



**Secteur des Sciences de la santé**

**Faculté de Médecine**

**Cours WMDS ANAT 1311**

**Année académique 2019-2020**

# **Neuroanatomie radiologique**

**Pr. Thierry DUPREZ & Pr Frédéric LECOUVET**

## **Module 8: rachis**

Coupe sagittale médiane  
pondérée T1



Coupe sagittale médiane  
pondérée T2



Coupe sagittale médiane  
pondérée T2



Segment cervical

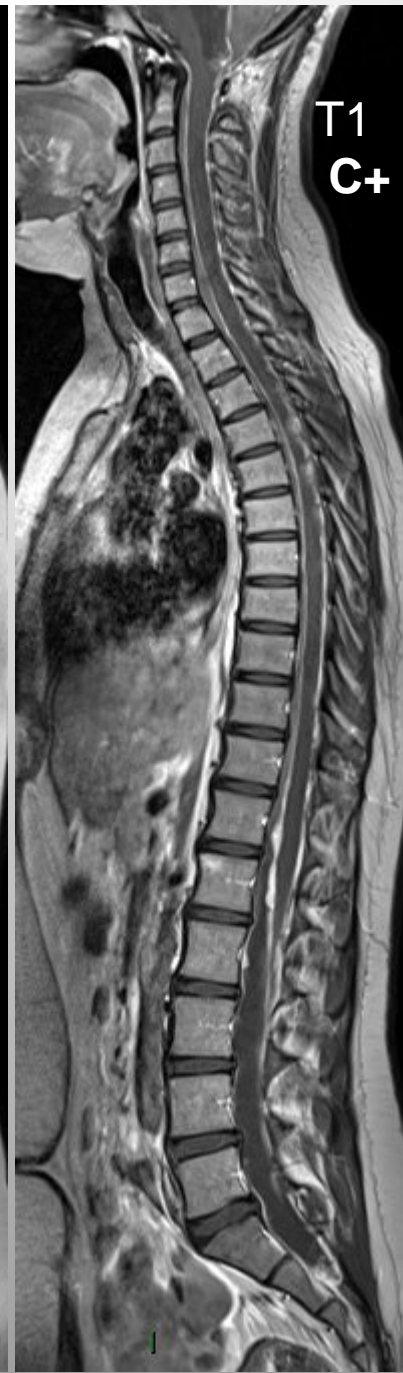


Segment dorsal

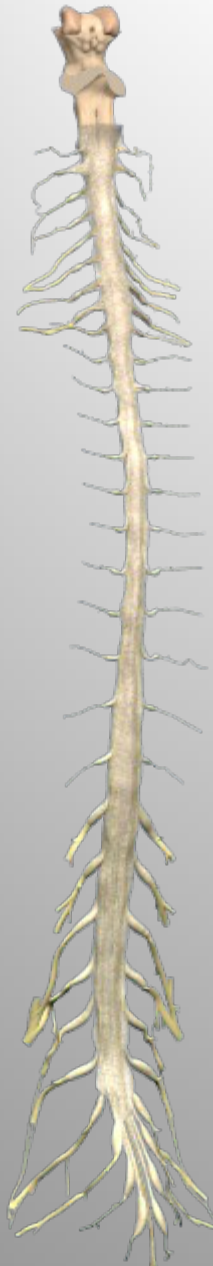


Segment lombaire





Renflement cervical



Plexus cervico-brachial

C5→D1

Renflement lombaire

Queue de cheval

Plexus Lombo-sacré

(T12) L1→L5

Segment cervical

Segment dorsal

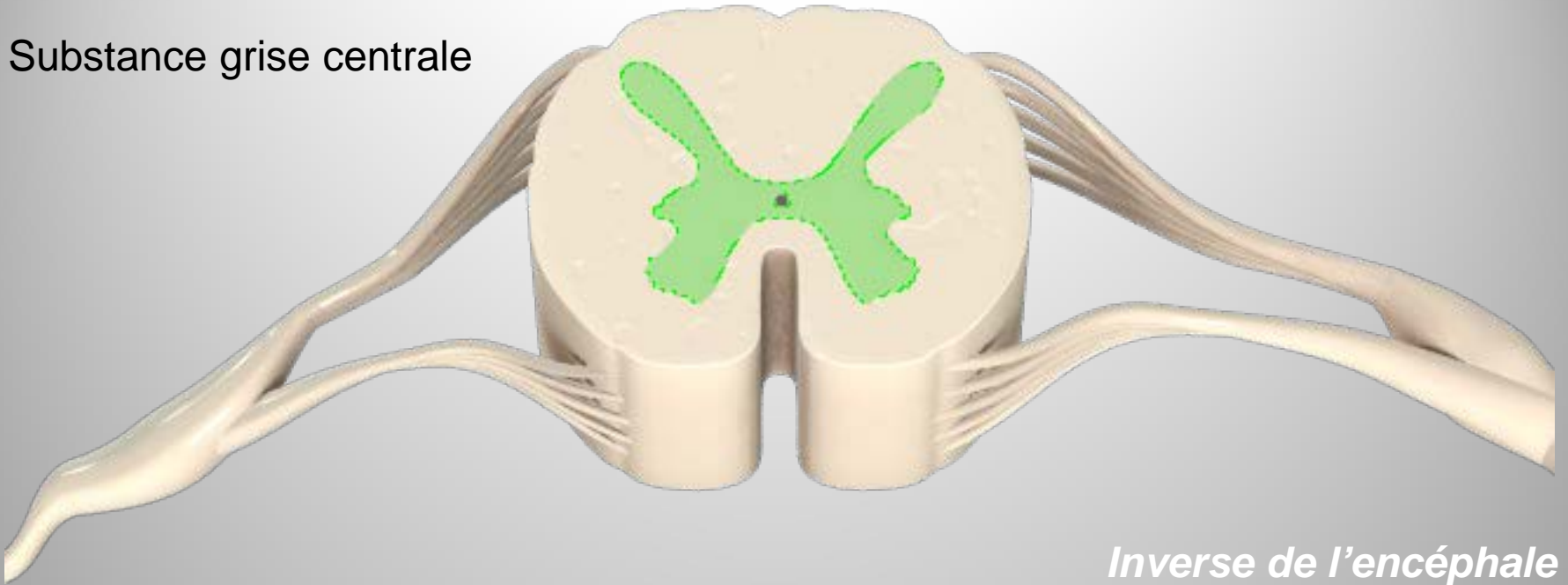
Segment lombaire



