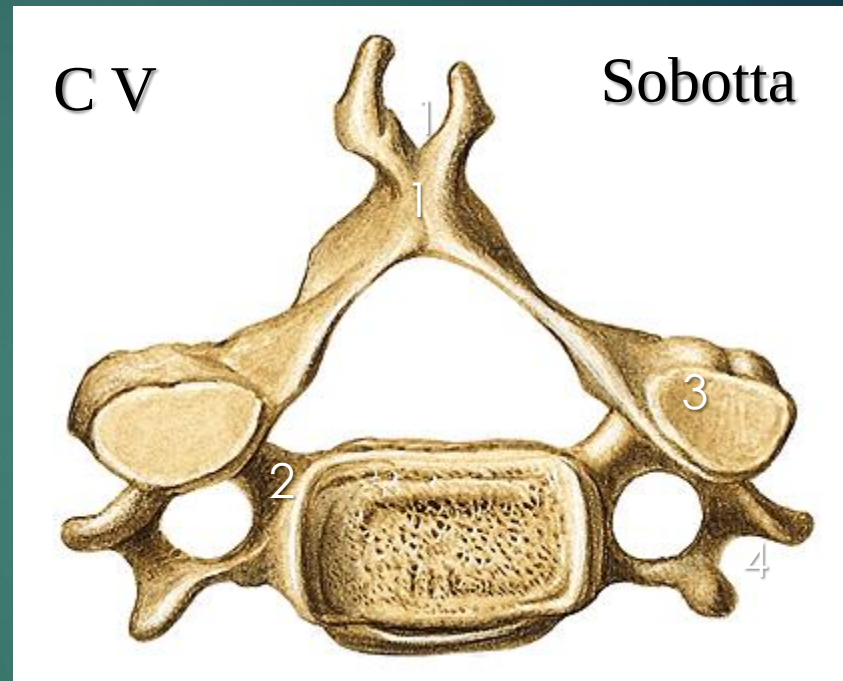
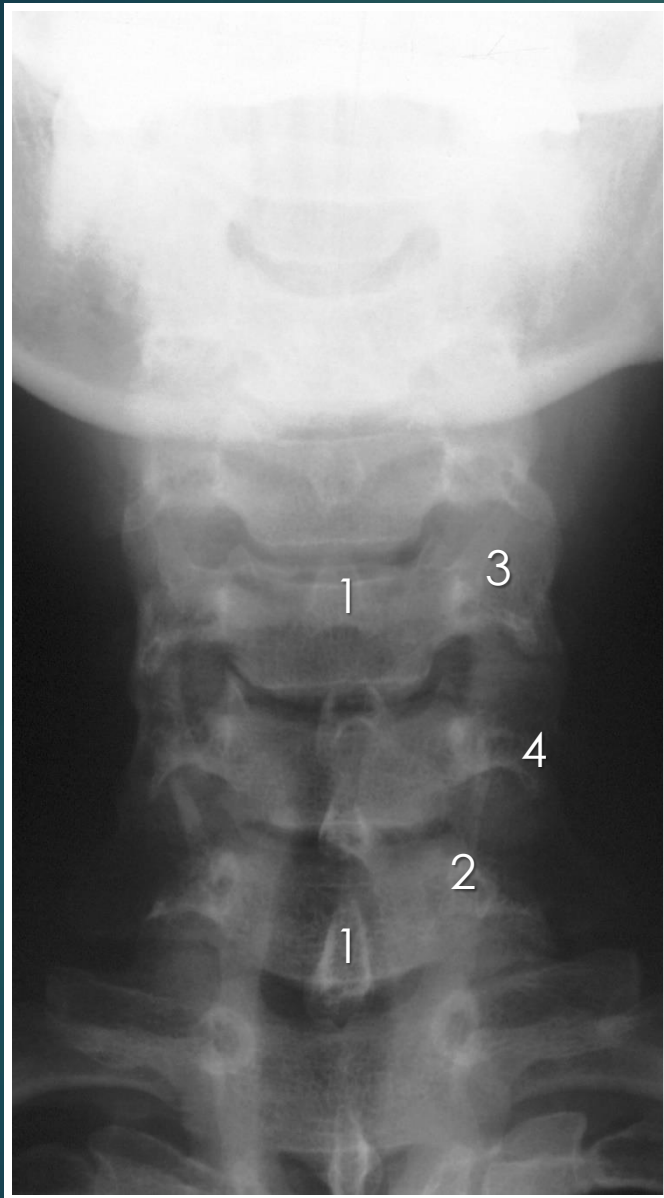
W 2.642 : L 1.321



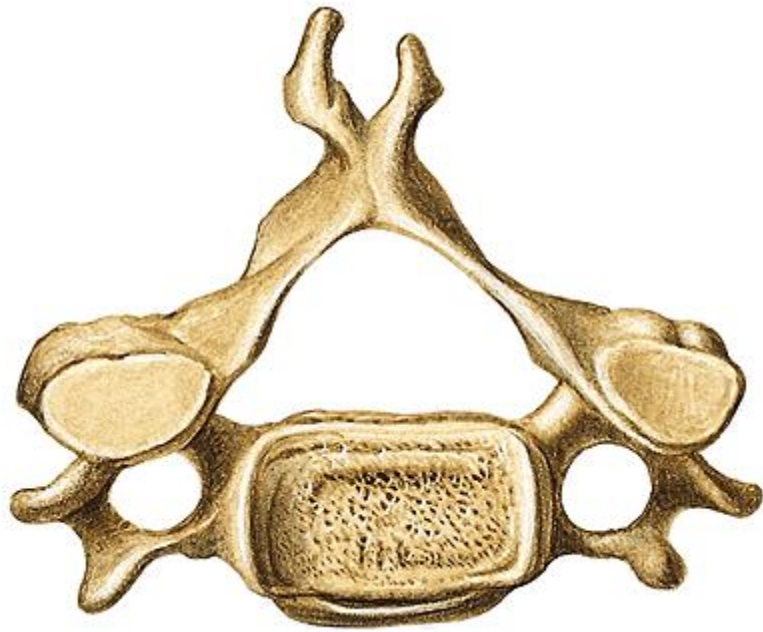
Pige, 8 år

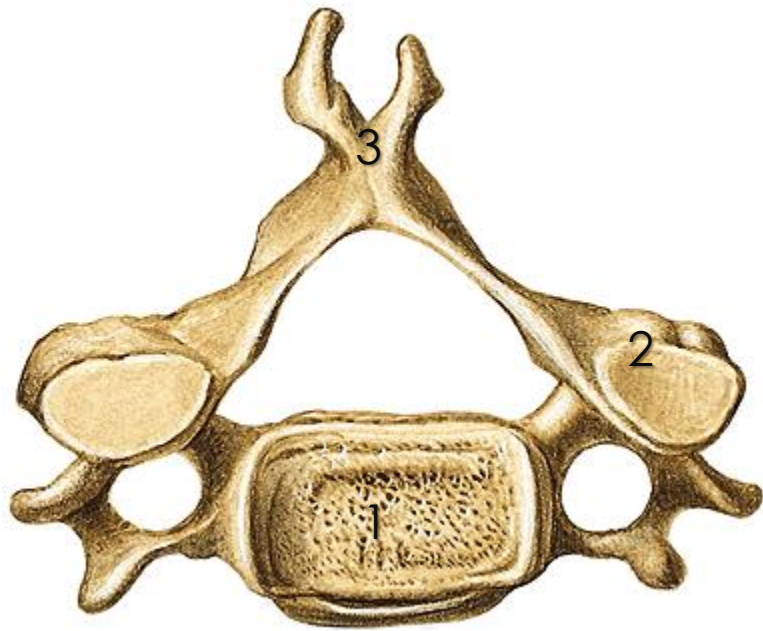






- 1) Processus spinosus
- 2) Pediculus
- 3) Processus articularis (inf. et sup.)
- 4) Processus transversus

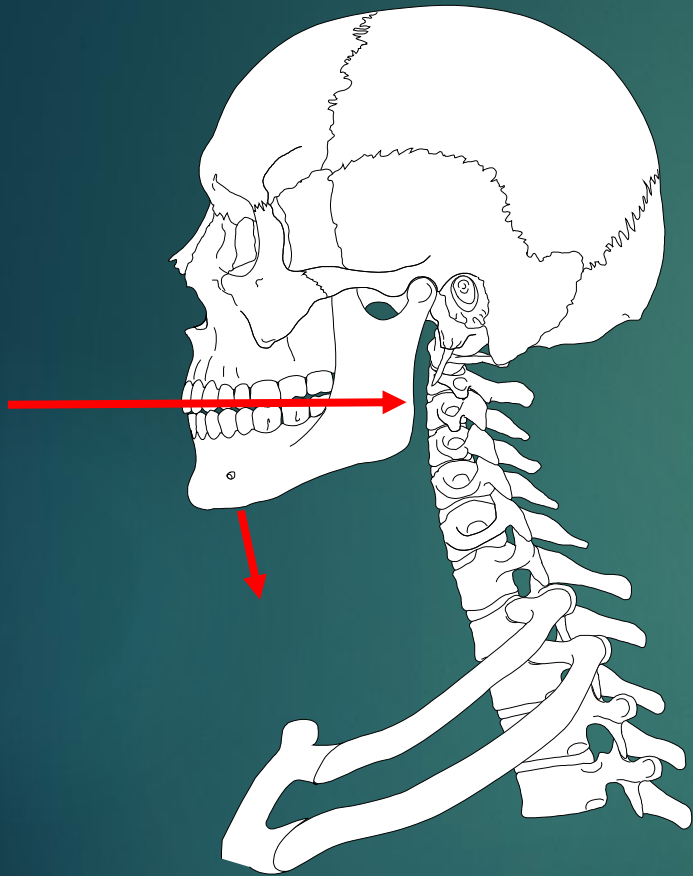




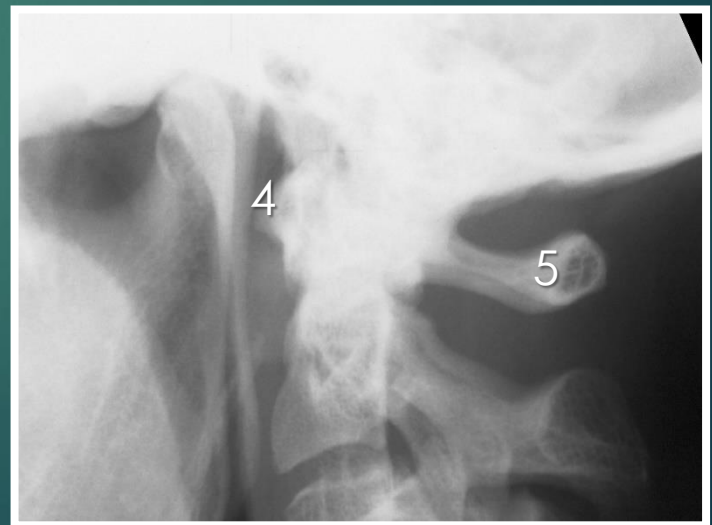
- 1) Corpus vertebrae C V
- 2) Articulatio zygapophysialis (Facetted)
- 3) Processus spinosus vertebrae C IV
- 4) Discus intervertebralis C VI/VII



Densoptagelse



Densoptagelse



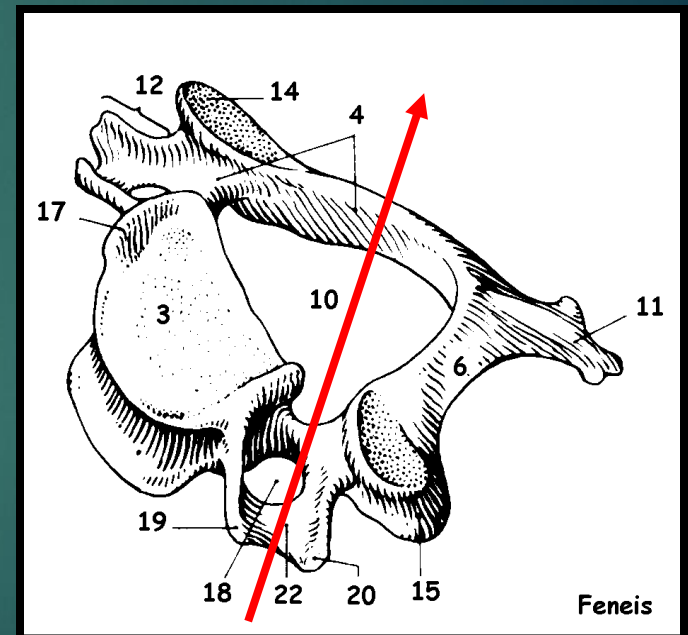
- 1) Dens axis
- 2) Massa lateralis atlantis
- 3) Processus transversus C1
- 4) Arcus anterior atlantis
- 5) Arcus posterior atlantis



CT 3D

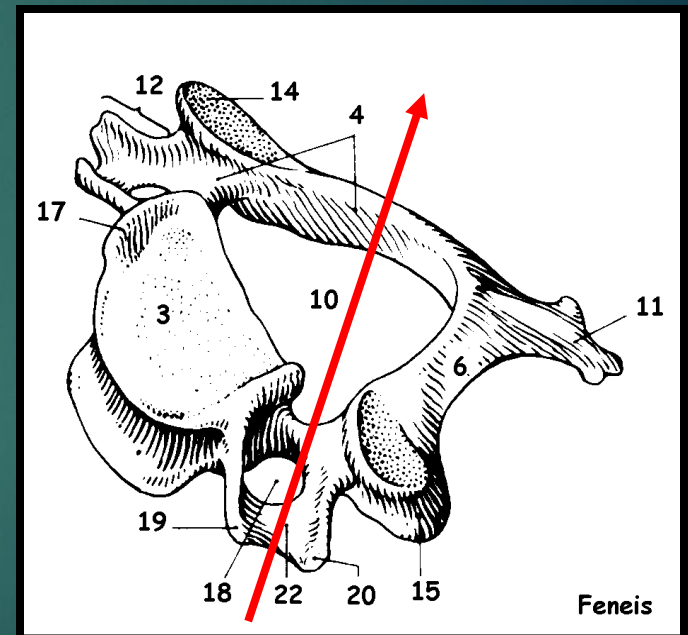


Skråoptagelse af columna cervicalis



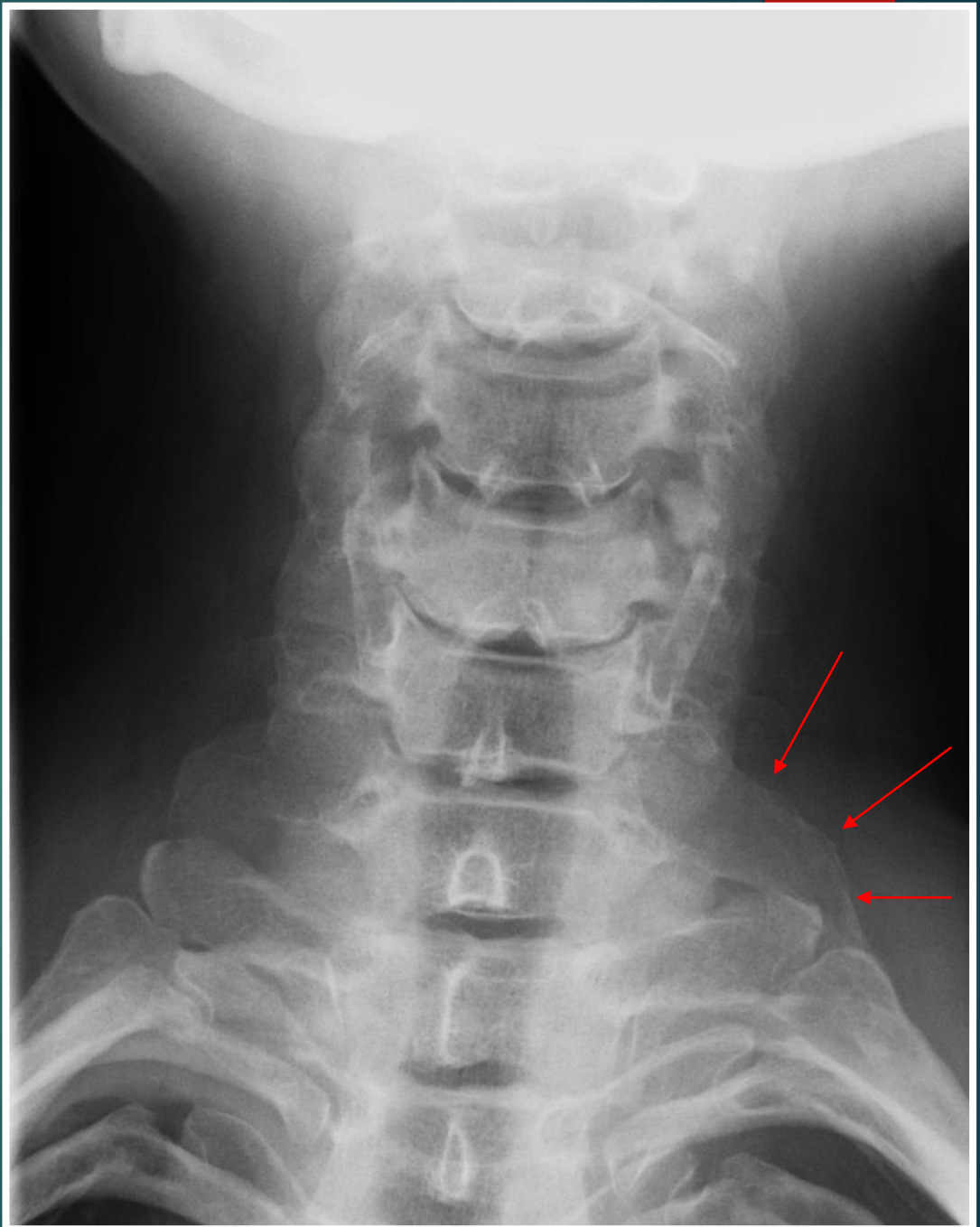
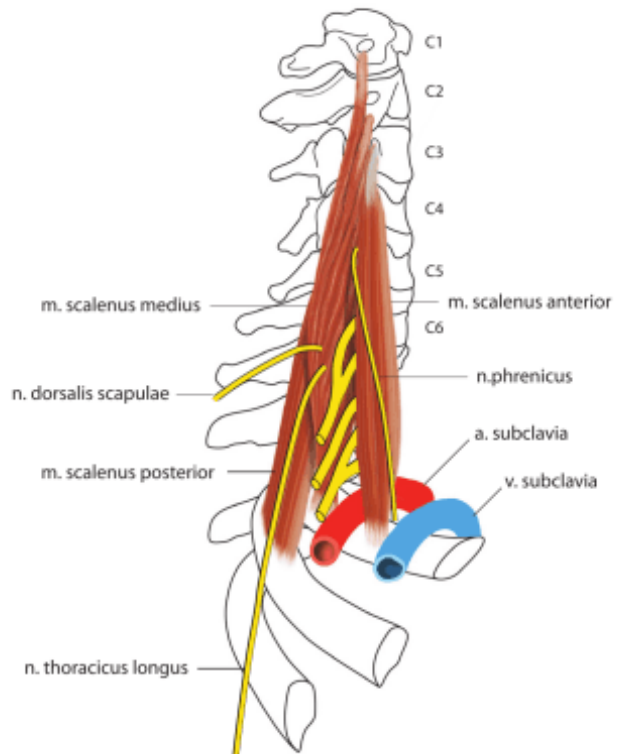