Trous de conjugaison

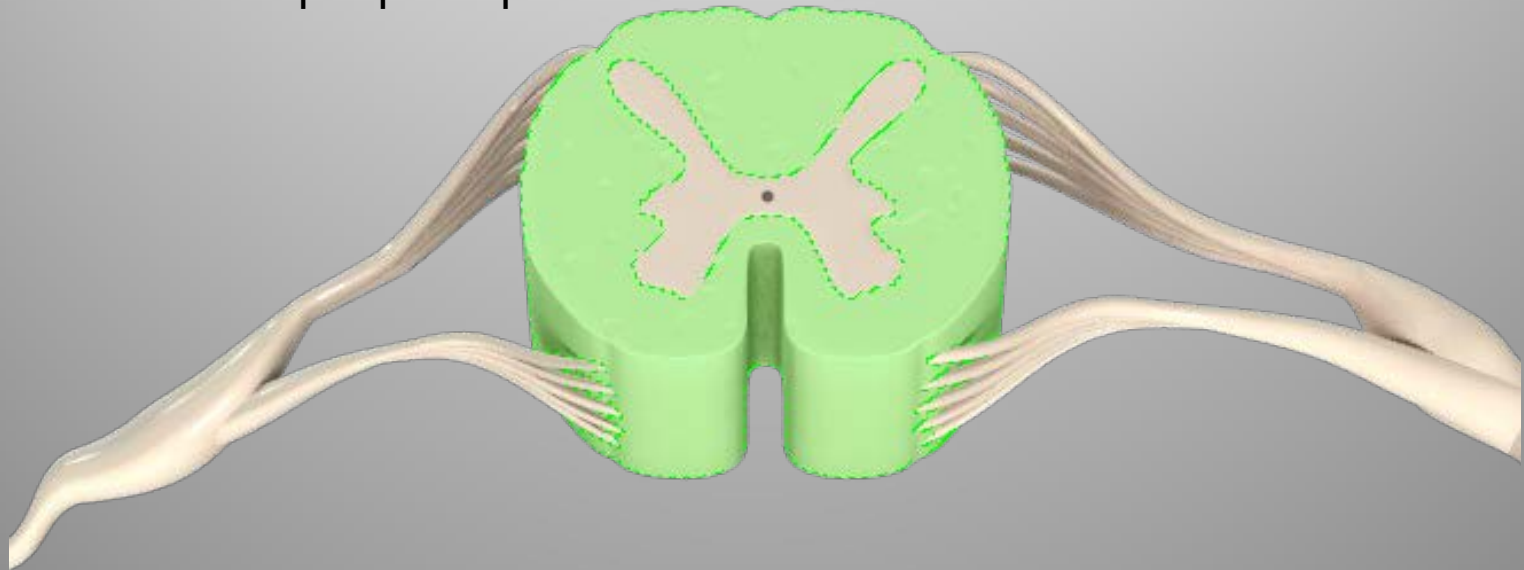
Trous sacrés

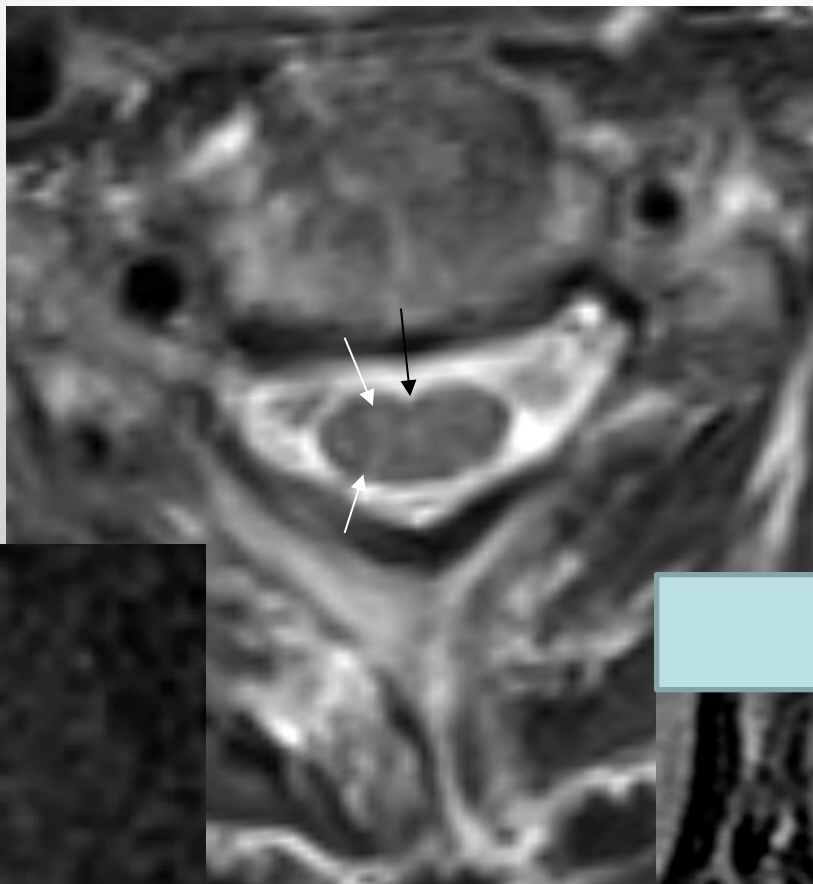
Substance grise centrale

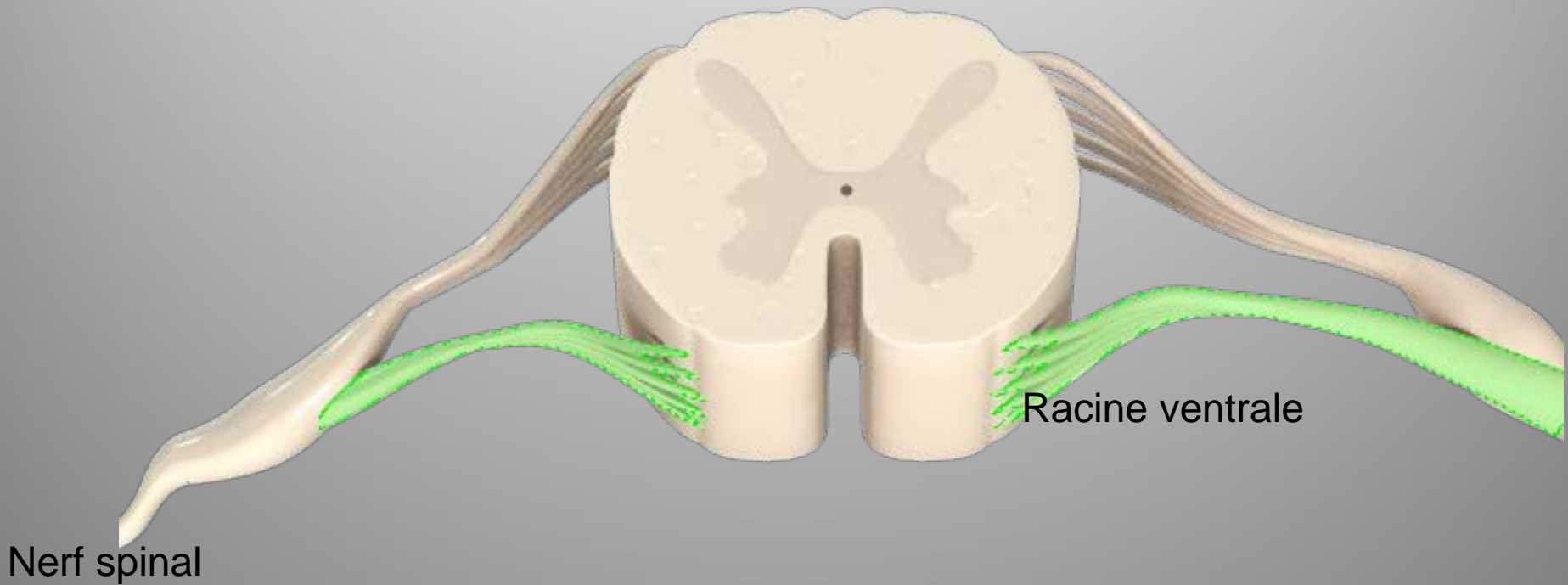
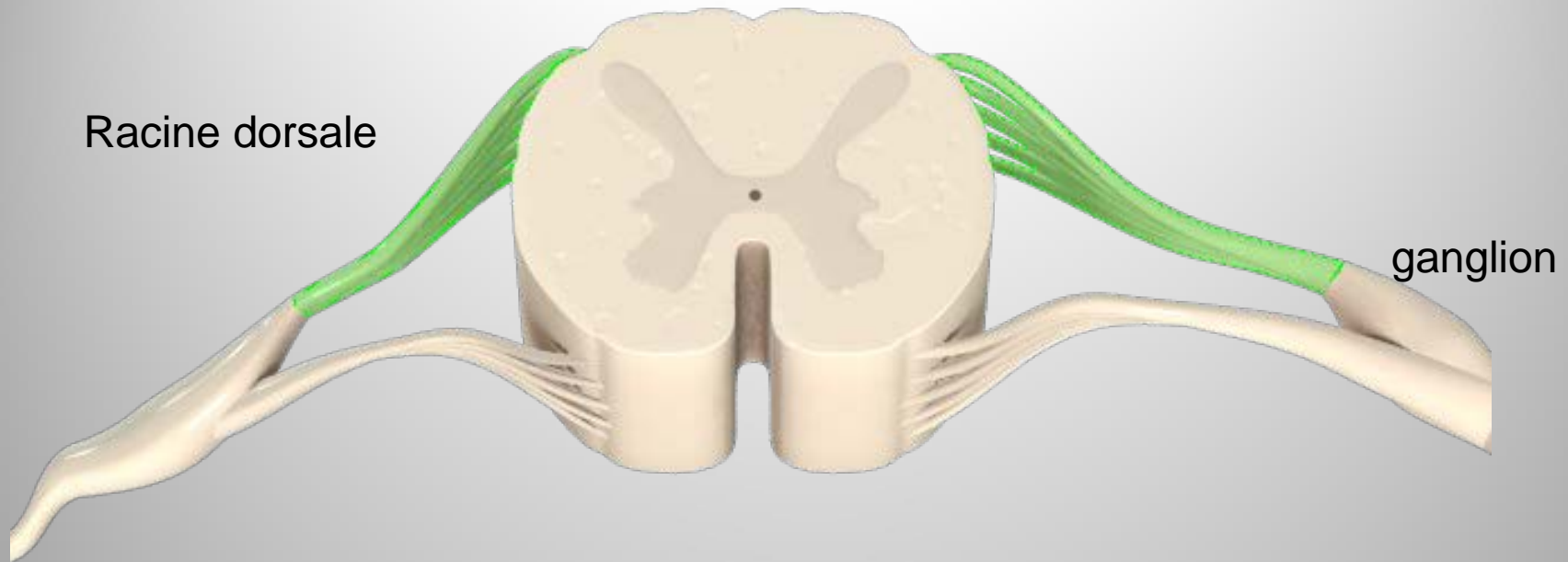


*Inverse de l'encéphale !*

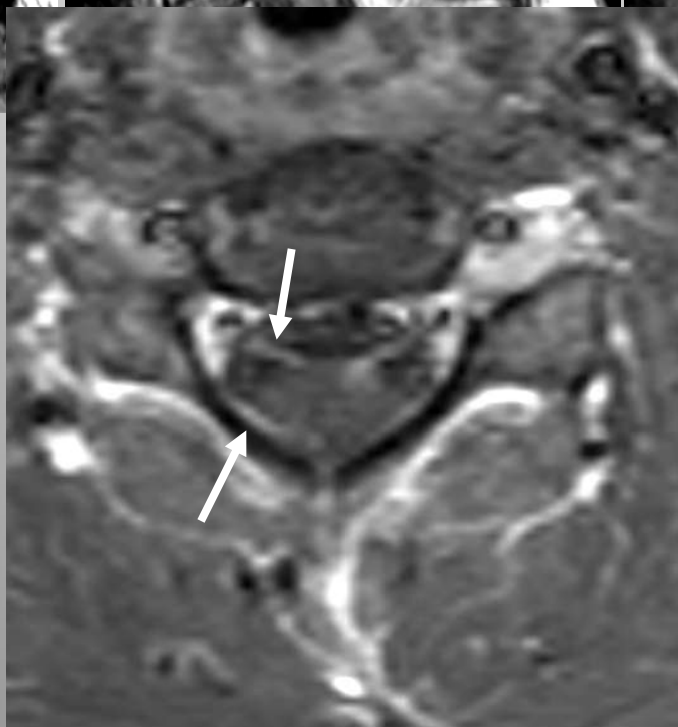
Substance blanche périphérique











Organisation métamérique  
des segments de la moelle et de leur racine

1 divergence

**Racine C8 mais pas de vertèbre C8 !**

→ C8 passe entre C7 et D1

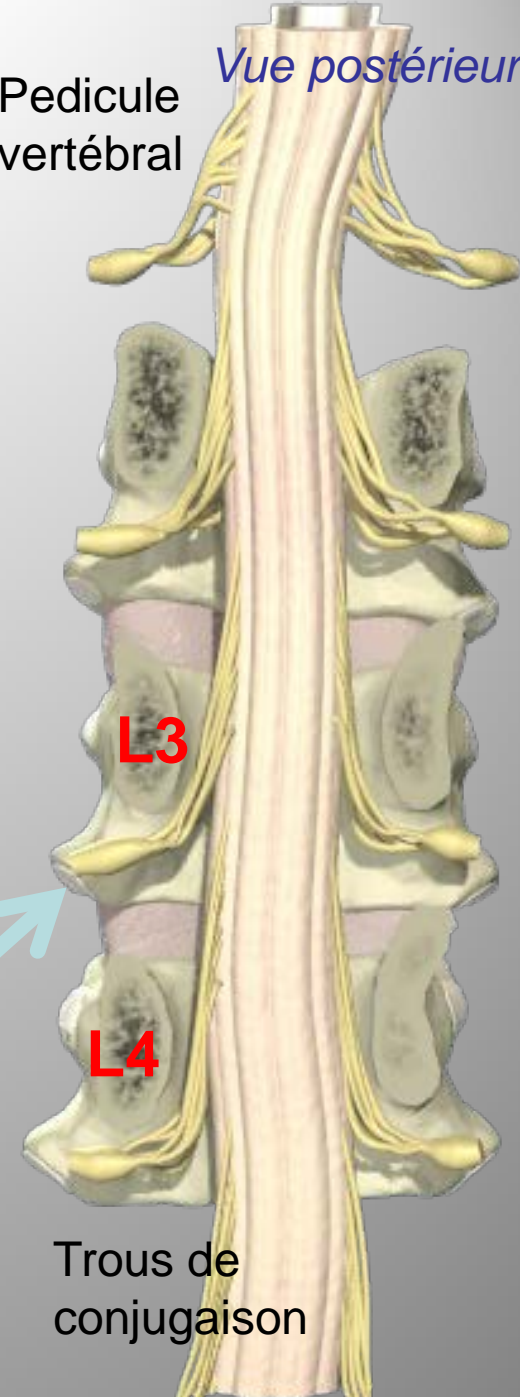
→ Au-dessus de C7: la racine dans le trou de conjugaison  
porte le N° de la vertèbre du dessous

→ Au dessous de C7: la racine dans le trou de conjugaison  
porte le N° de la vertèbre du dessus