Skråoptagelse



- 1) Foramen intervertebrale
- 2) Pediculis arcus vertebrae
- 3) Lamina arcus vertebrae

Costa cervicalis





73-årig mand med
slidforandringer i cervikal columna

Sideoptagelse

SIN
STÅ

SIN
STÅ

21-årig kvinde til
sammenligning



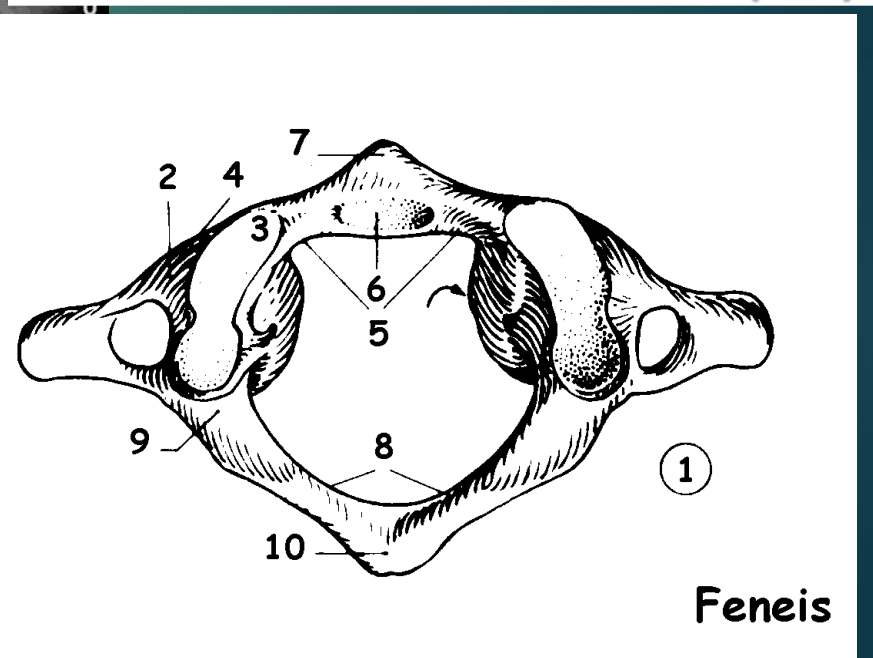
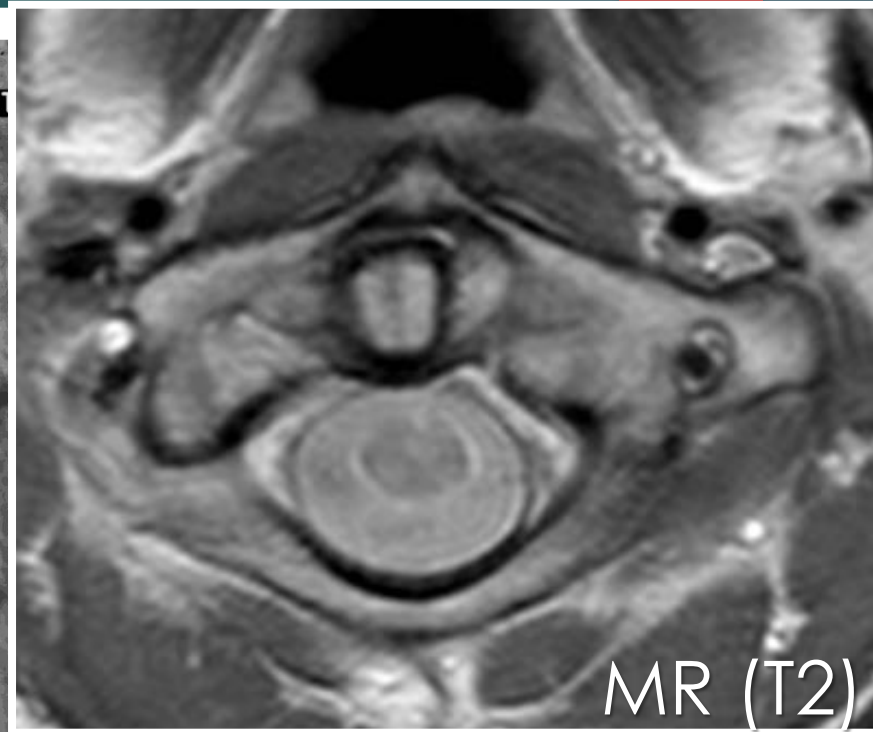
Yngre kvinde til
sammenligning

Skråoptagelse

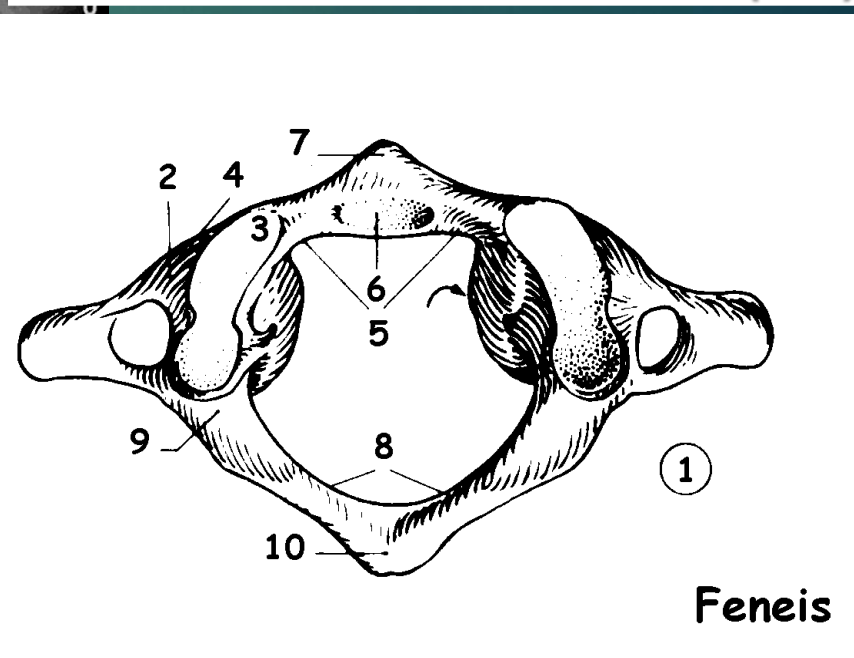
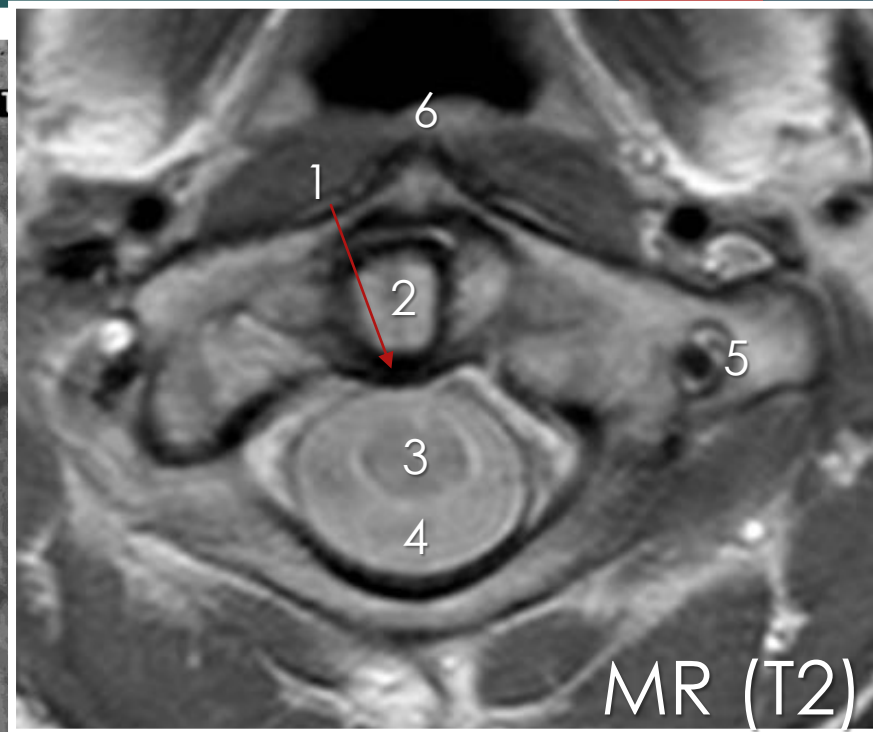
PA

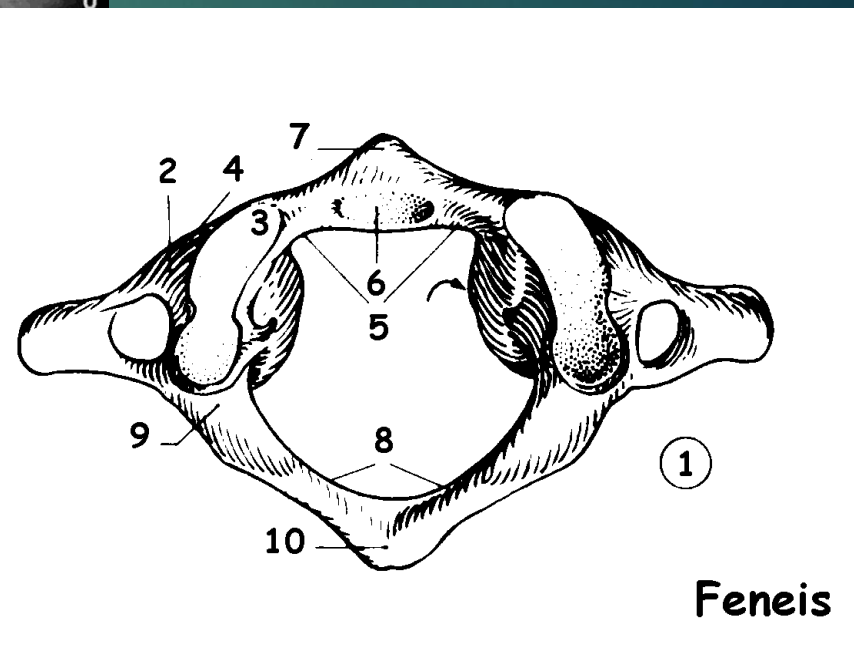
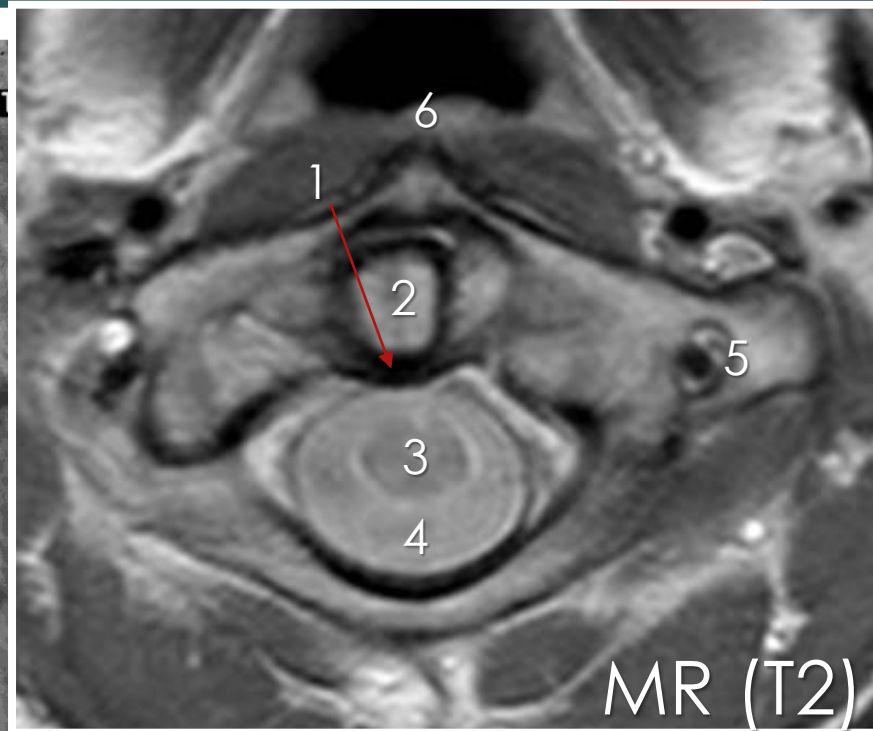
HØ
PA STÅ

37-årig kvinde til
sammenligning



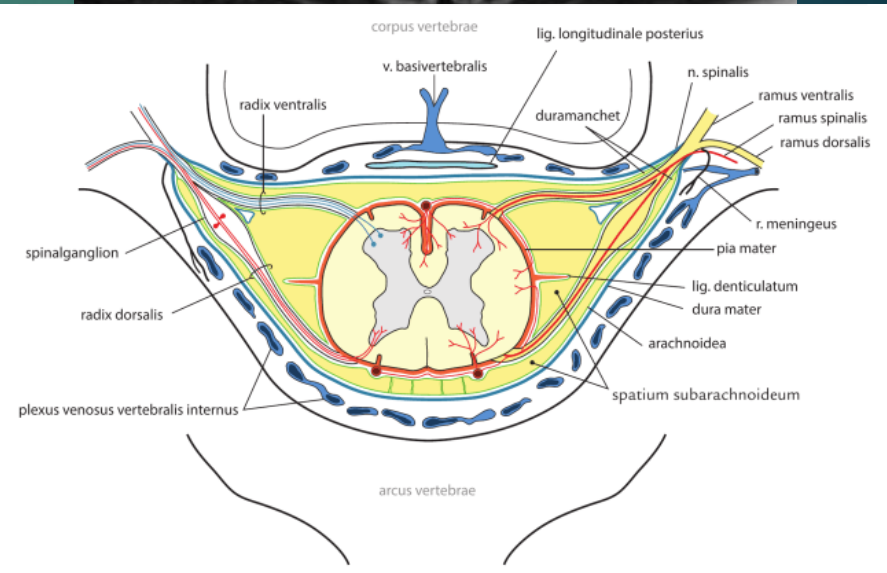
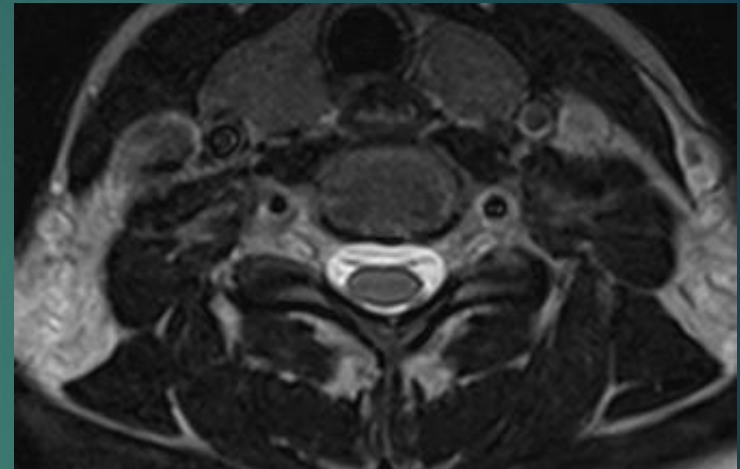
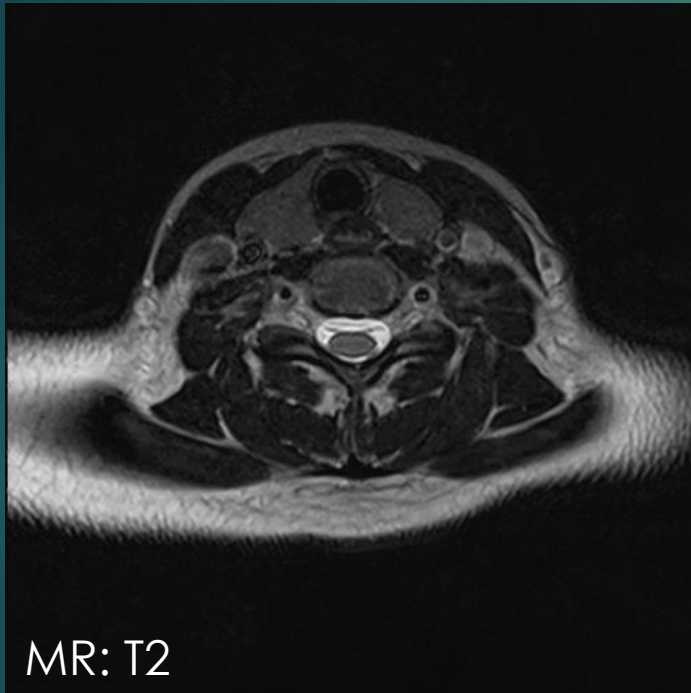
Atlas



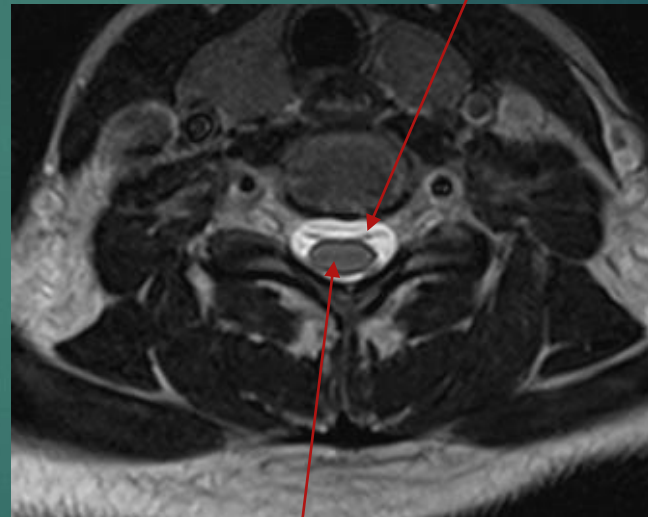
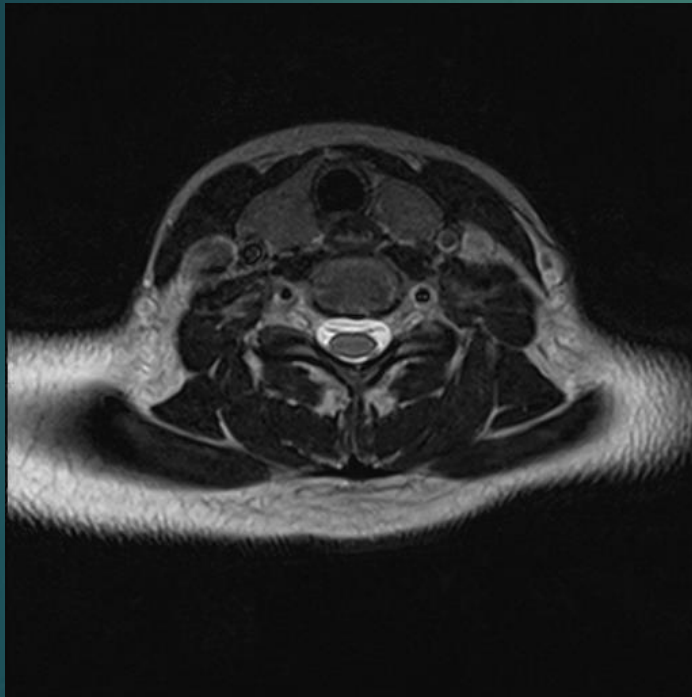


- 1) Ligamentum transversum atlantis
- 2) Dens axis
- 3) Medulla spinalis
- 4) Liquor cerebrospinalis
- 5) Foramen transversarium
- 6) Tuberculum anterius
- 7) Tuberculum posterius

MR of columna cervicalis



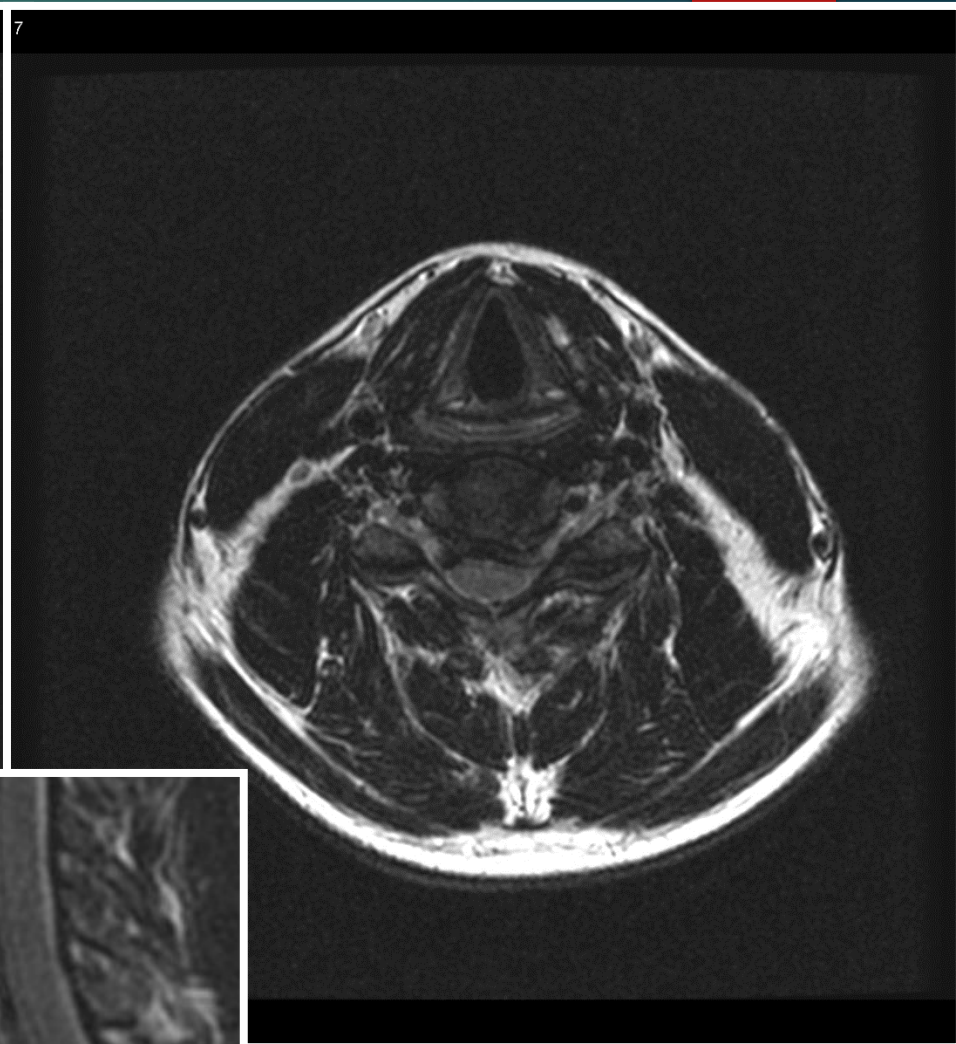
MR of columna cervicalis



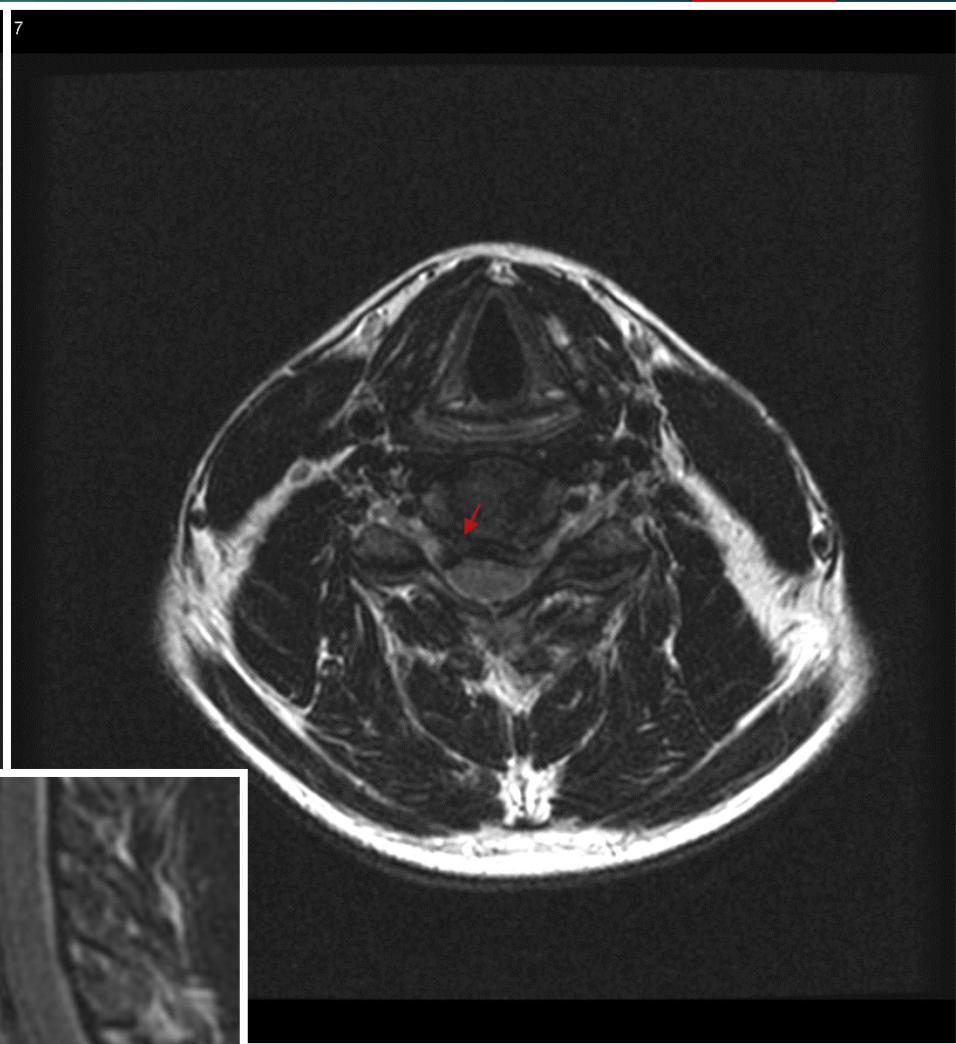
Fila radicularia

Medulla spialis

Cervikal discusprolaps på niveau C5/6



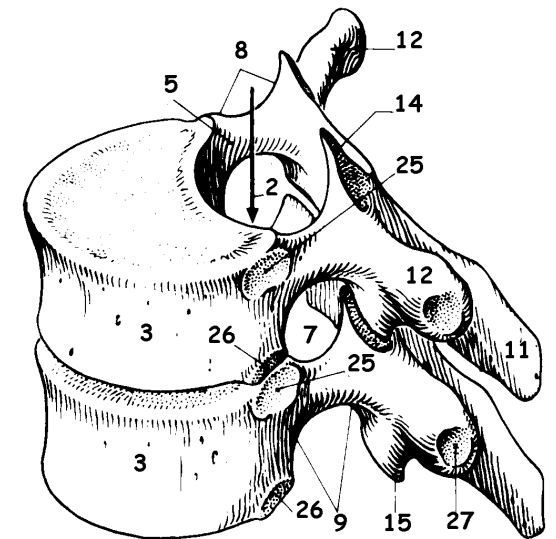
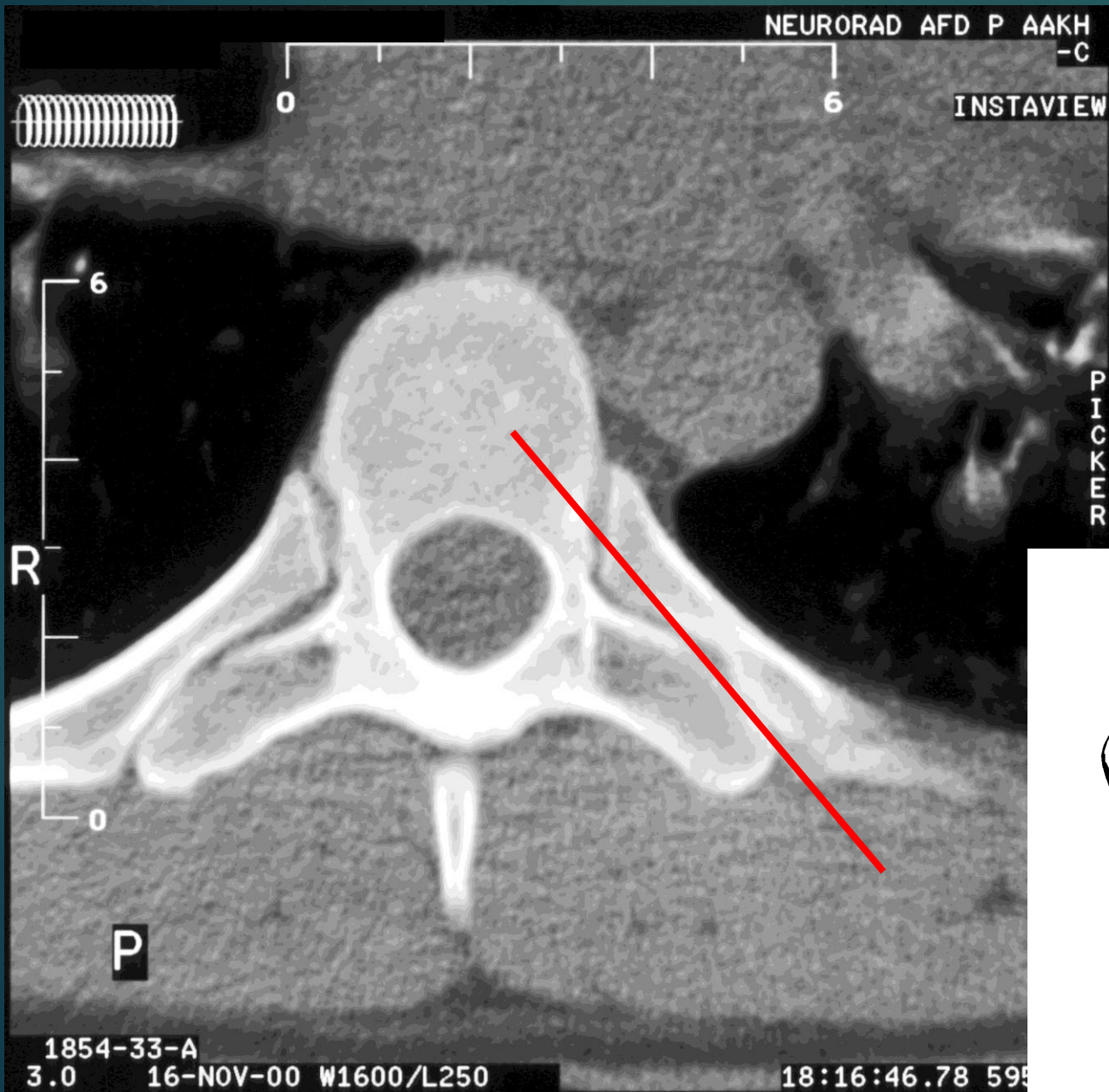
Cervikal discusprolaps på niveau C5/6