Racine L3

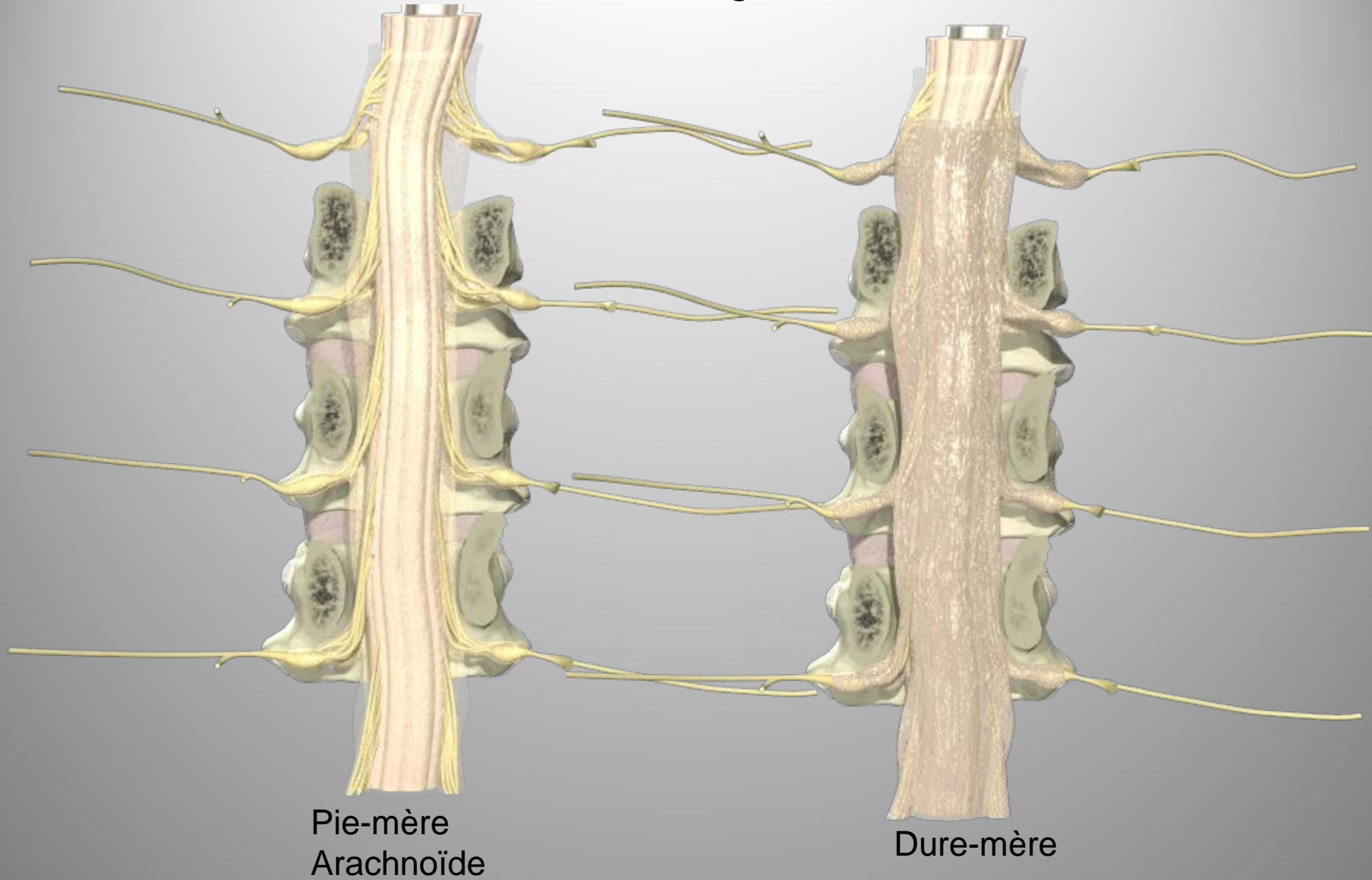
Pedicule  
vertébral

*Vue postérieure*

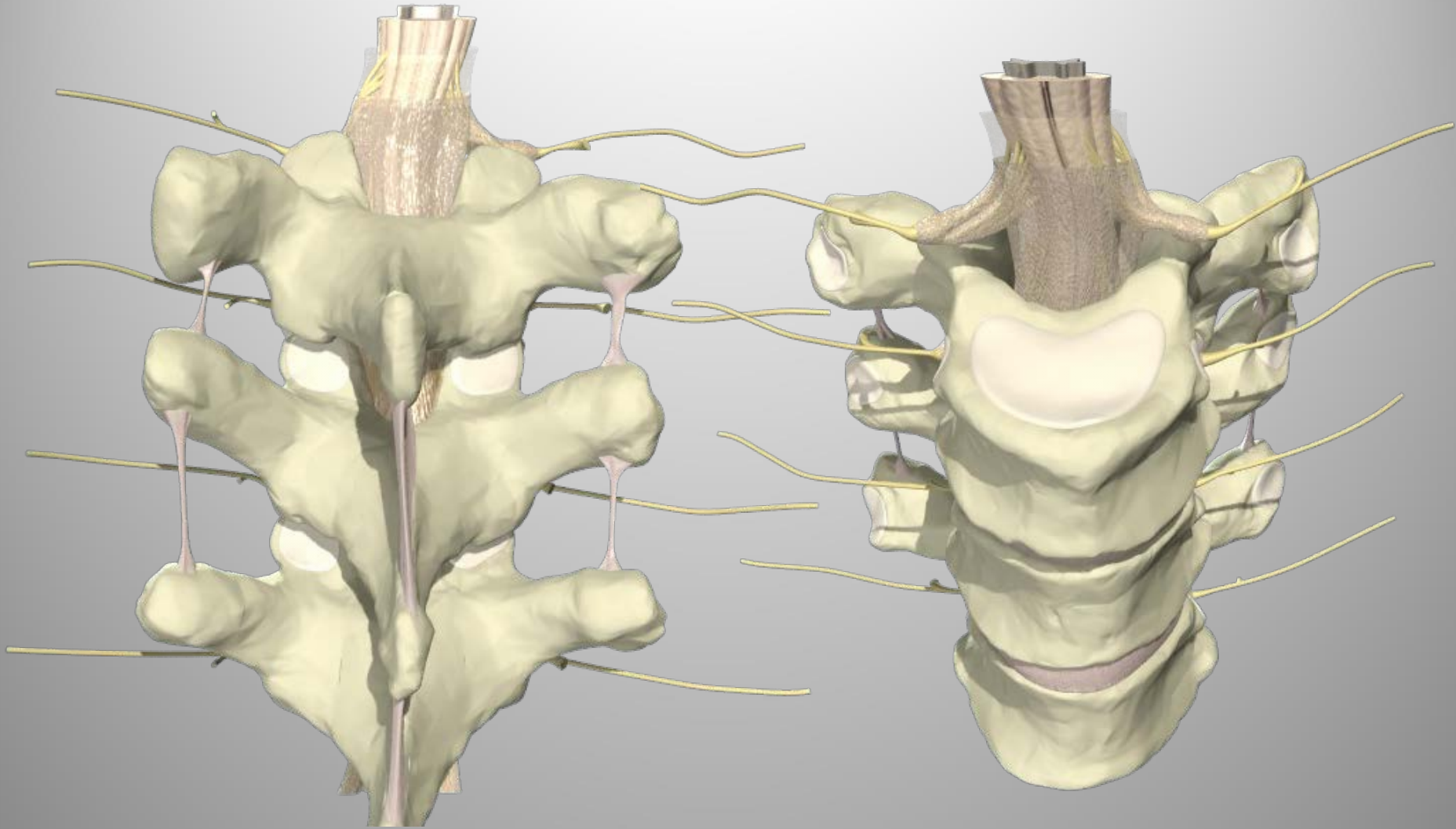


Trous de  
conjugaison

# méninges



# vertèbres



piliers postéro-latéraux

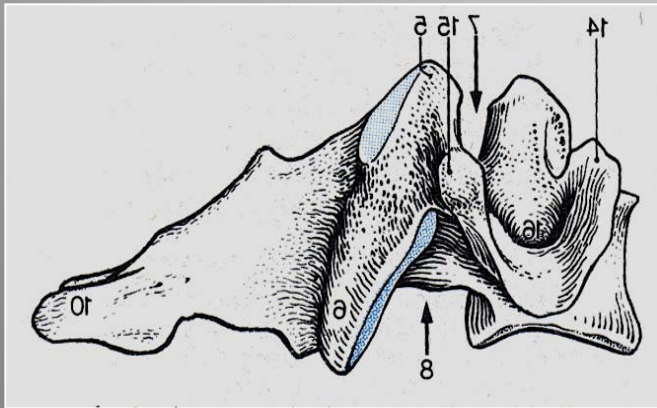
Massifs articulaires postérieurs

'pilier antérieur'