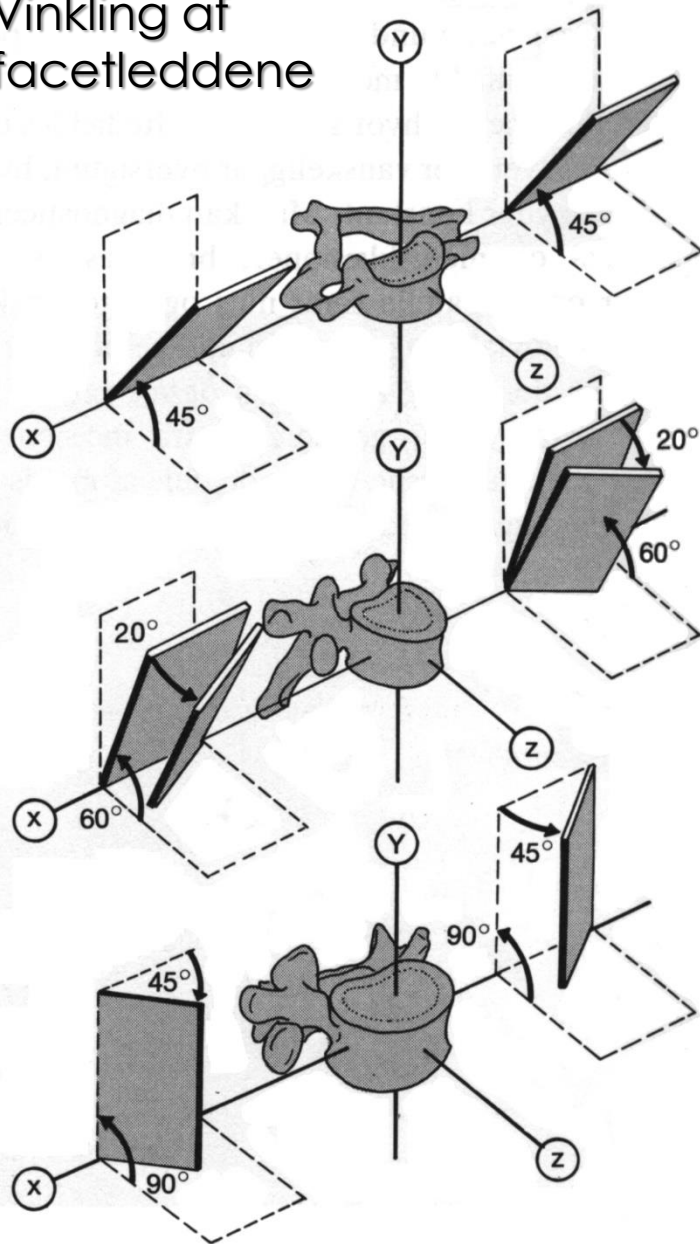


Columna thoracalis et lumbalis

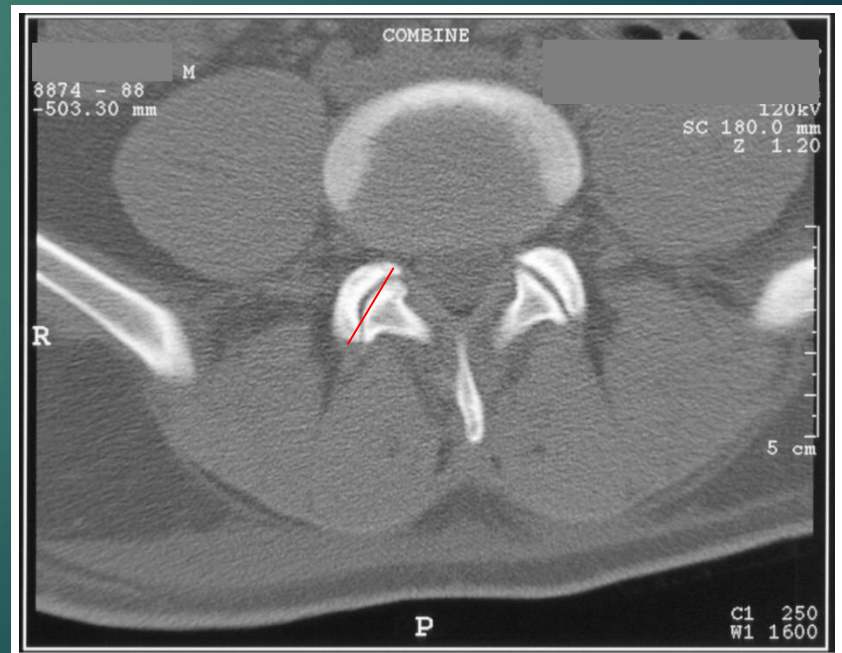
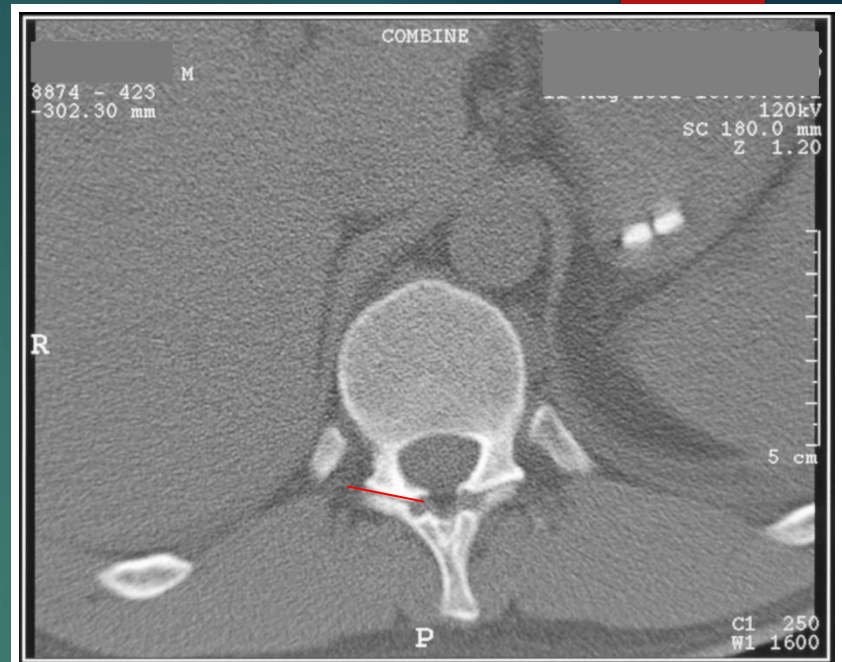


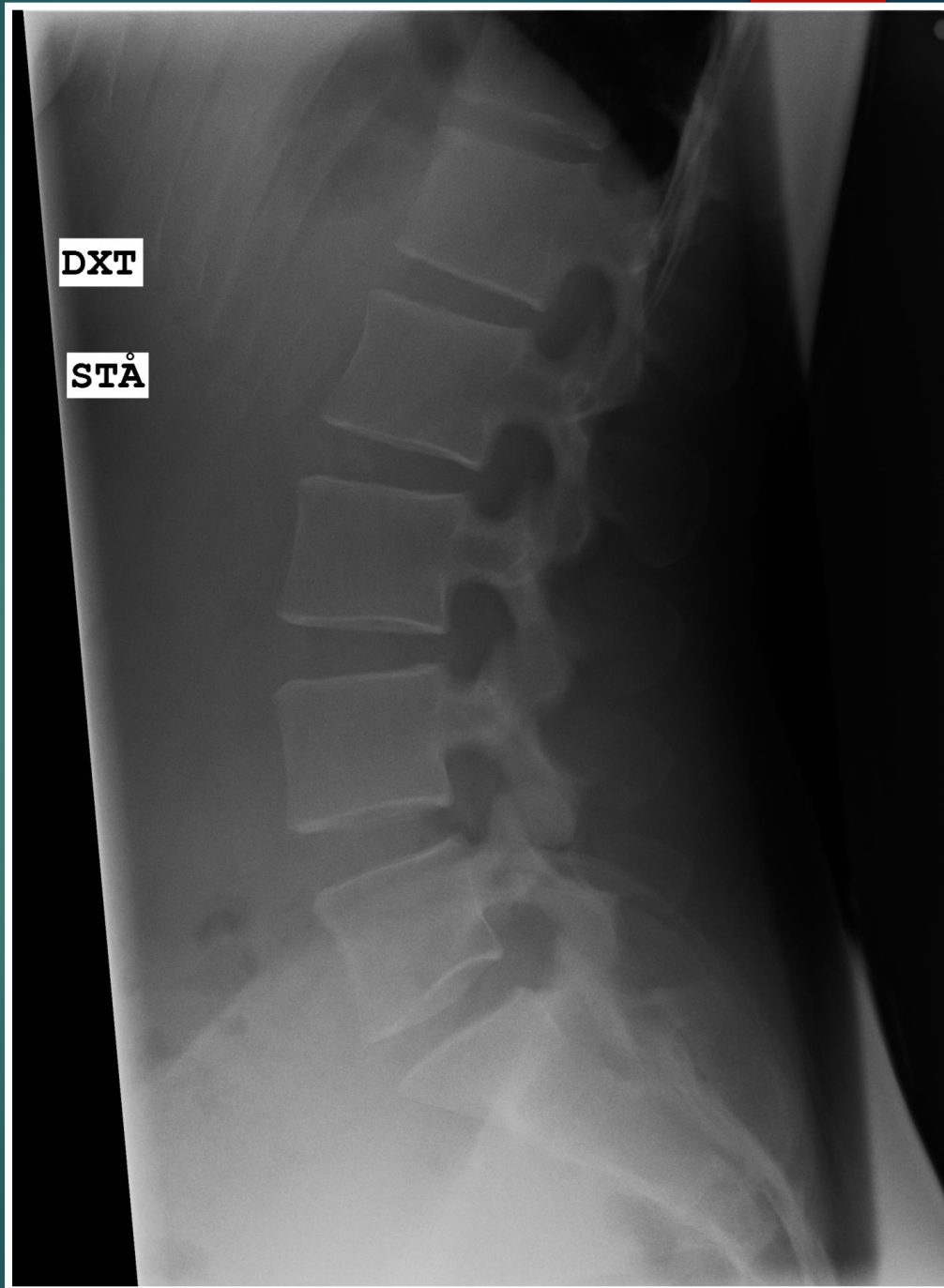


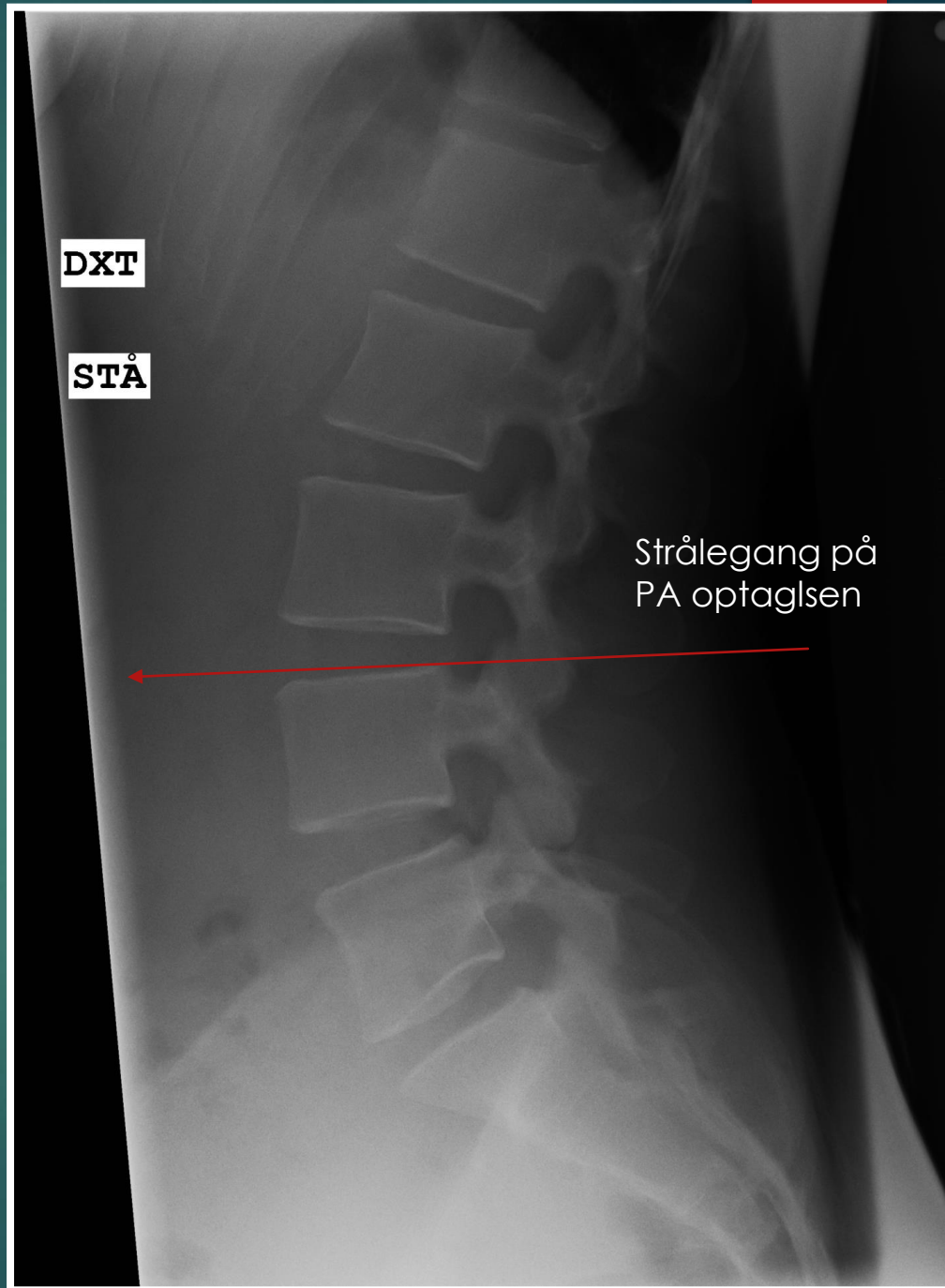
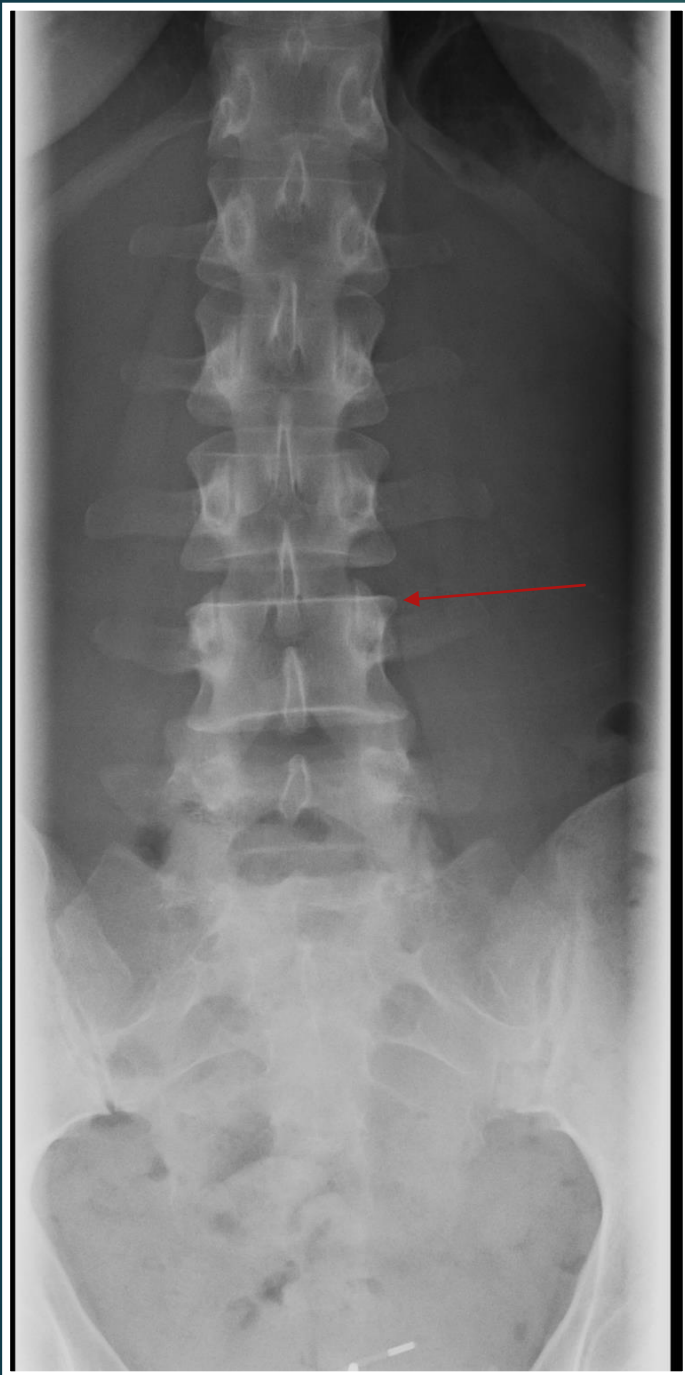
Vinkling af facetleddene

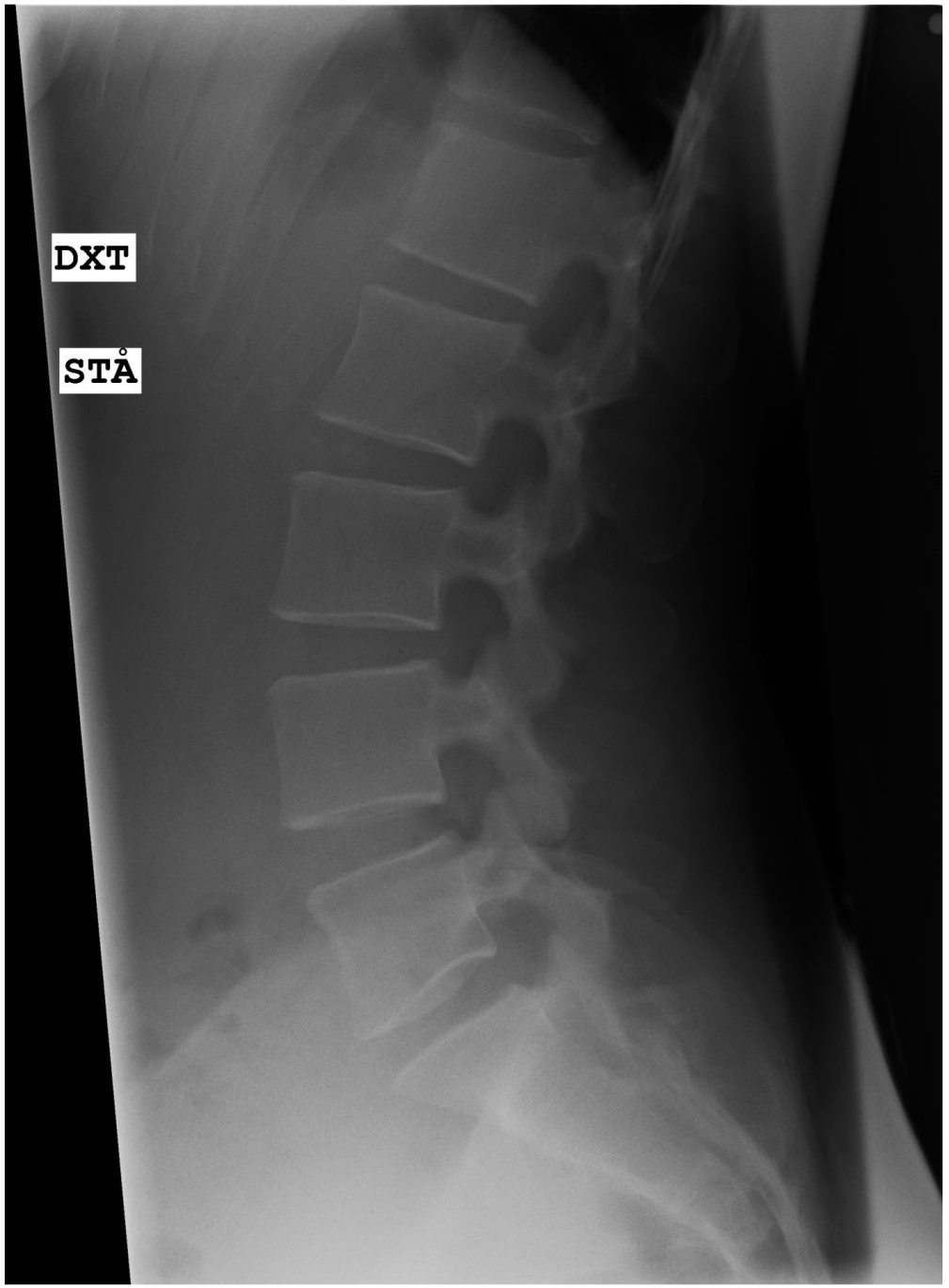
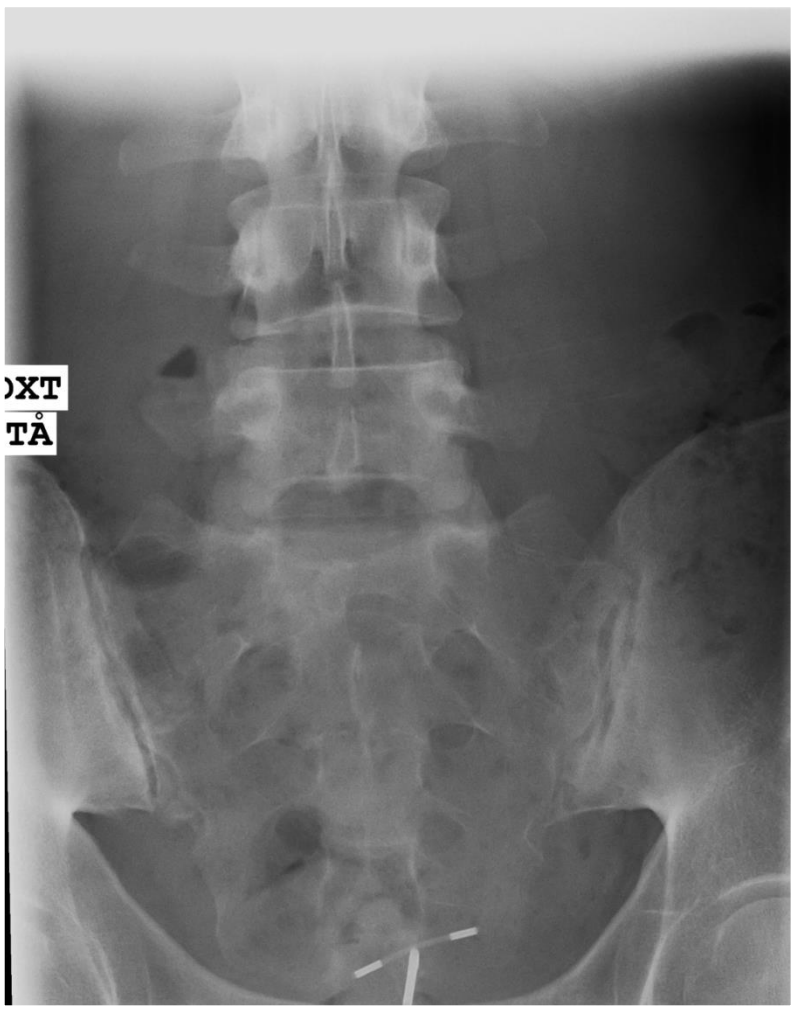


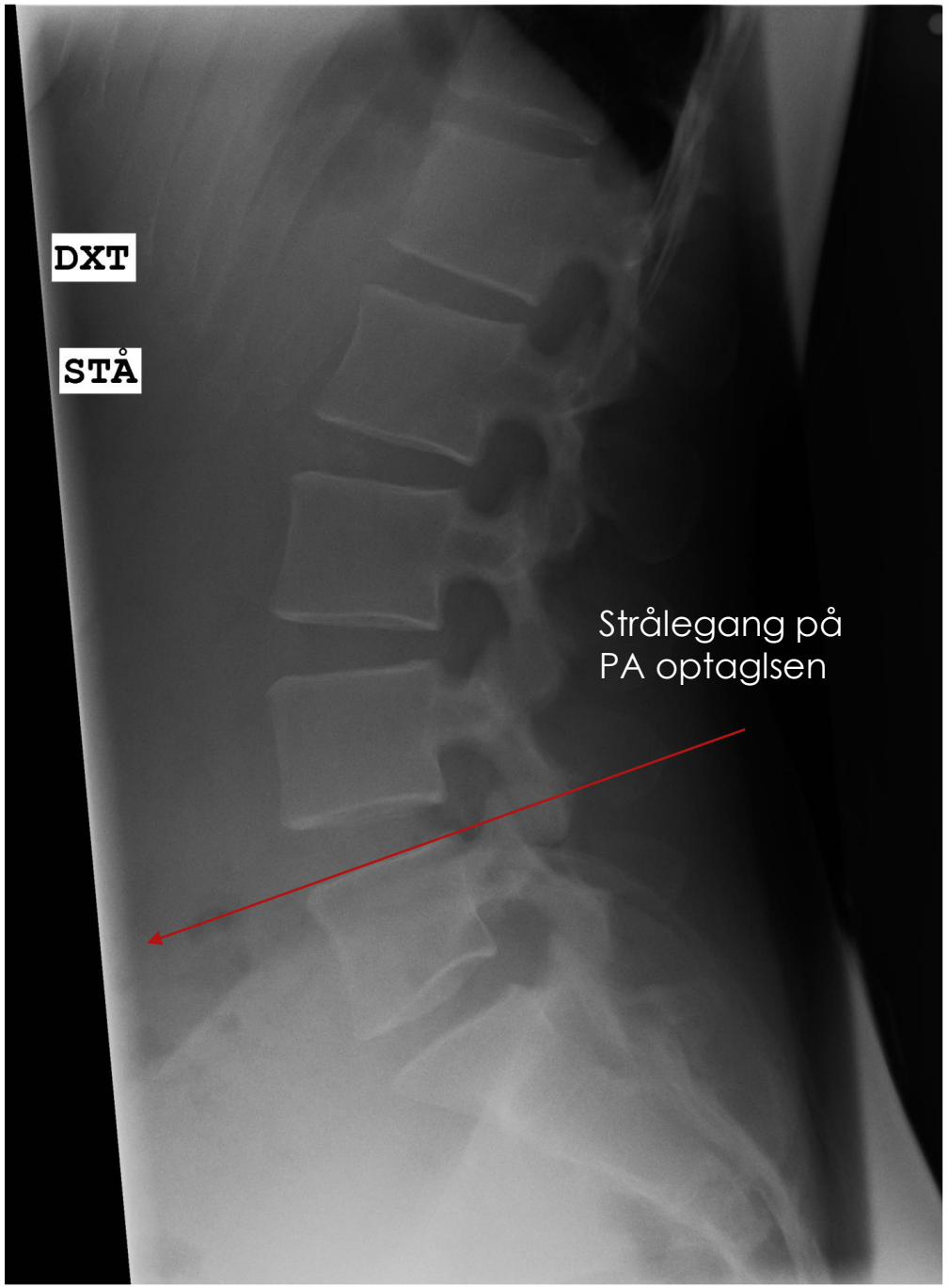
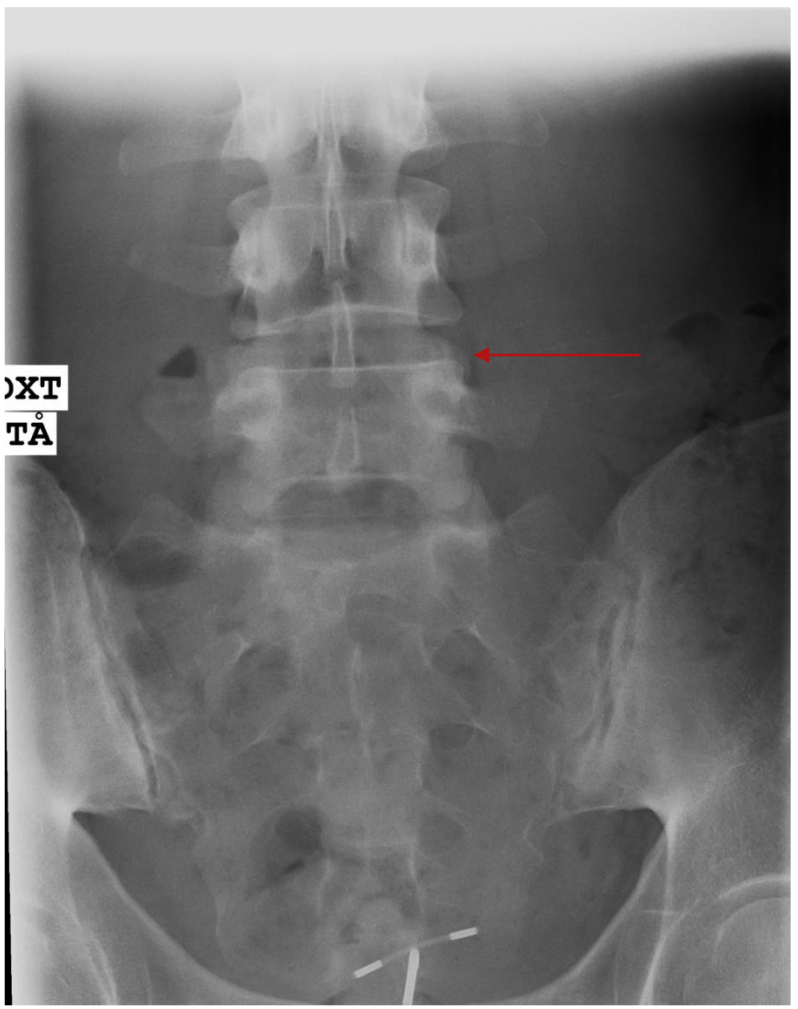
Kirurgisk Kompendium

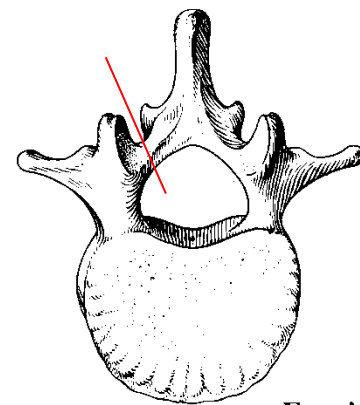




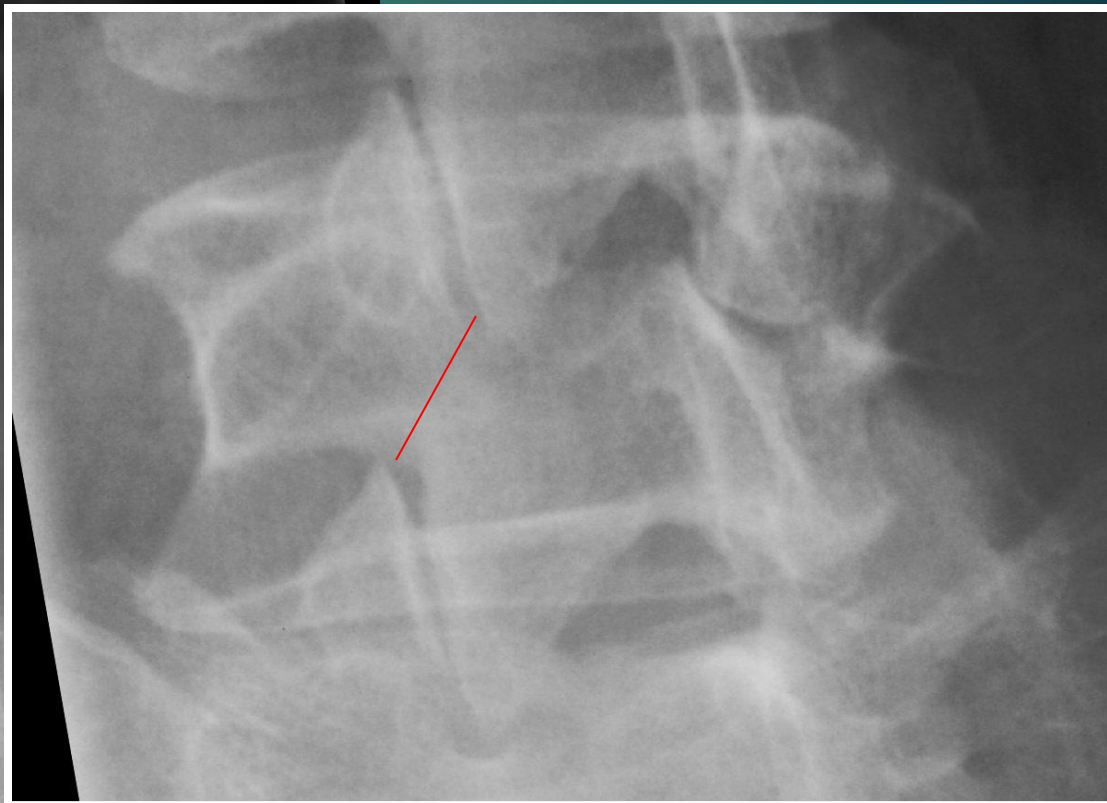


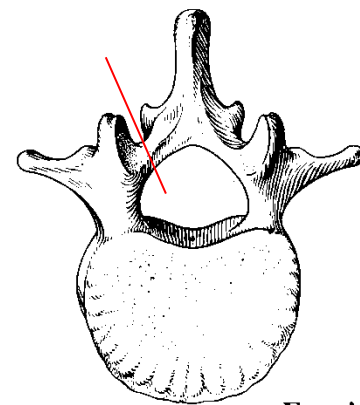
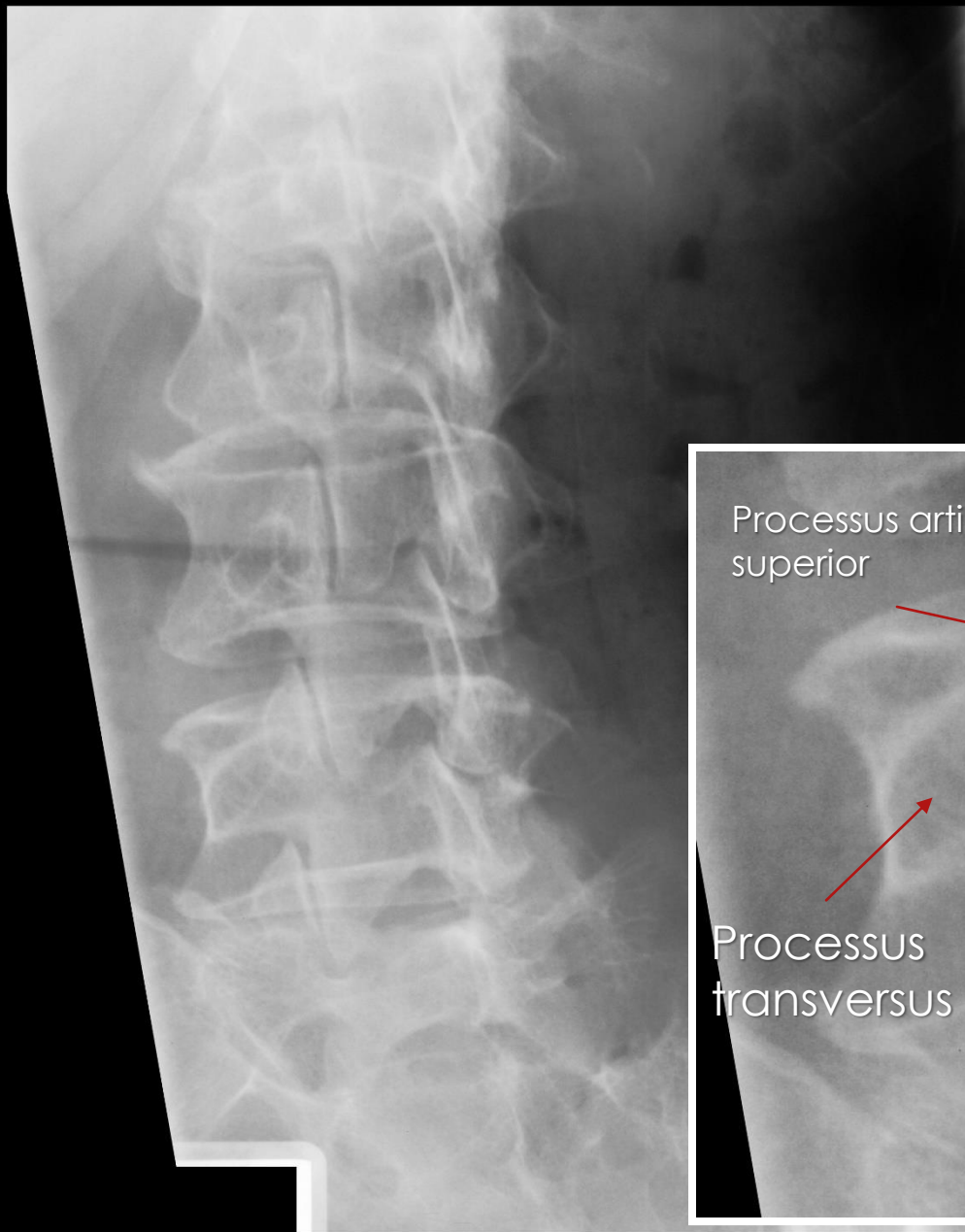