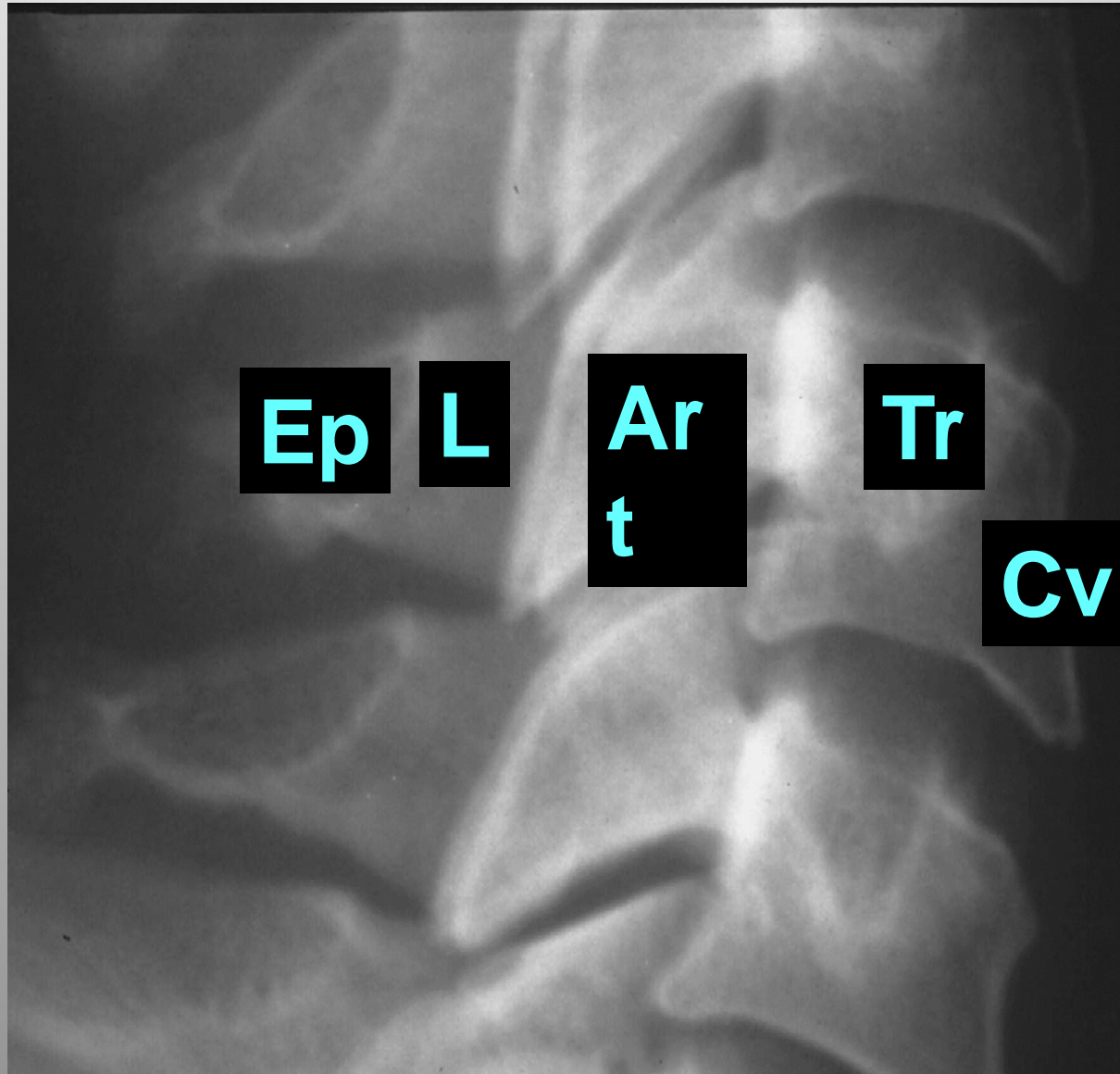
Corps vertébraux

Radiologie conventionnelle  
**segment cervical**



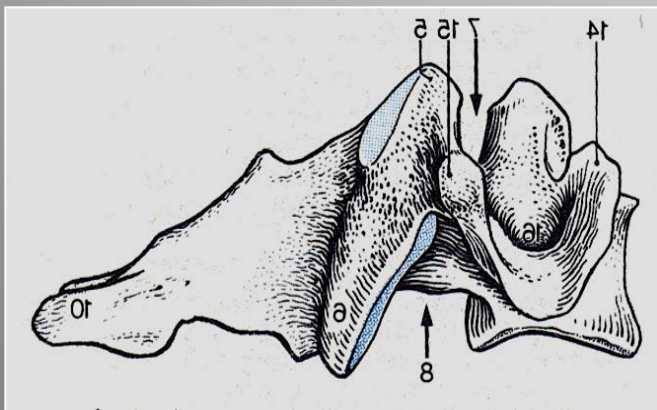
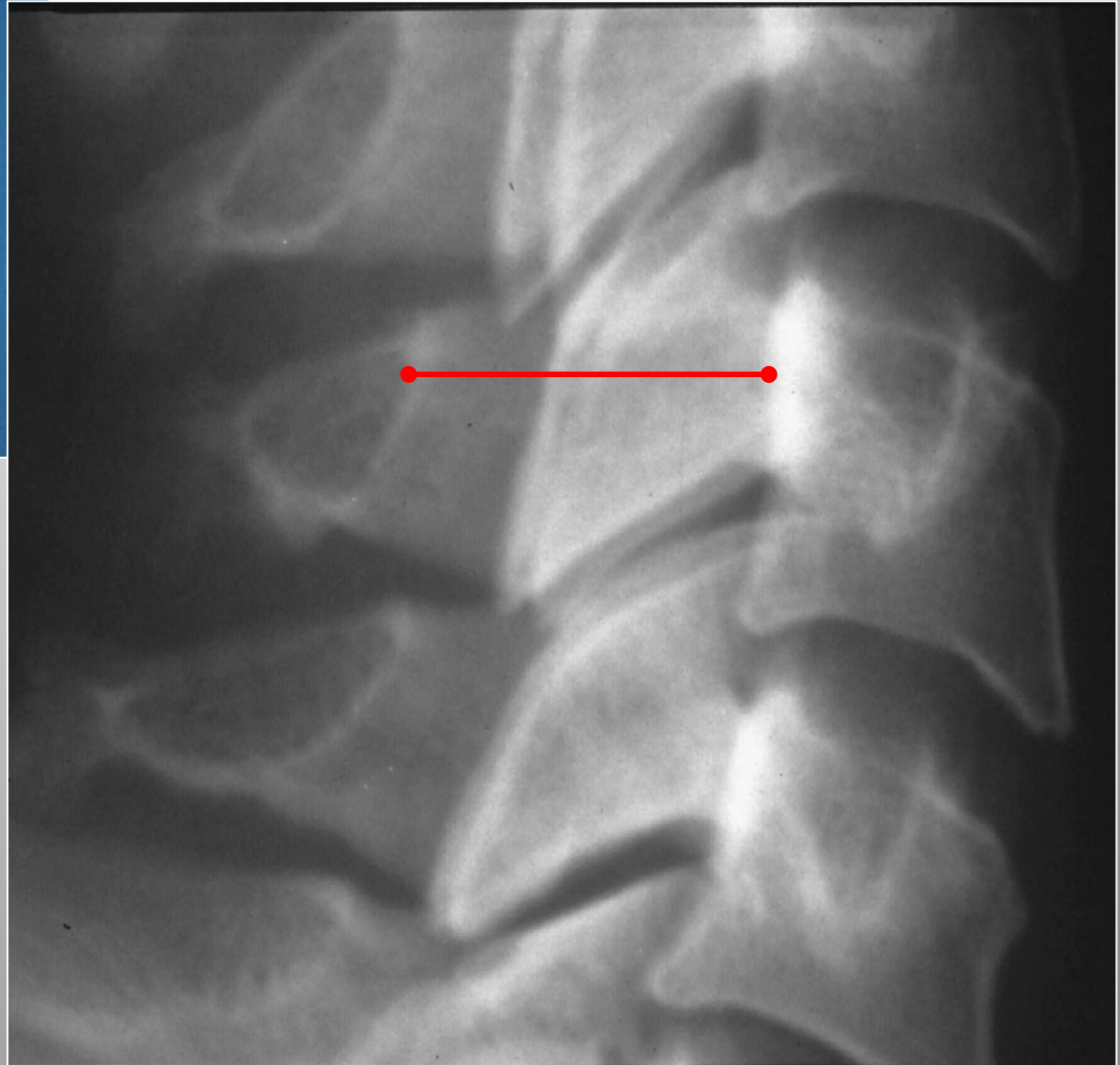
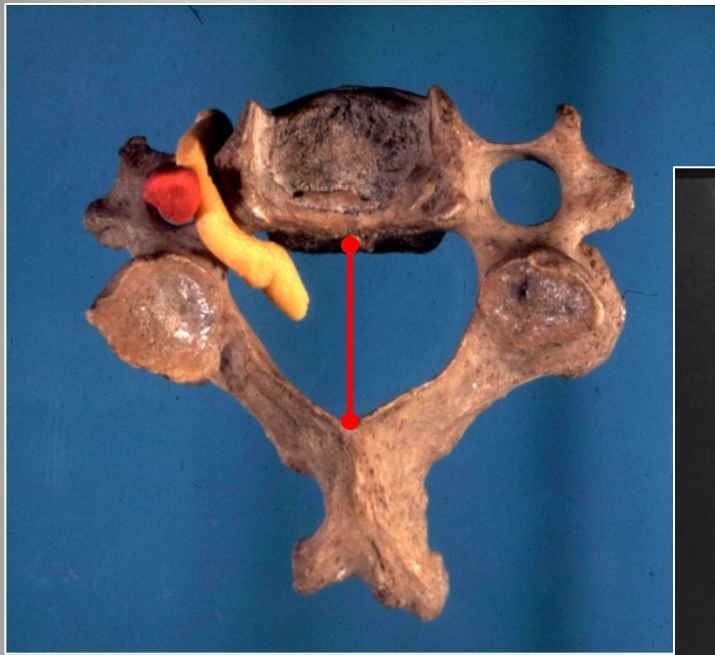


# Colonne cervicale de profil





# Diamètre A-P du canal?



Sténose  
canalaire  
anatomique



Canal normal

**Subluxation !**

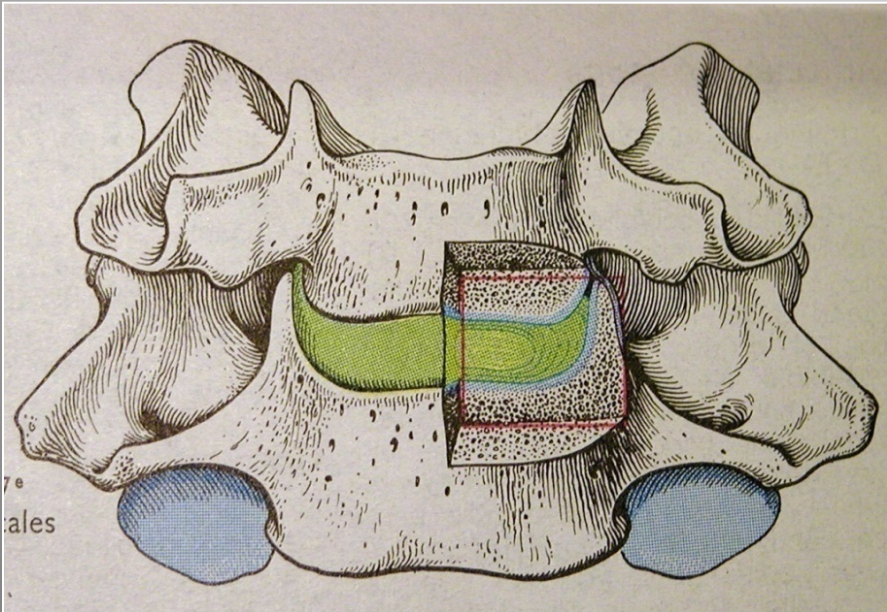


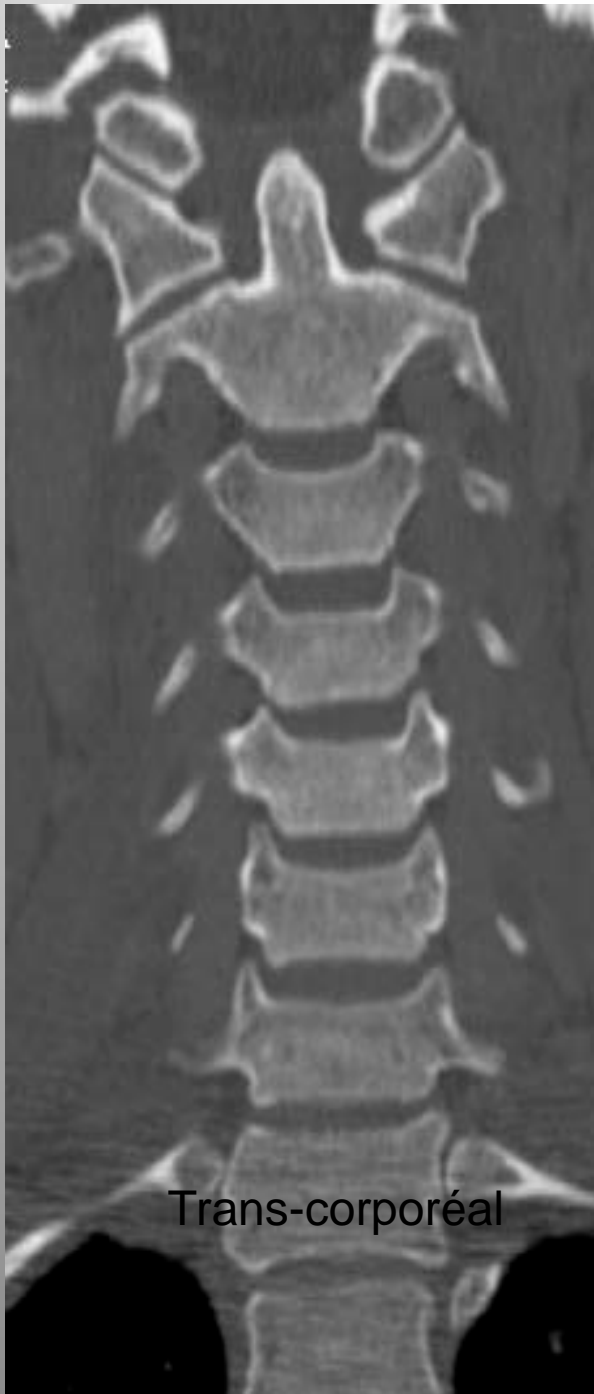
**Niveau ?**





Incidence de face





CT scanner  
hélicoïdal

incidence  
coronale

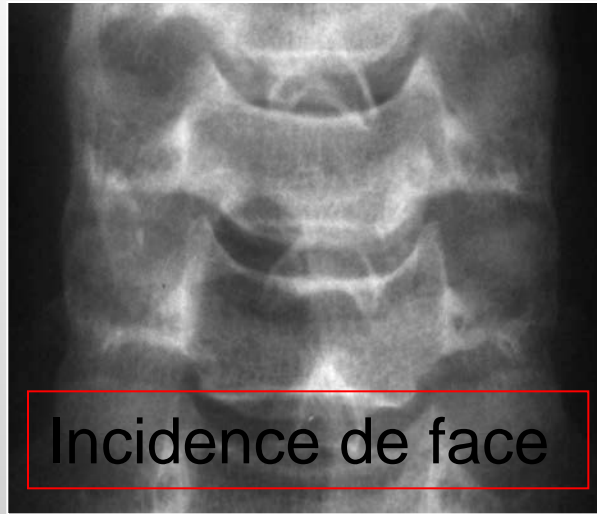


Trans-apophysaire  
postérieur

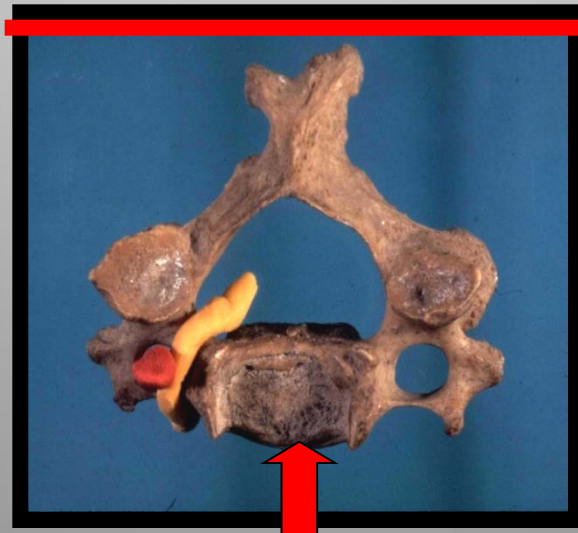


CT scanner  
hélicoïdal  
incidence  
sagittale

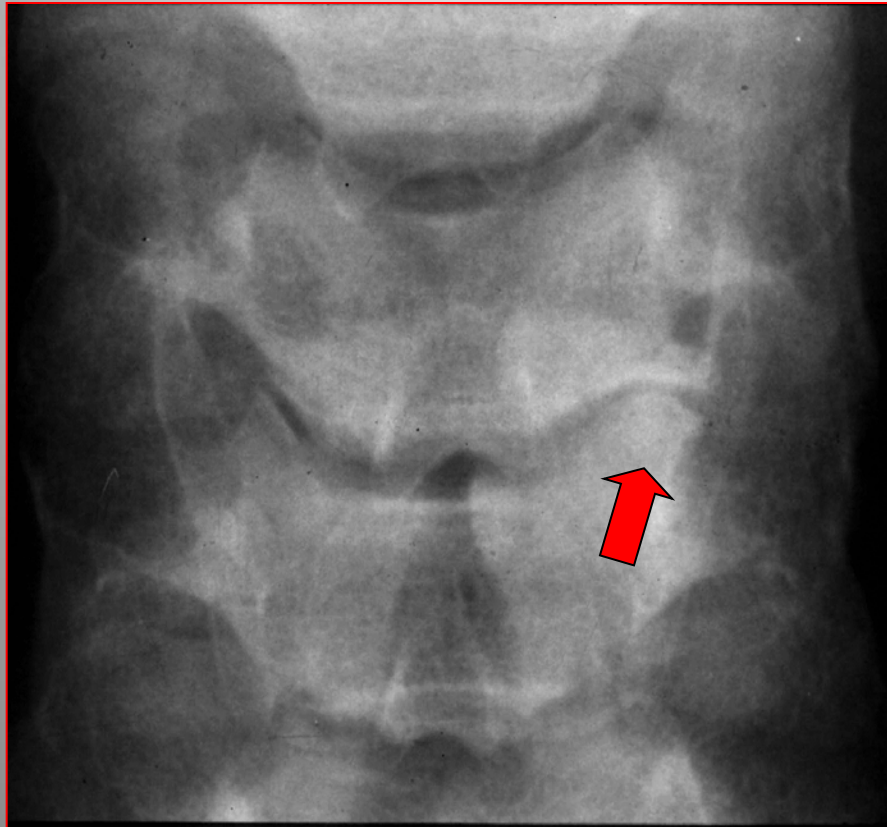




Incidences **obliques**



Patho

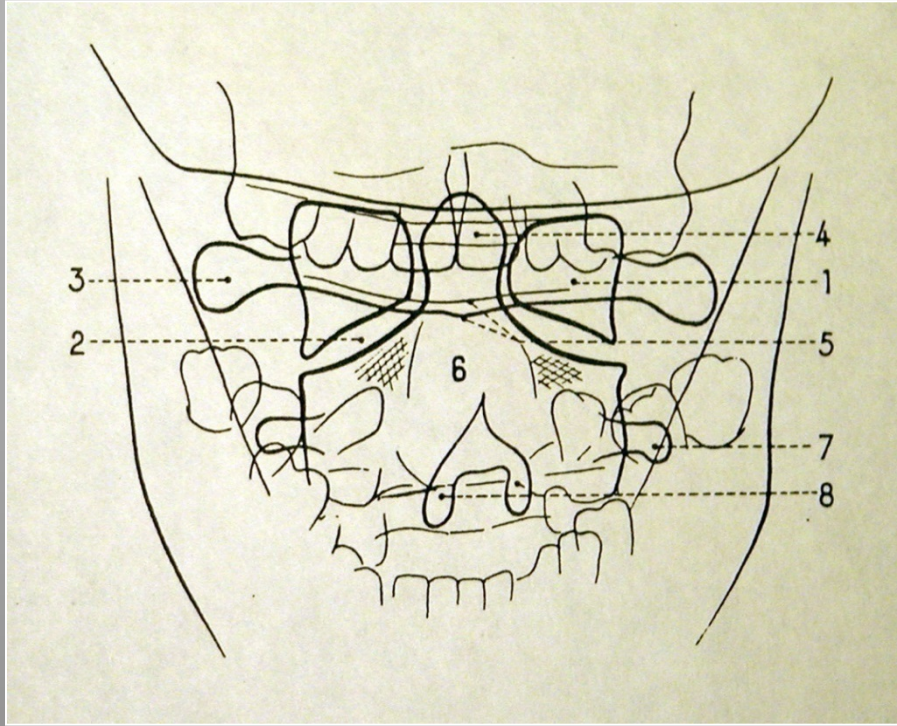


Arthrose unciforme

Normal



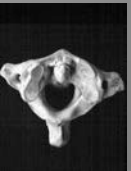
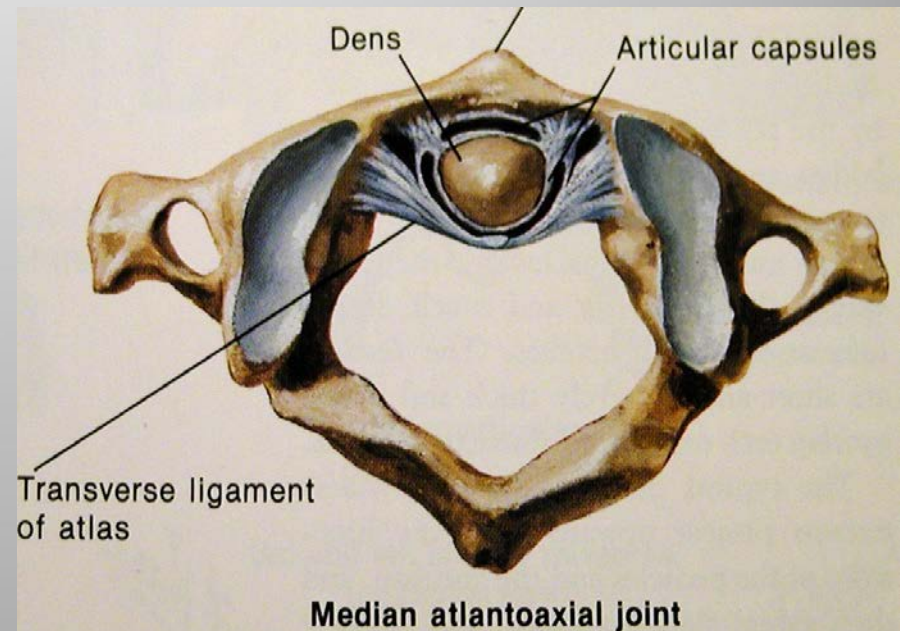




# C1-C2 en Flexion



# Stabilisation par ligament Transverse



# Extension

Epreuve  
'dynamique'

# Flexion



Sujet  
normal

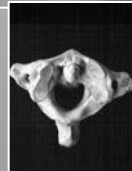


*C1 C2  
en Flexion*

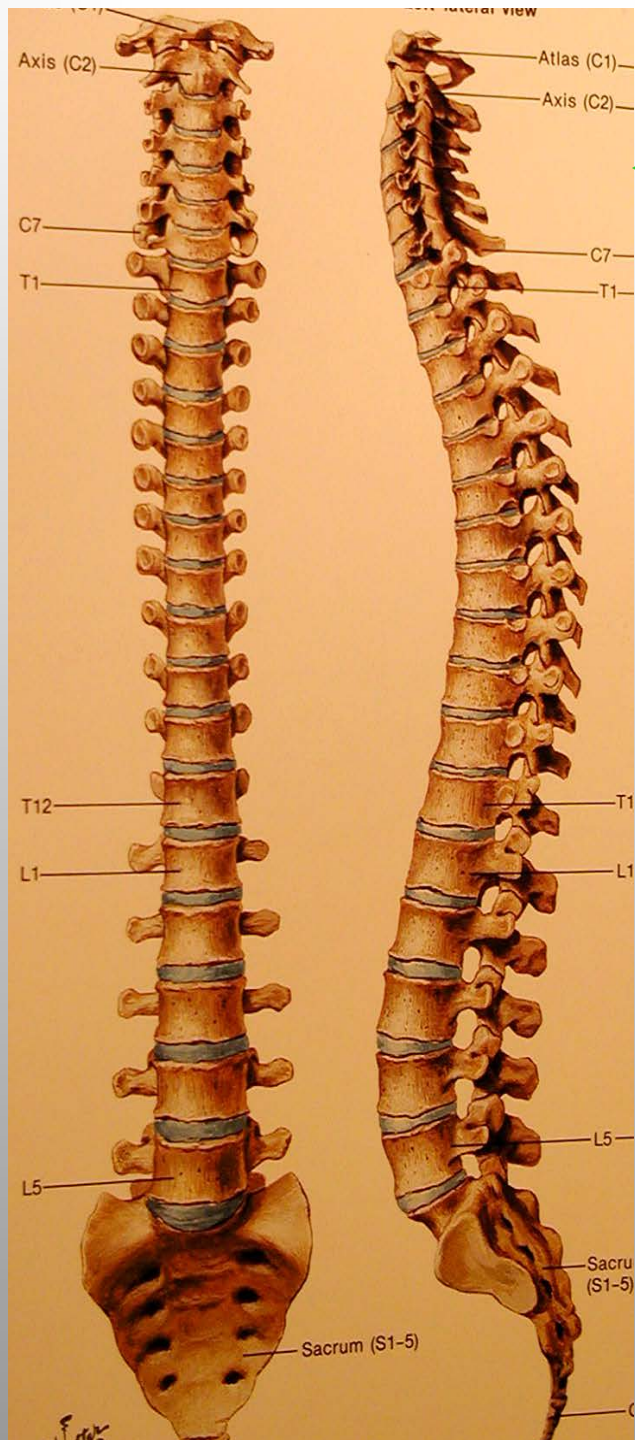
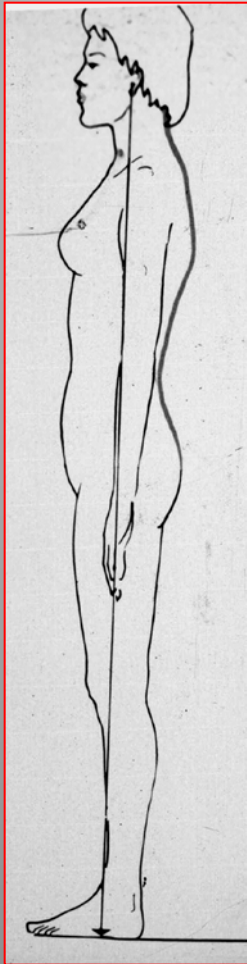
*Instabilité C1 C2*