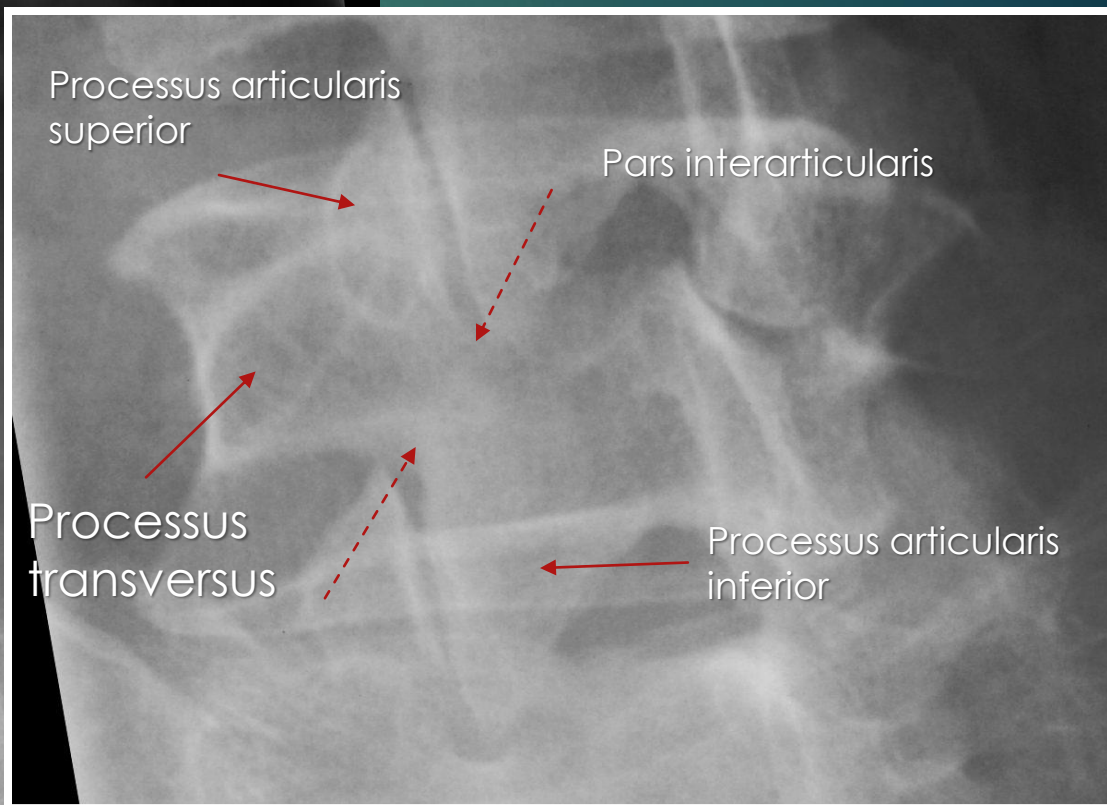


Feneis





Feneis





Arcolyse med spondylolistese







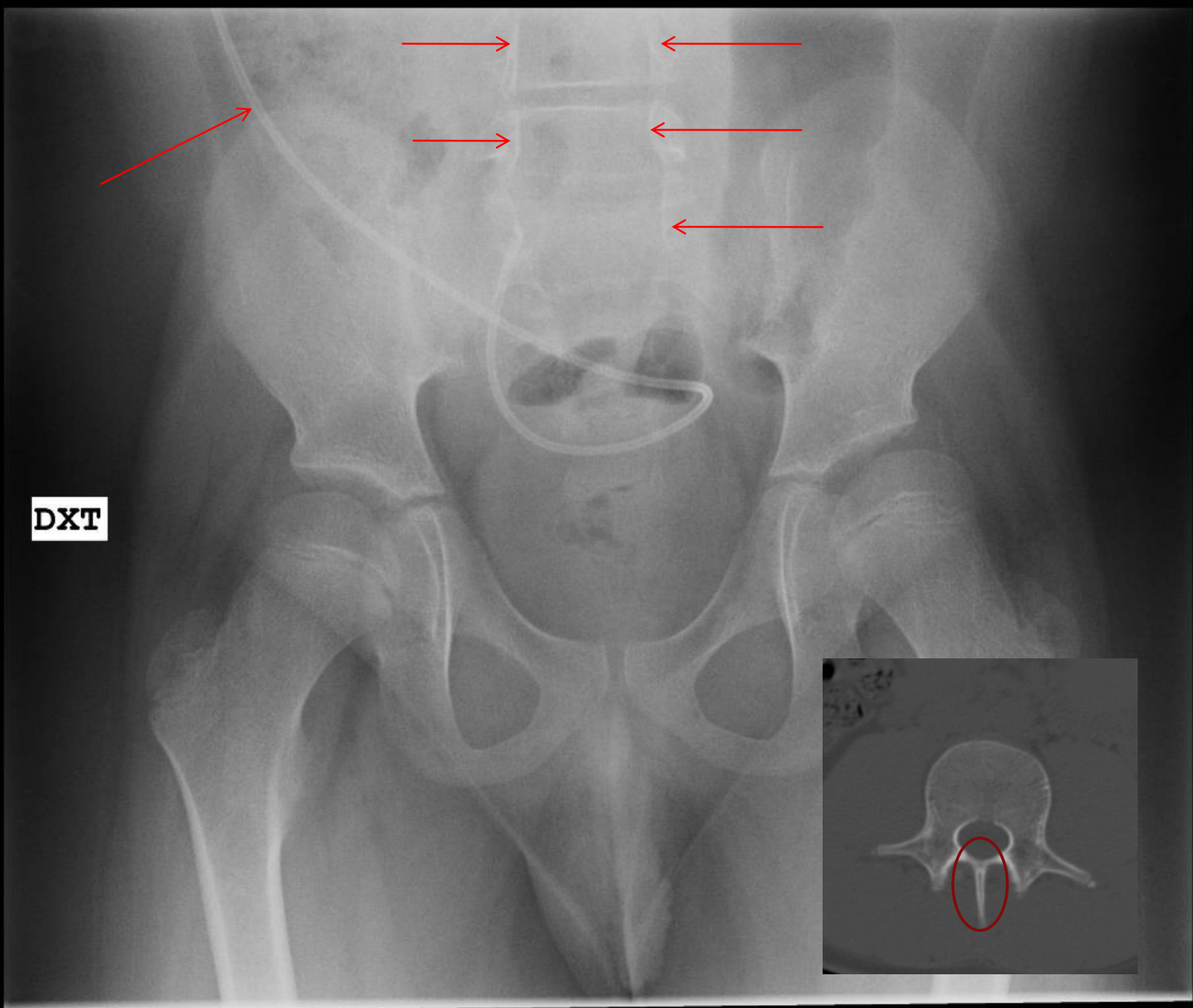
Lumbosakral overgangshvirvel





DXT

Myelomeningocele

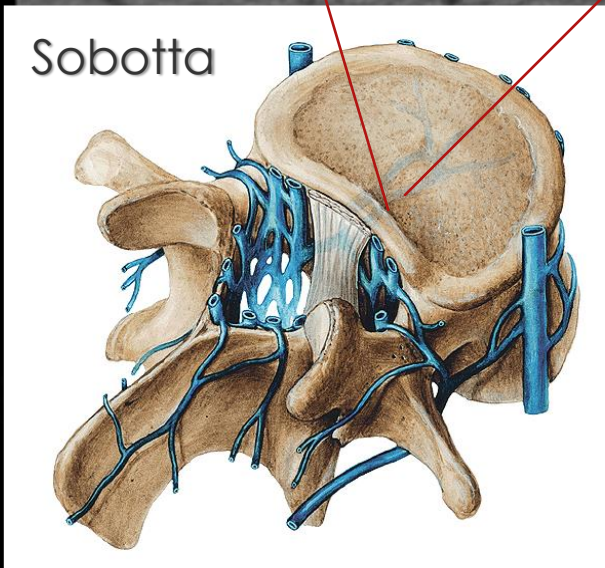


DXT

Columnas blodforsyning



R



COMBINE

11



Sobotta

5 cm

P

C1 250
W1 1600

Knoglemarven



T1: TR og TE kort

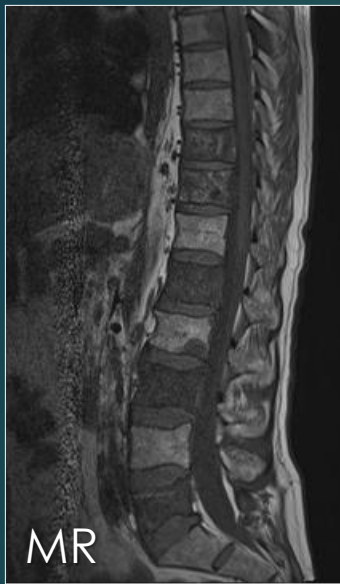


T2: TR og TE lang



STIR: Fedt suppression





Marvinfiltration

Metastaser (spredning):

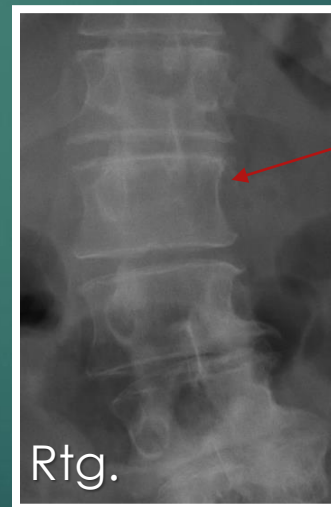
Marvinfiltration (Svulstcellerne ligger fokalt i knoglemarven)

Osteolyse (Påvirkning af knoglevævet der fokalt forsvinder)

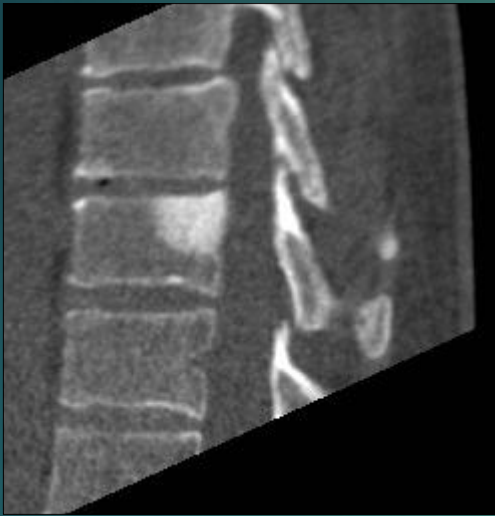
Osteosklerose (Påvirkning af knoglevævet, der fokalt øges i tæthed)

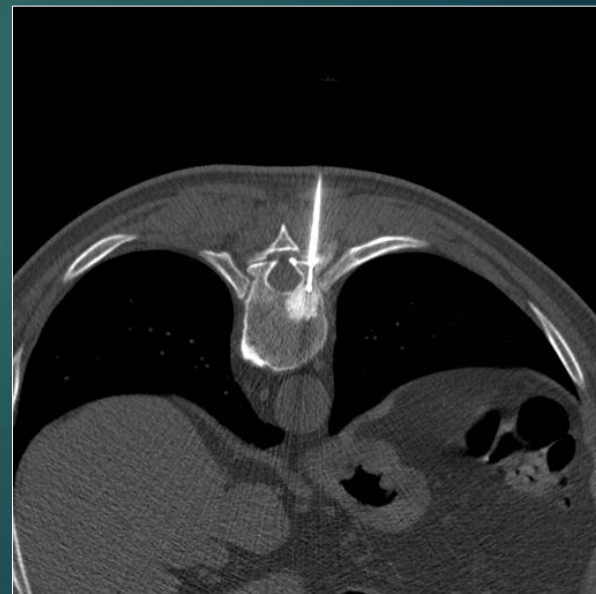
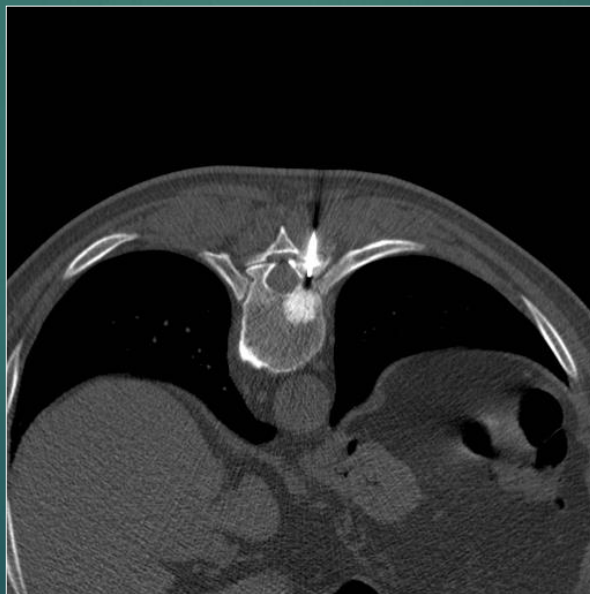
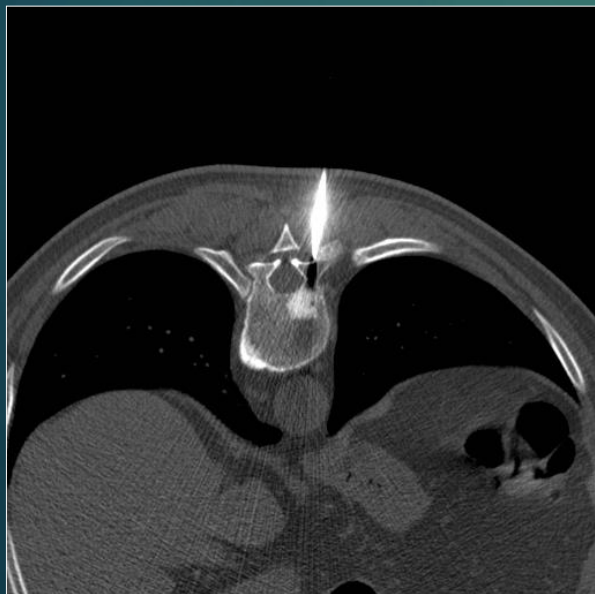
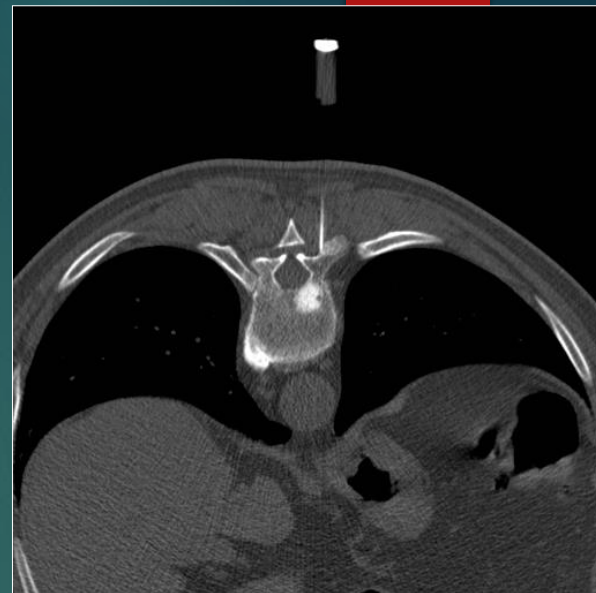
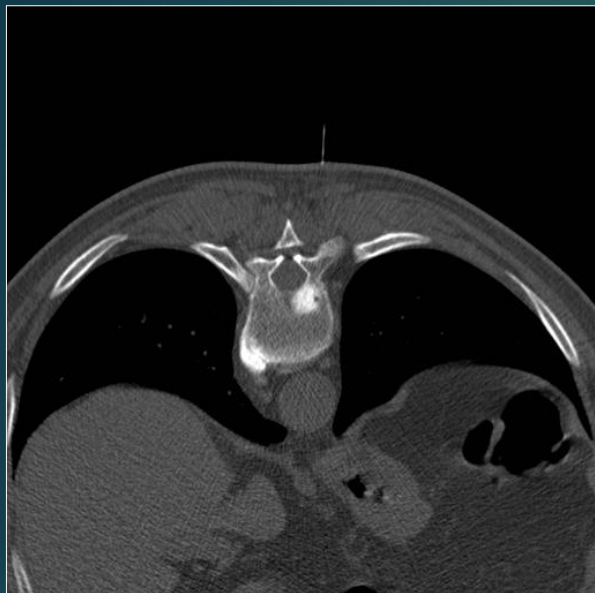


Osteosklerotisk
metastase



Osteolytisk
metastase (pediklet
på venstre side er
forsvundet)

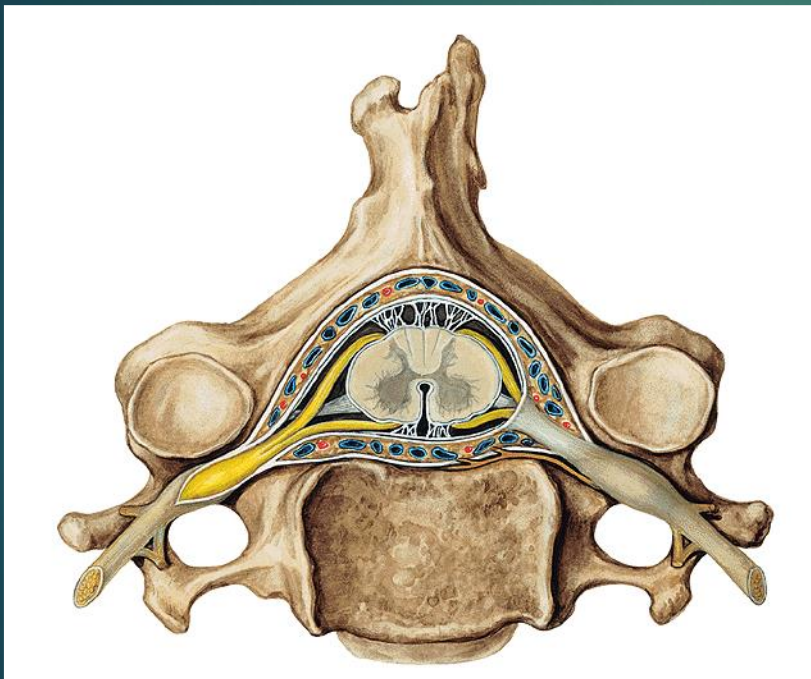






Rygmarven og rygmarvsnerverne

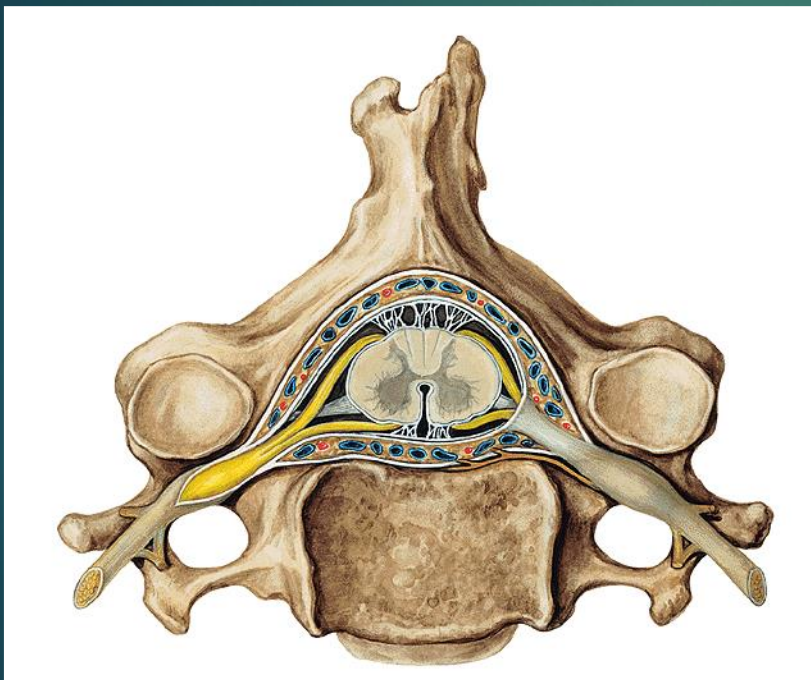
Ultralydskanning



1½ måned gammelt spædbarn

Ultralydskanning

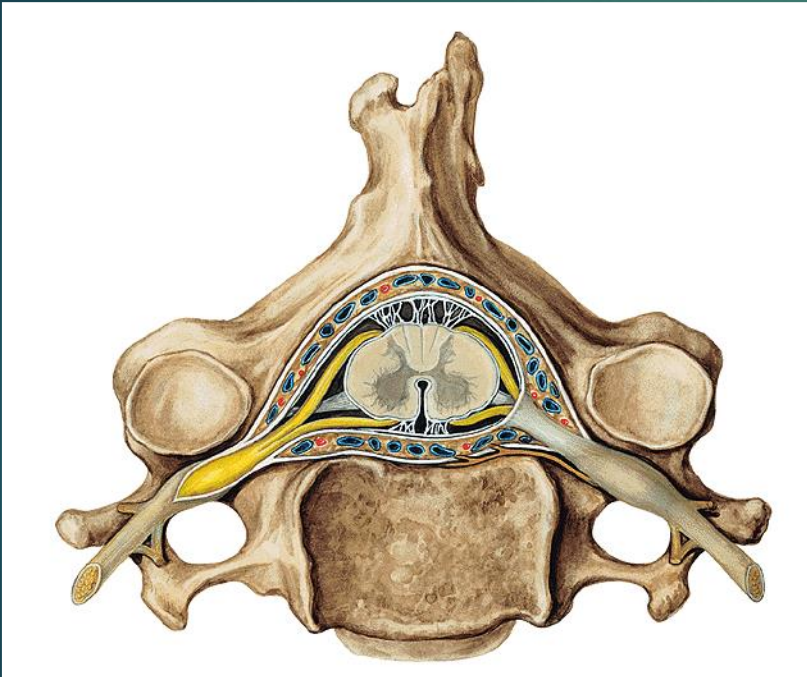
Da knoglevæv hæmmer indblikket ved ultralyd, benyttes denne modalitet kun i specielle tilfælde. Hos spædbørn kan eksempelvis opnås indblik svarende til bl.a. synchondroserne.



1½ måned gammelt spædbarn

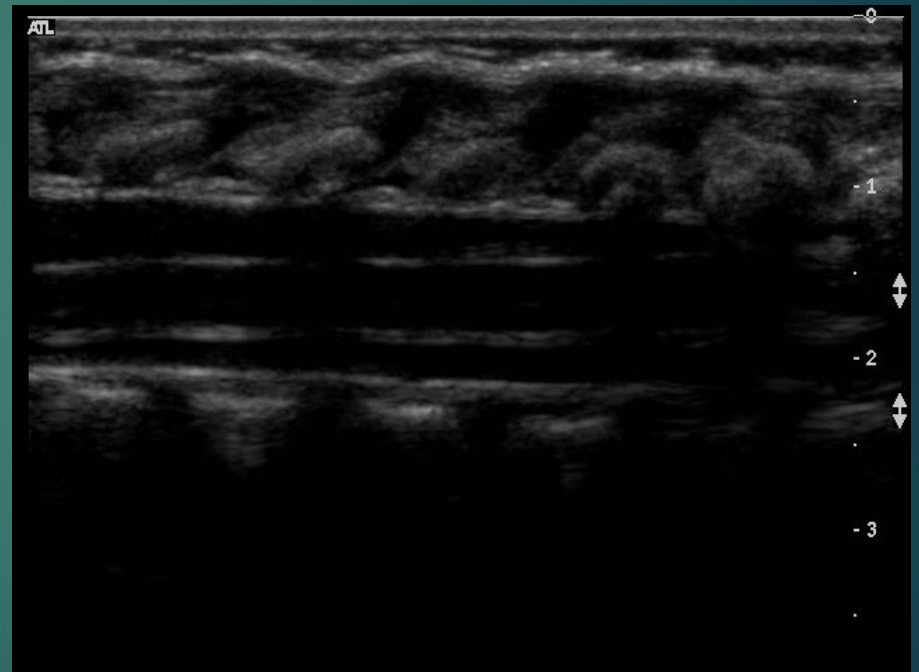
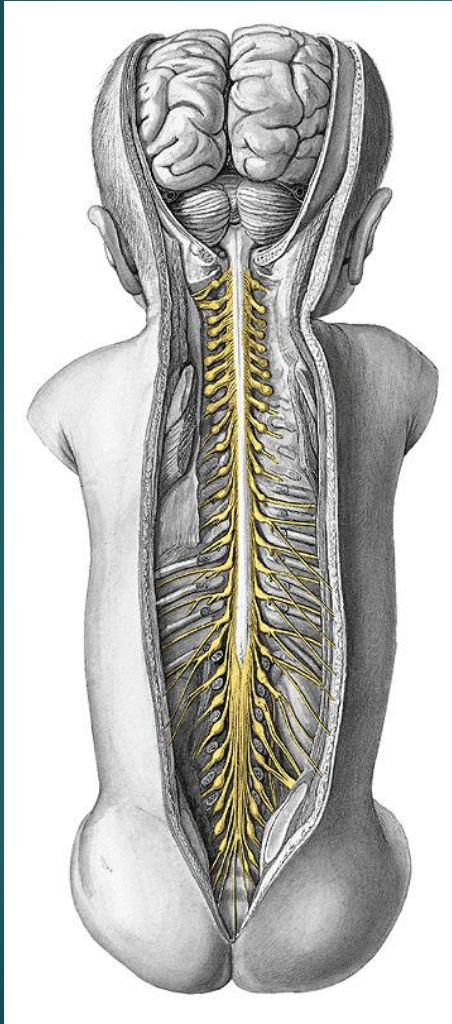
Ultralydskanning

- 1) Processus spinosus (endnu brusk)
- 2) Processus transversus
- 3) Medulla spinalis



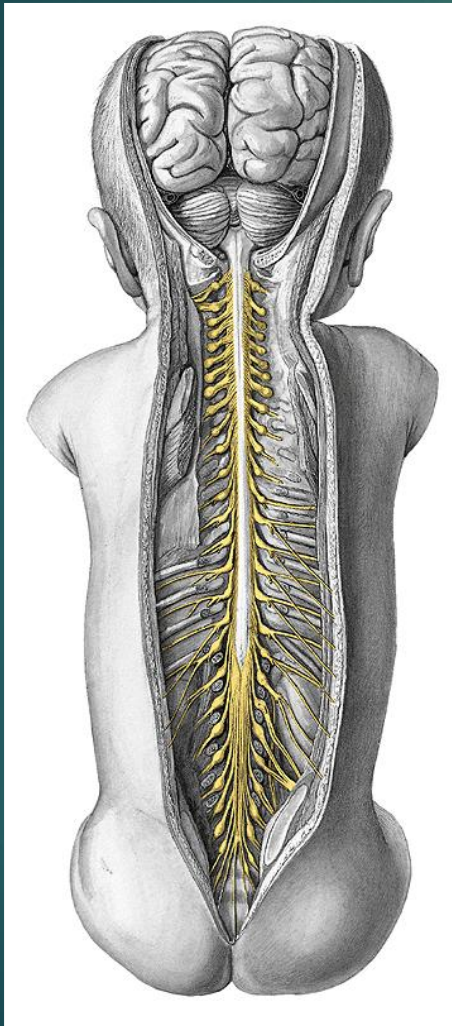
1½ måned gammelt spædbarn

Ultralydskanning

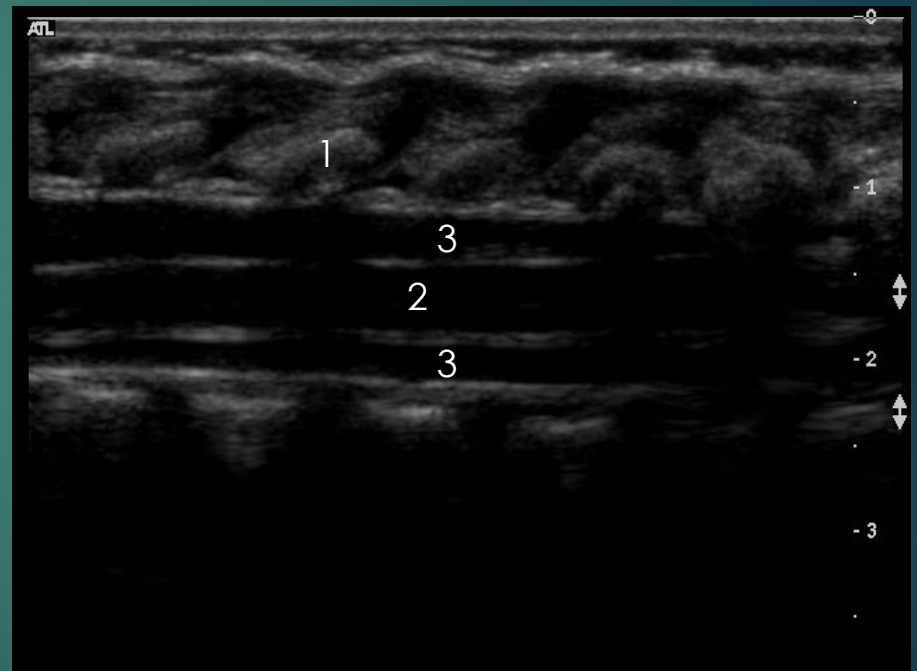


1½ måned gammelt spædbarn

Ultralydskanning

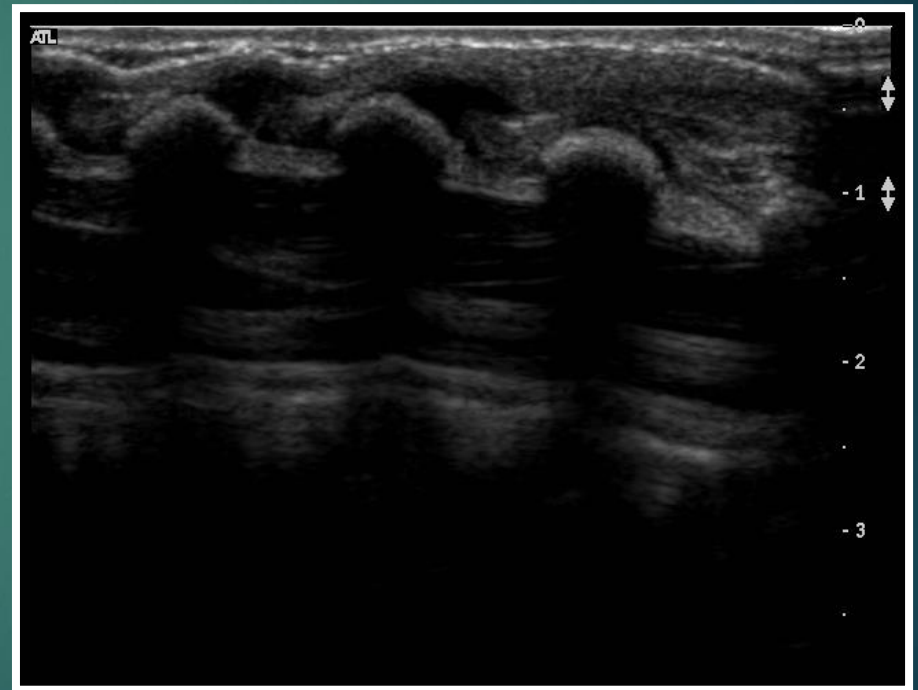
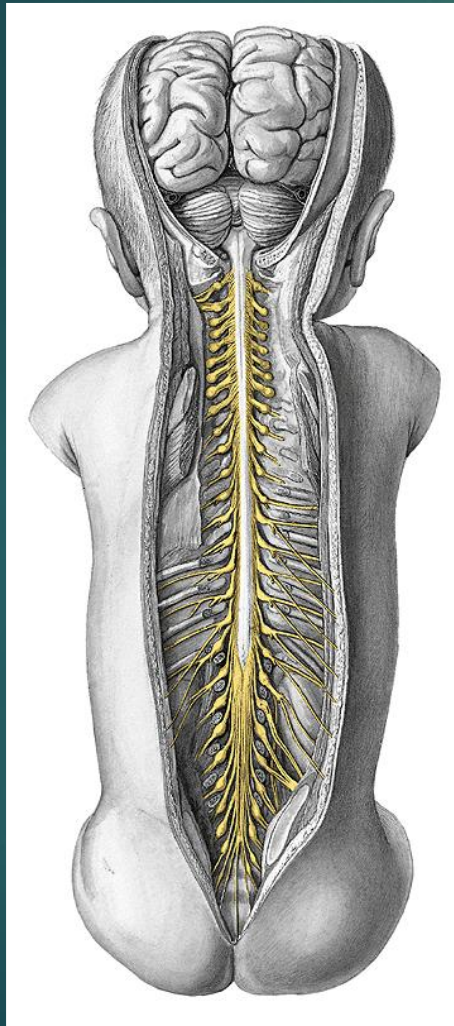