Sujet  
normal



Radiologie conventionnelle  
**segment dorsal**



Lordose cervicale

Cyphose dorsale

Lordose lombaire

Courbures  
physiologiques



Rachis  
dorsal ou  
thoracique

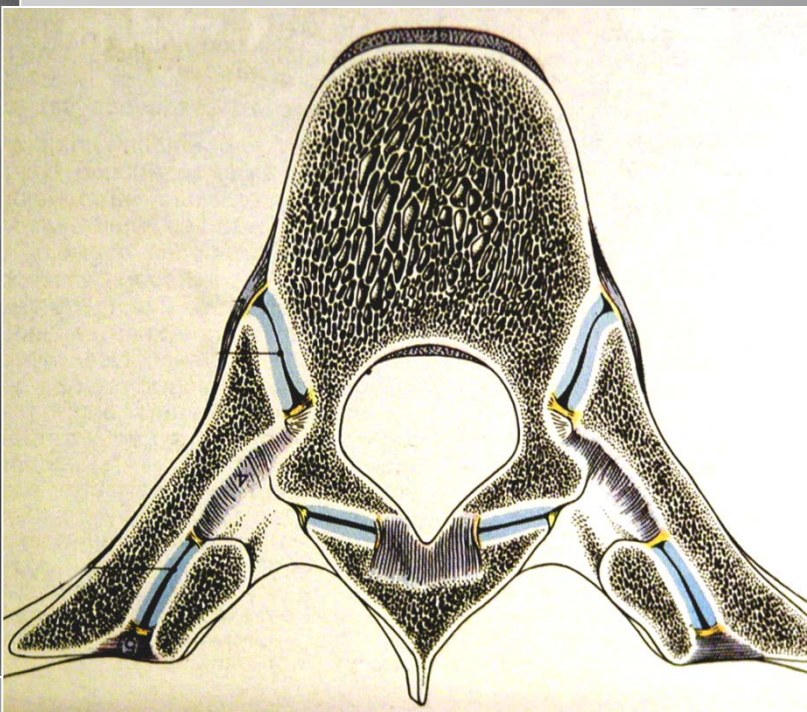
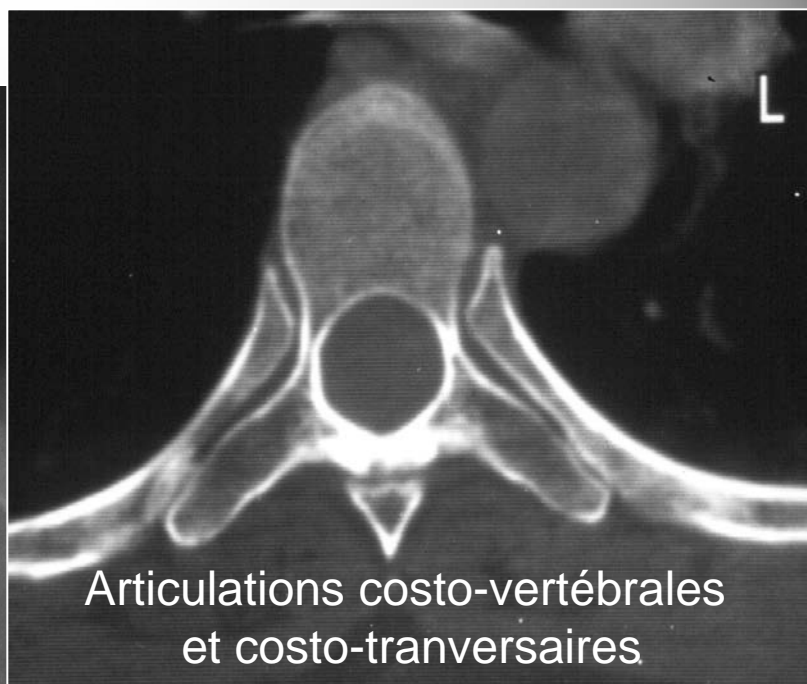
...surprojections



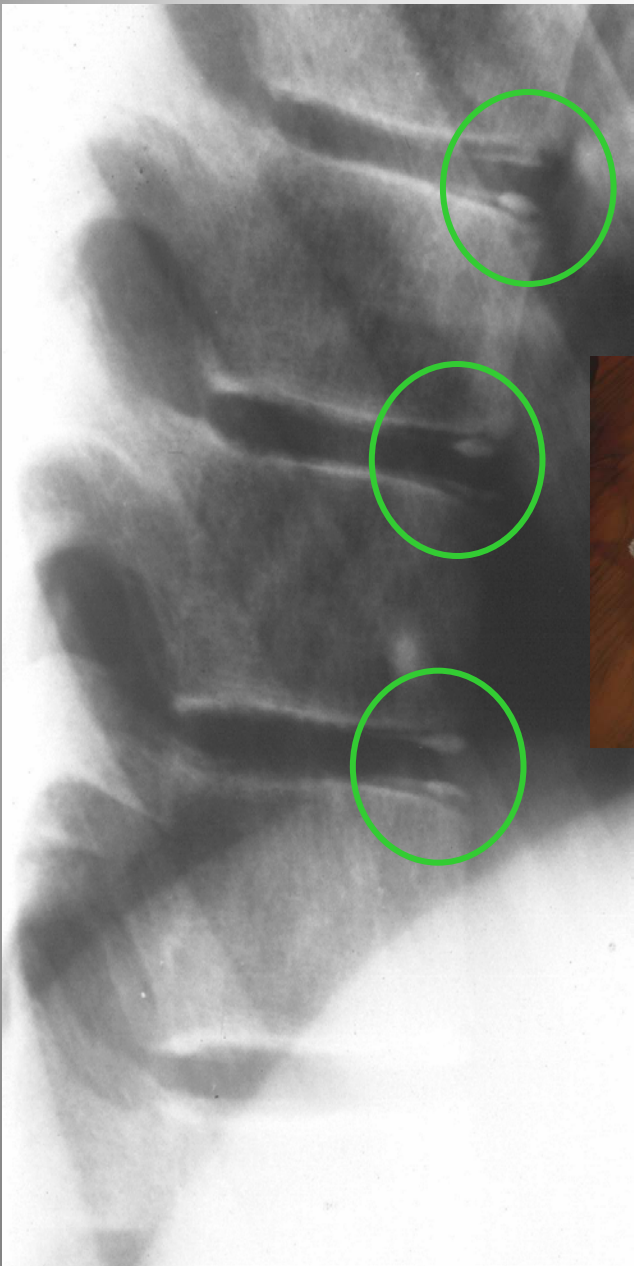
Côtes  
Poumons

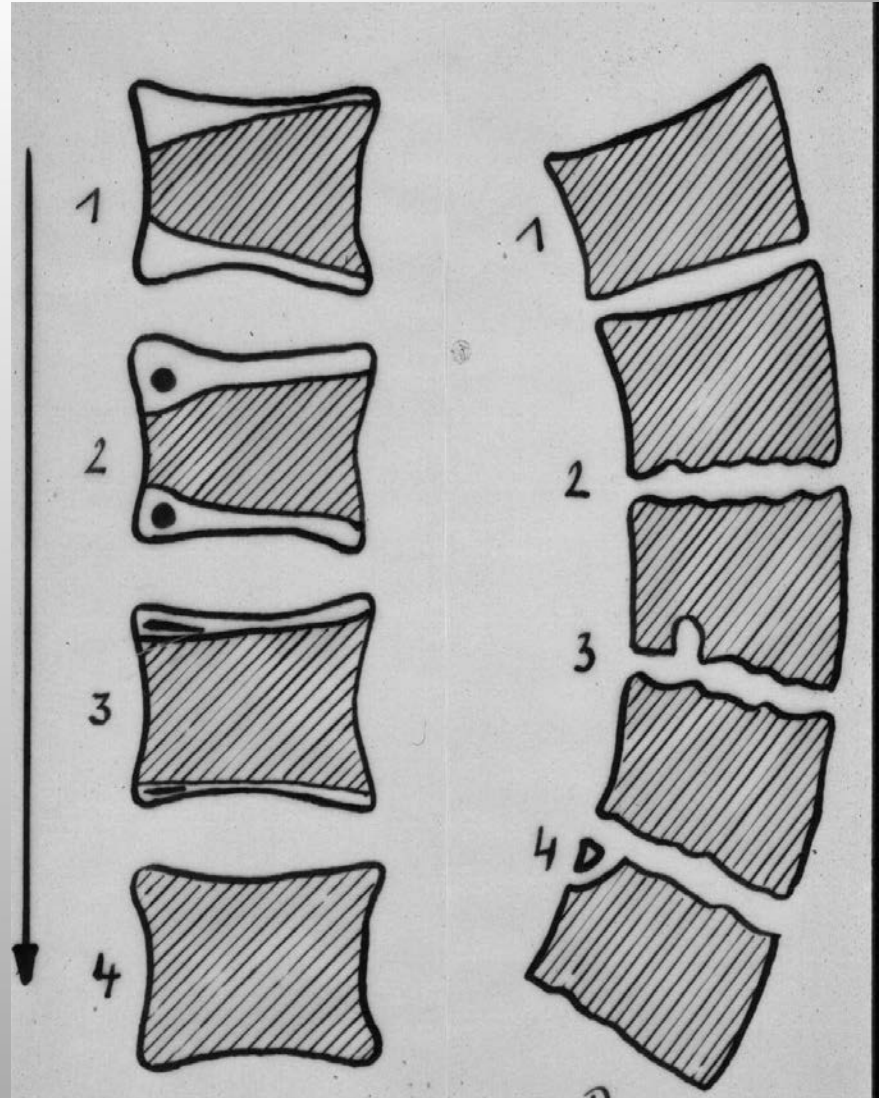
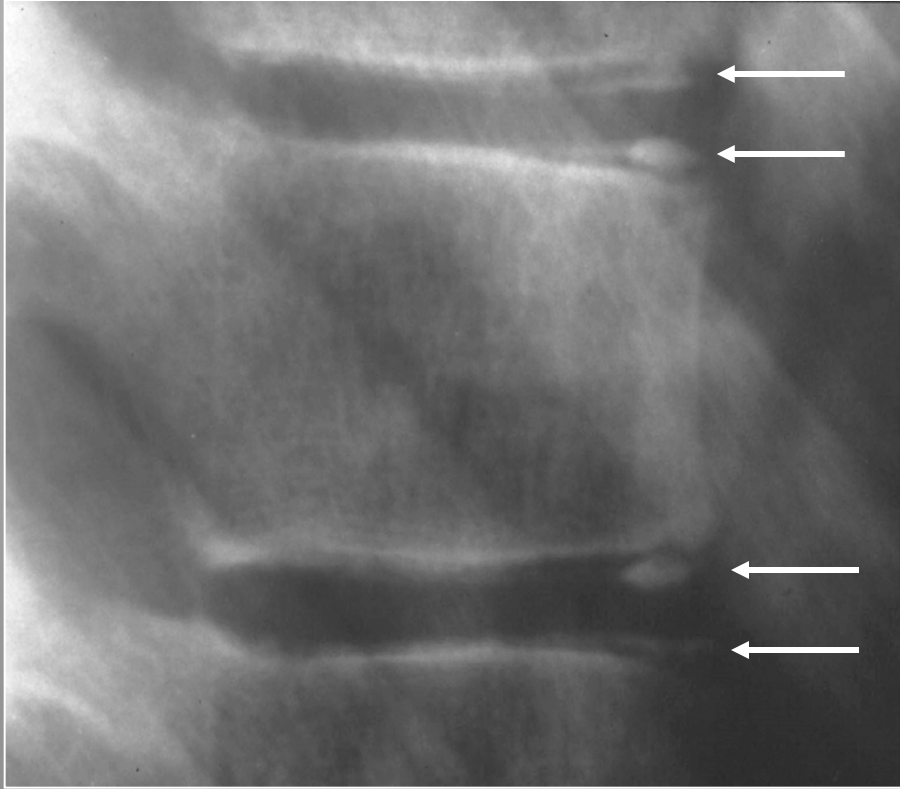
Moins mobile  
→ Disques  
moins épais