- 1) Processus spinosus (endnu brusk centralt)
- 2) Medulla spinalis
- 3) Liquor cerebrospinalis



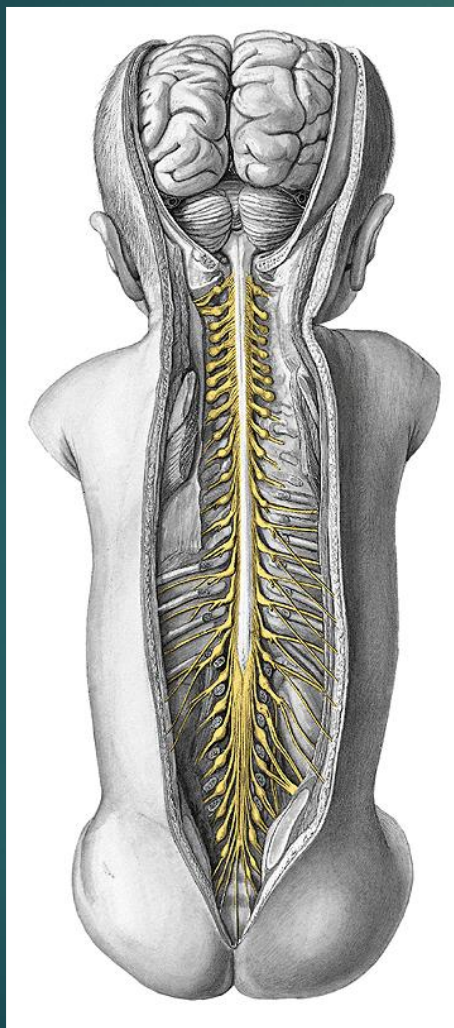
1½ måned gammelt spædbarn

Ultralydskanning

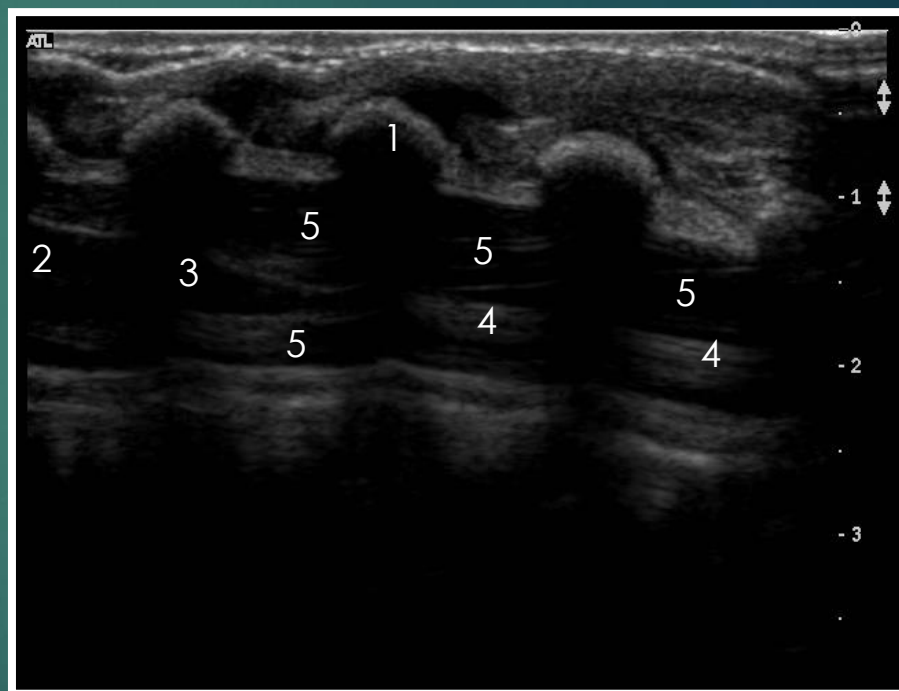


1½ måned gammelt spædbarn

Ultralydskanning

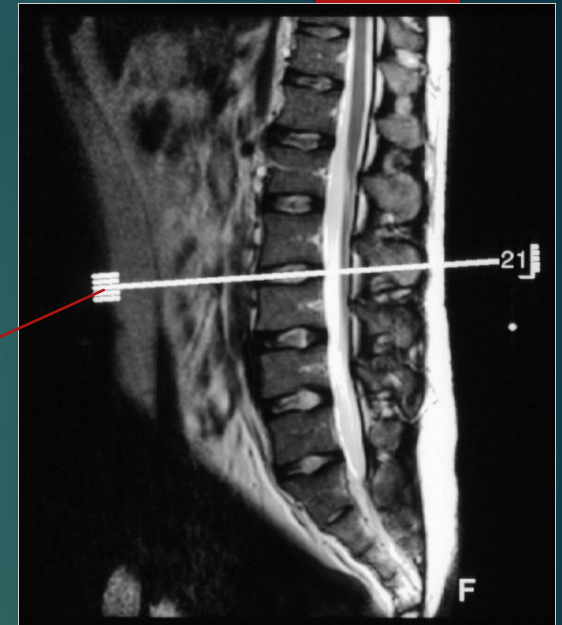


- 1) Processus spinosus
- 2) Medulla spinalis
- 3) Conus medullaris
- 4) Cauda equina
- 5) Liquor cerebrospinalis



1½ måned gammelt spædbarn

Bløddelene



Snit lige gennem lumbal discus

Bevægeapparatets
anatom

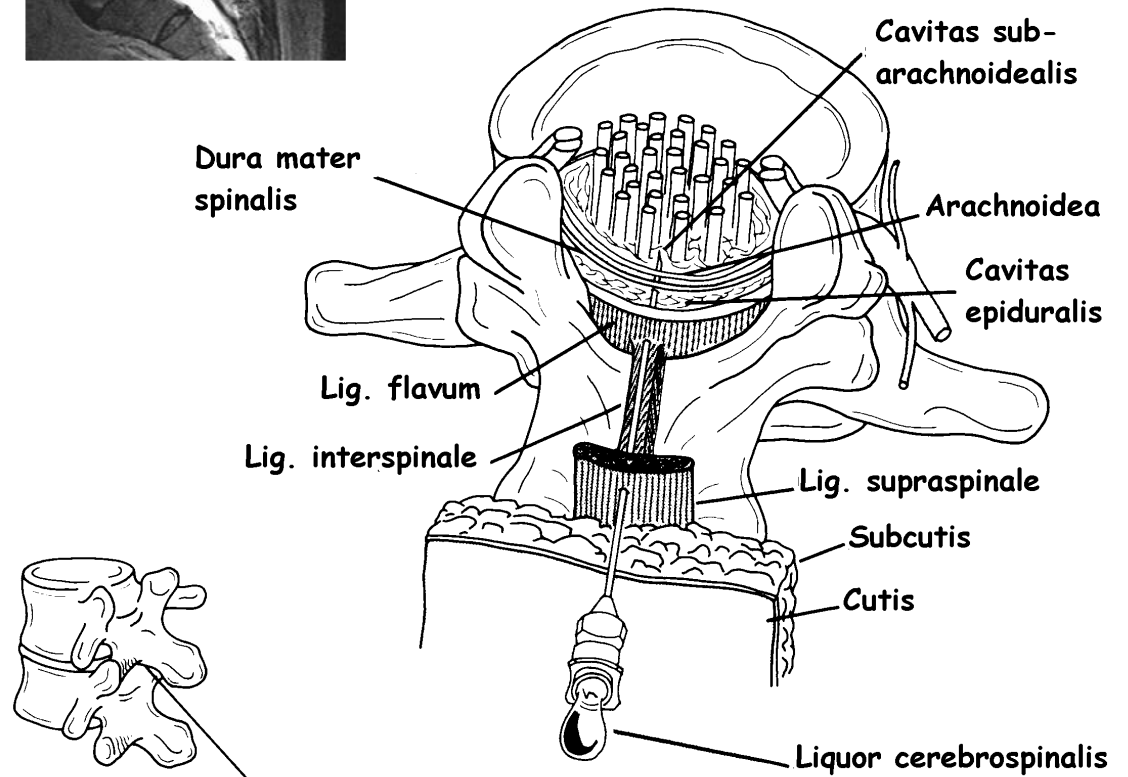
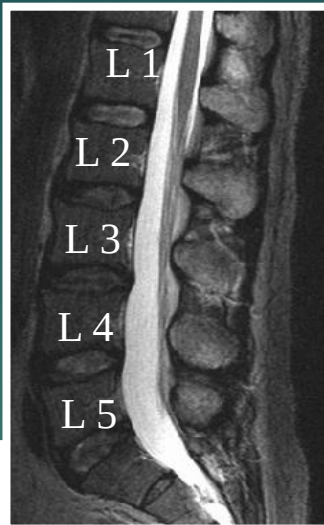
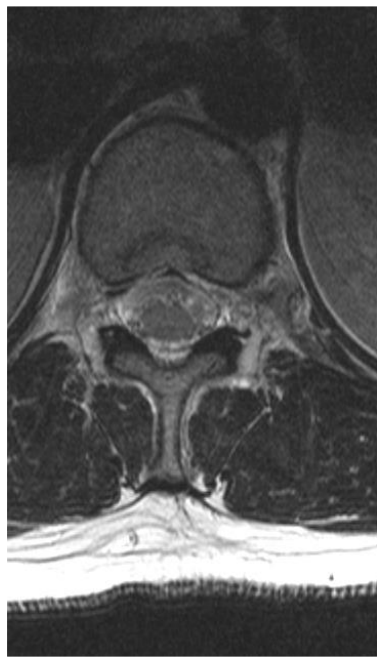
Medulla spinalis
Conus medullaris
Cauda equina
Liquor cerebrospinalis
Ligg. supraspinalia
Ligg. interspinalia
Ligg. flava
Lig. longitudinale ant.
Lig. longitudinale post.
Discus intervertebralis



- 1) Medulla spinalis
- 2) Conus medullaris
- 3) Cauda equina
- 4) Liquor cerebrospinalis
- 5) Ligg. supraspinalia
- 6) Ligg. interspinalia
- 7) Ligg. flava
- 8) Lig. longitudinale ant.
- 9) Lig. longitudinale post.
- 10) Discus intervertebralis



Lumbalpunktur

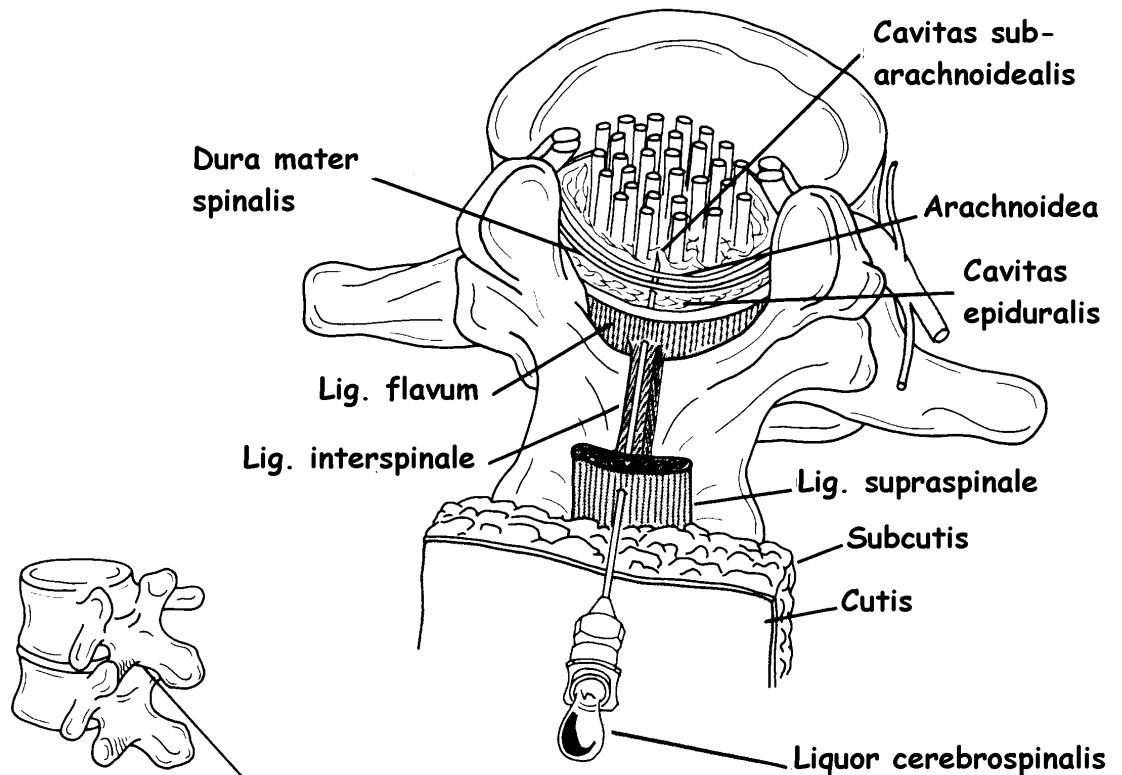


"Procedurebogen"

Myelografi med indsprøjtning i
spinalkanalen

(Undersøgelsen er stort set erstattet af
MR skanning)

Lumbalpunktur udføres på samme måde



"Procedurebogen"



Os sacrum og coccygis

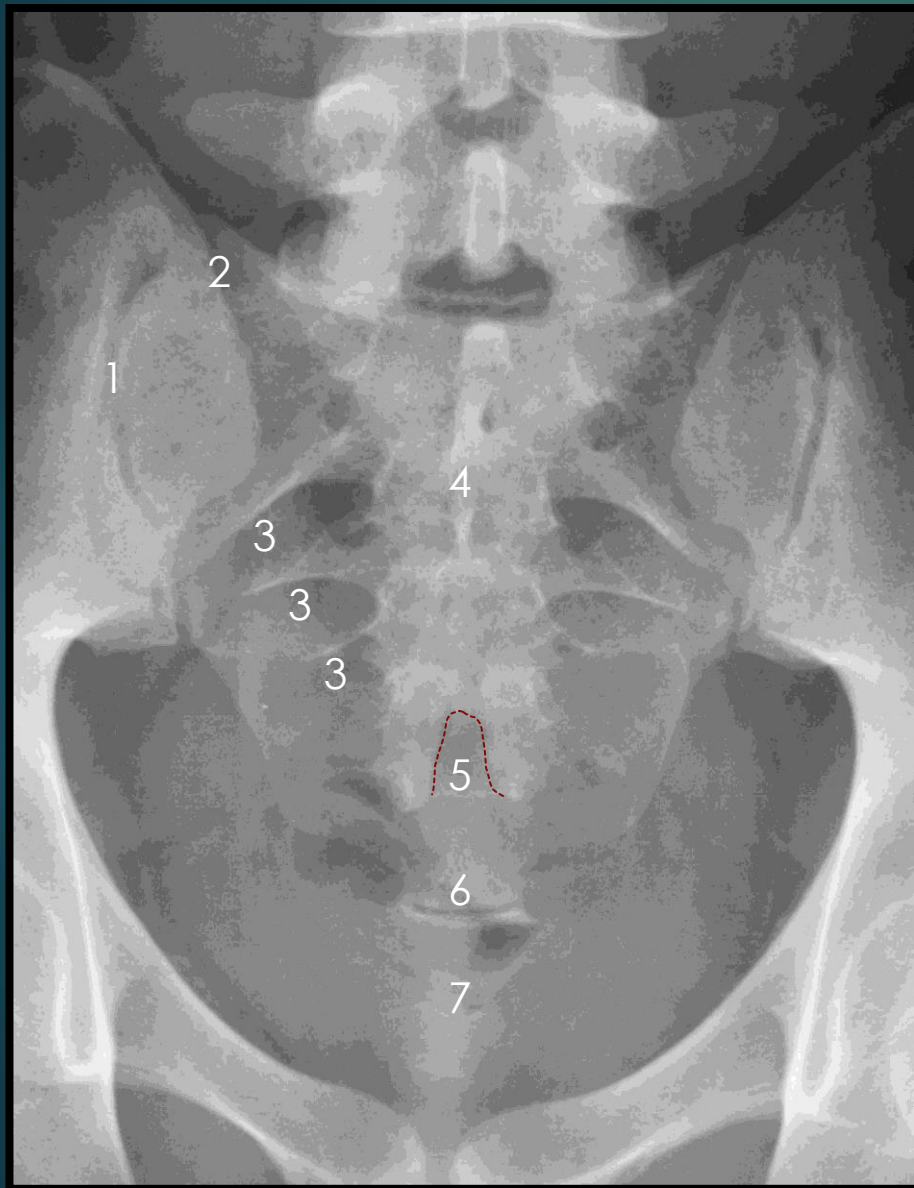
Os sacrum og os coccygis, 19-årig mand.



- 1) Articulatio sacroiliaca
- 2) Ala sacralis
- 3) Foramen sacrale anterior
- 4) Crista sacralis mediana
- 5) Hiatus sacralis
- 6) Apex ossis sacri
- 7) Os coccygis



Os sacrum og os coccygis, 19-årig mand.



- 1) Articulatio sacroiliaca
- 2) Ala sacralis
- 3) Foramen sacrale anterior
- 4) Crista sacralis mediana
- 5) Hiatus sacralis
- 6) Apex ossis sacri
- 7) Os coccygis