listel  
marginal





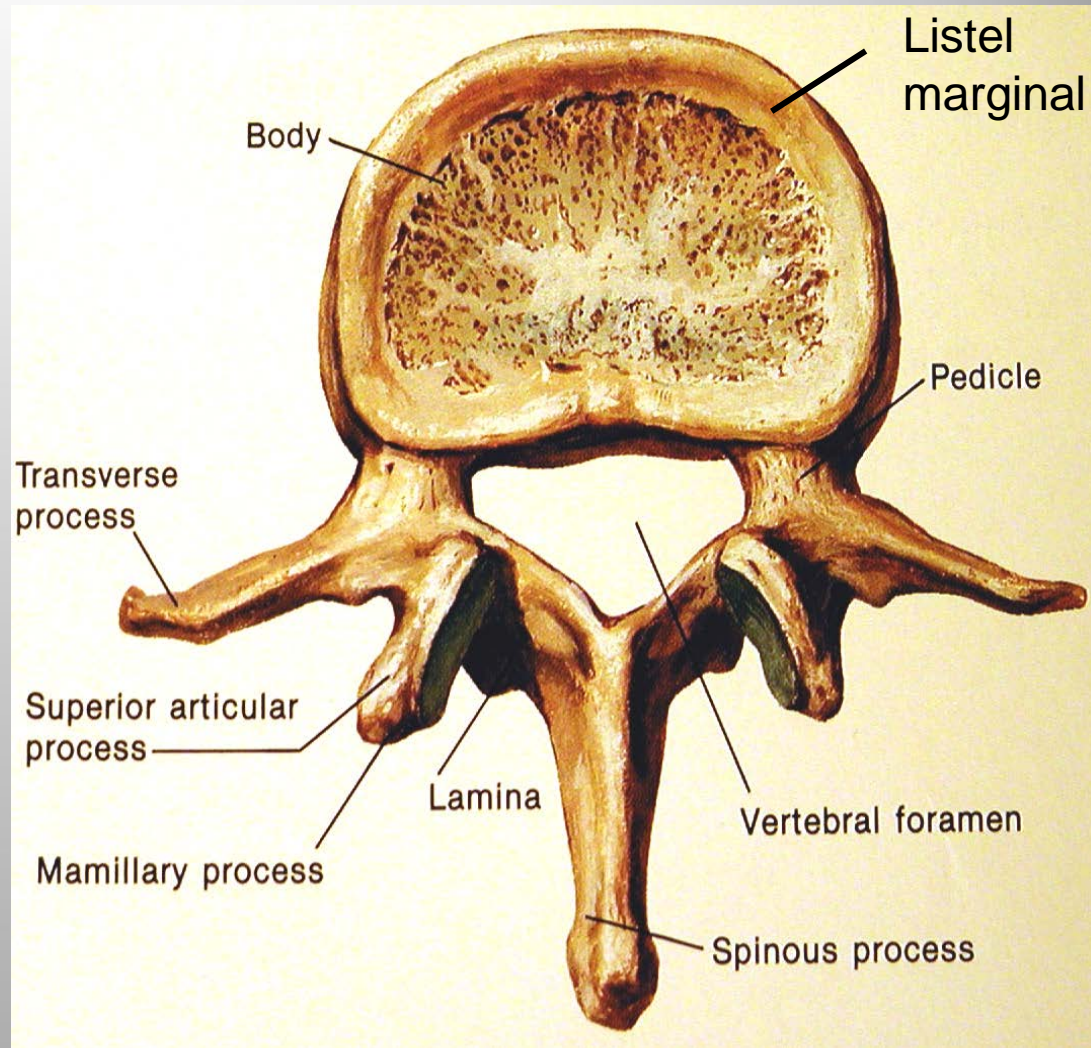
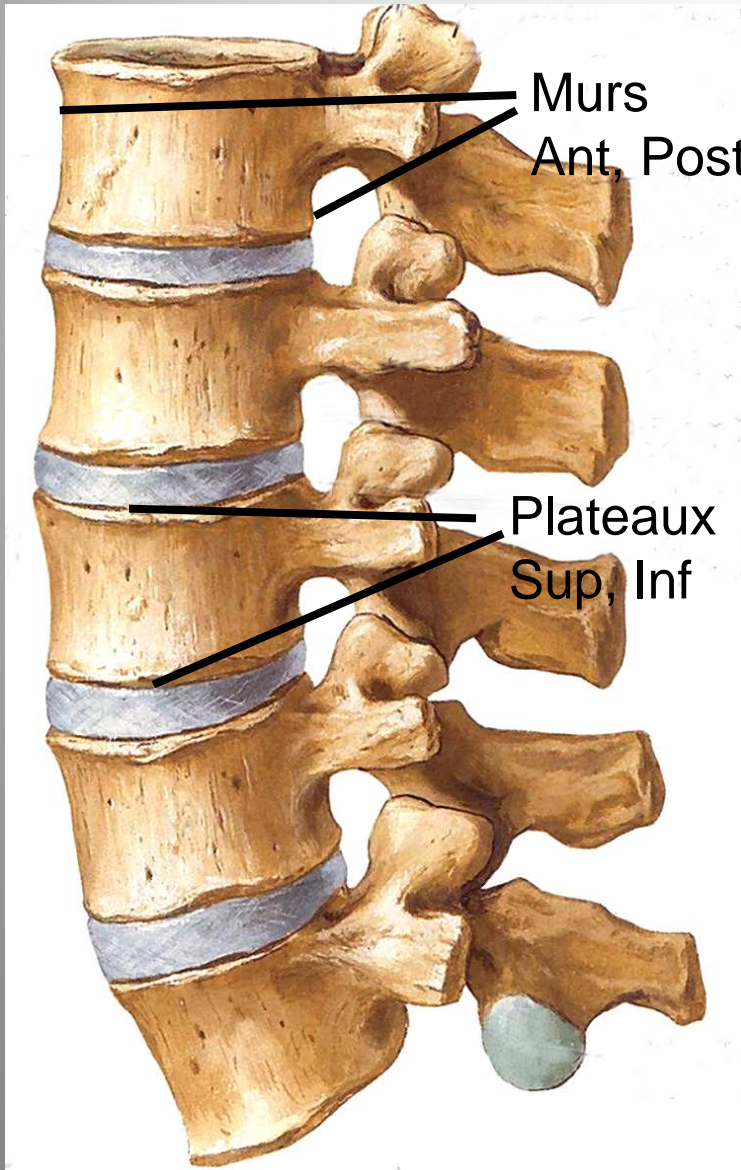
N

P



**« MALADIE » de SCHEUERMANN**

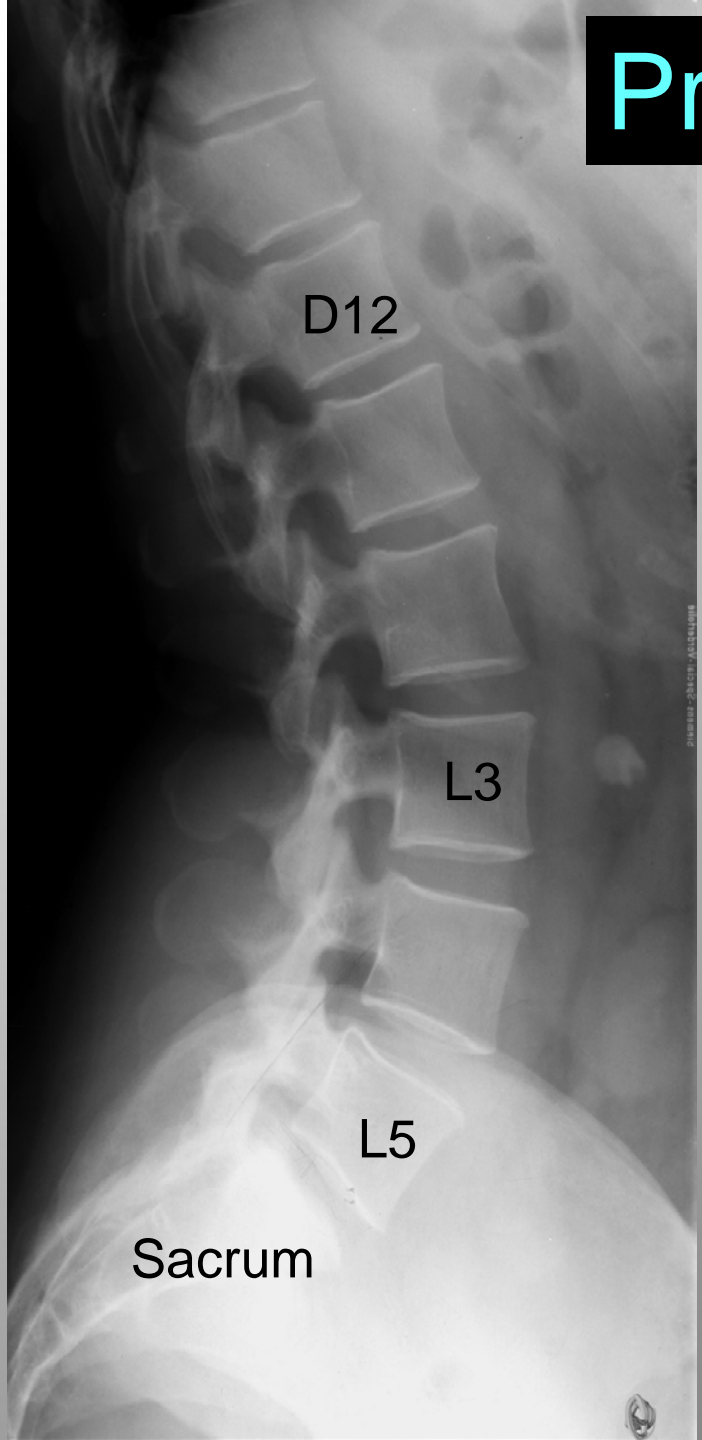
Rachis Lombaire  
+  
charnière lombosacrée

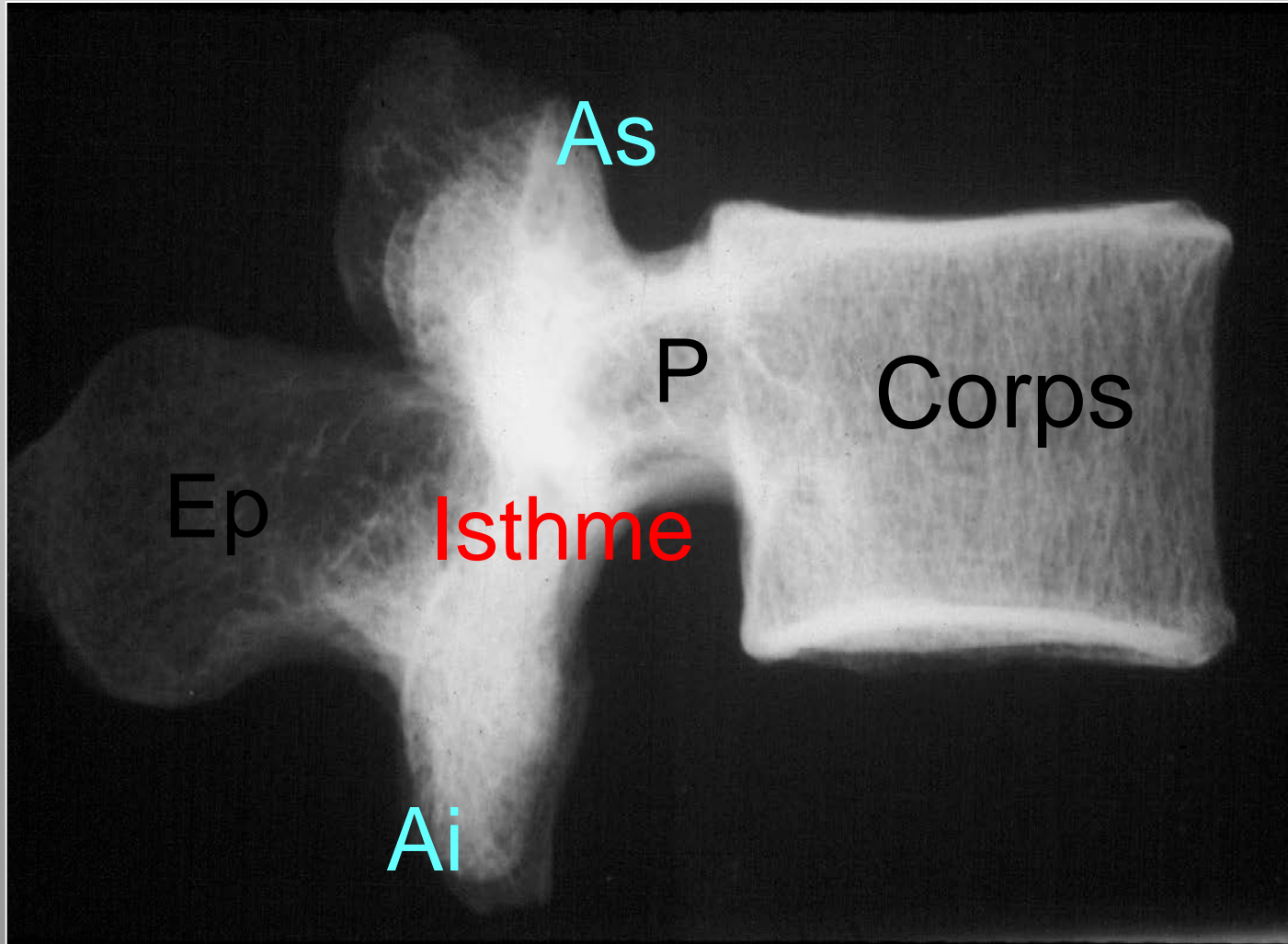


# Face

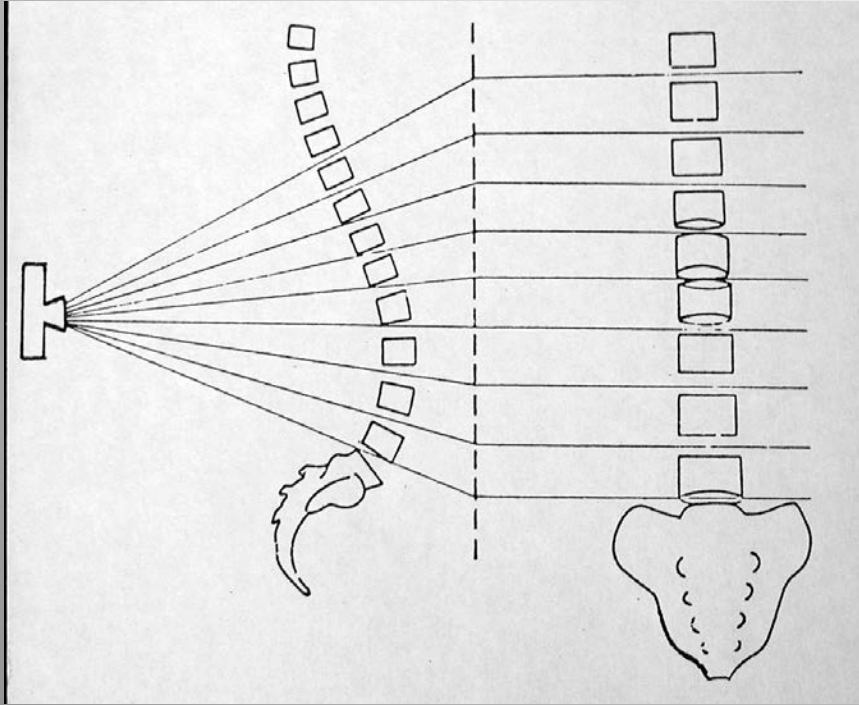


# Profil

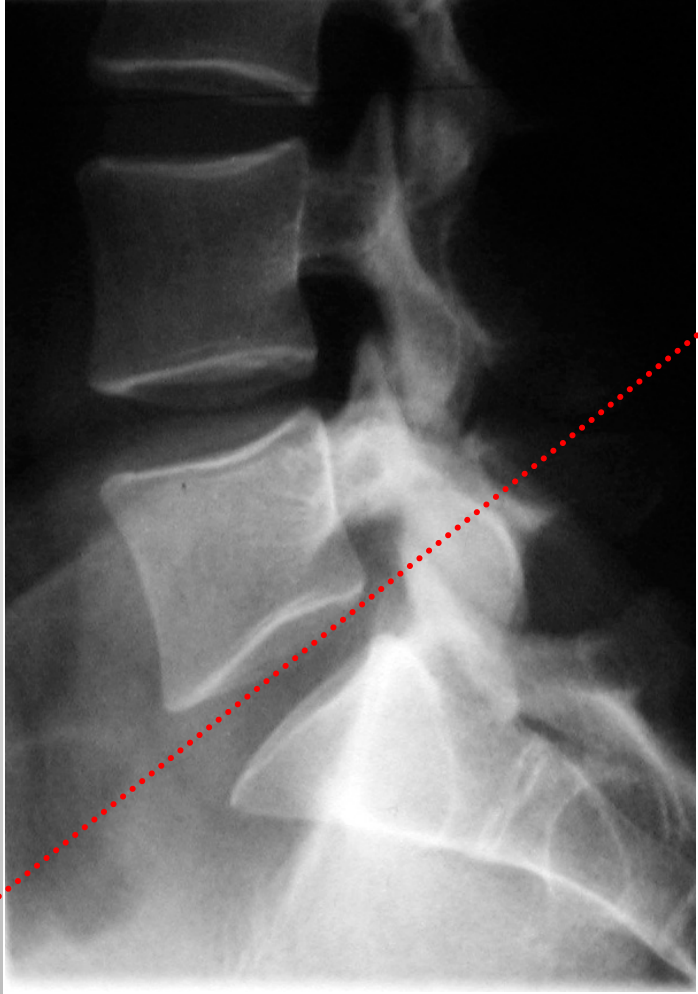
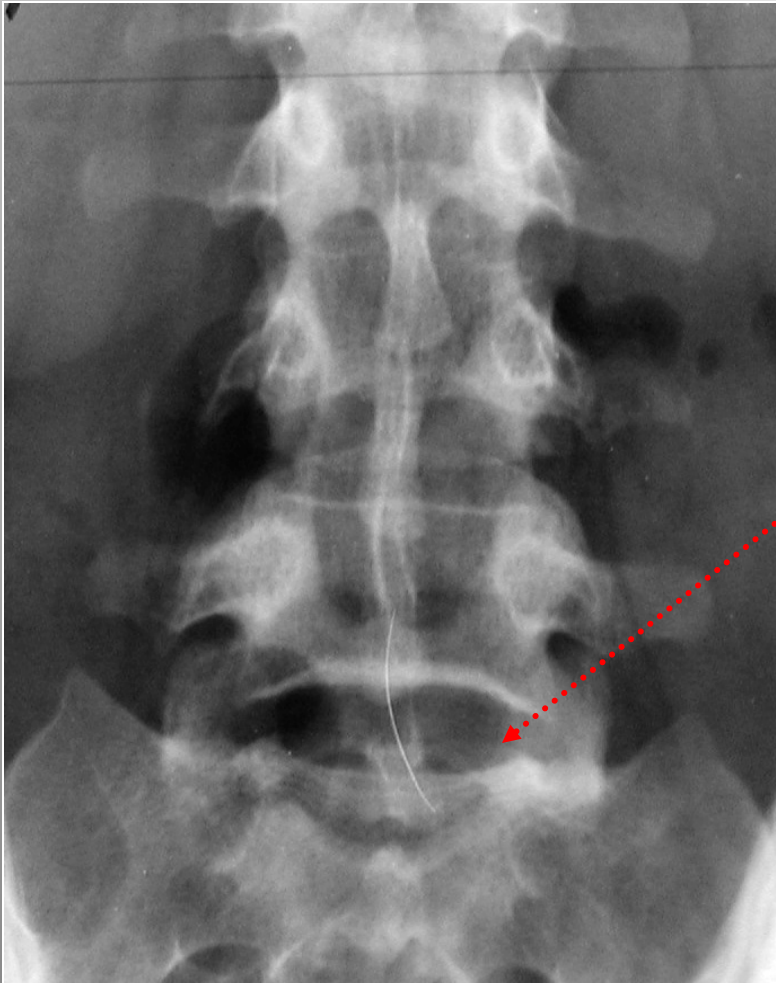


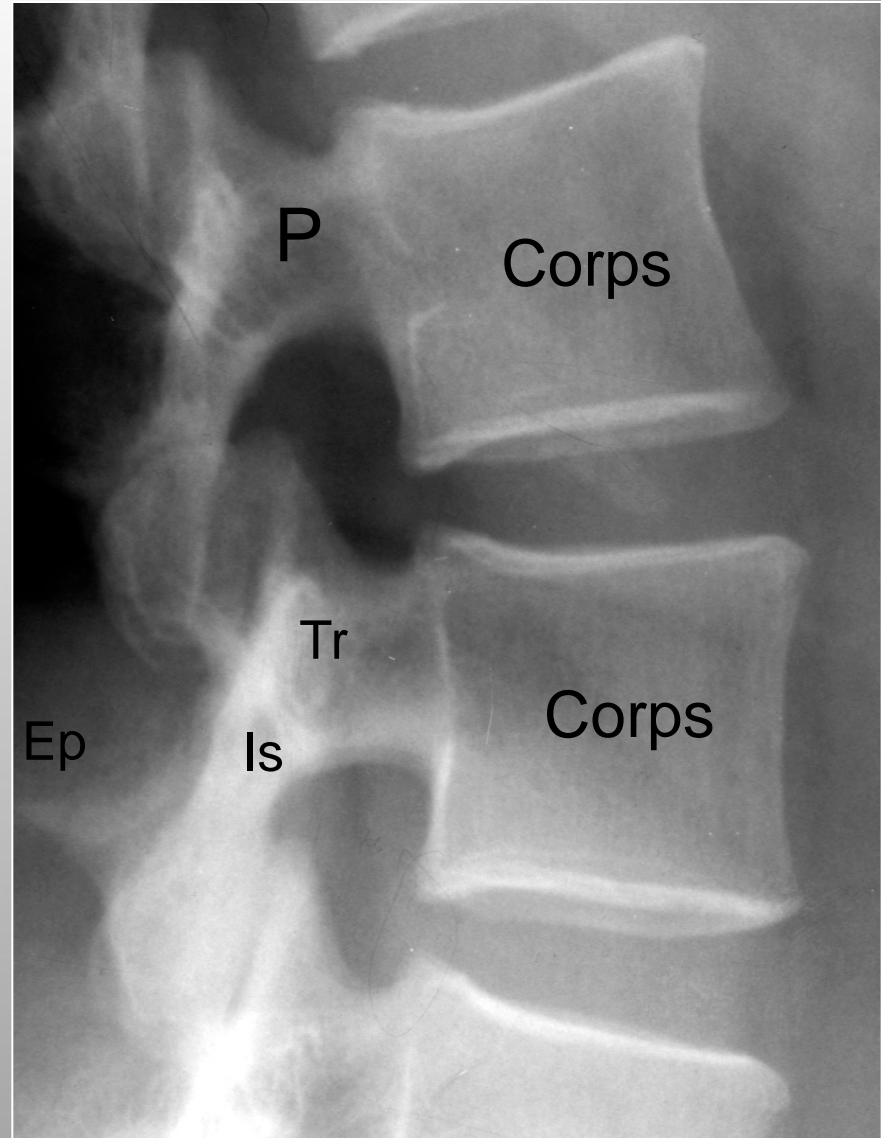
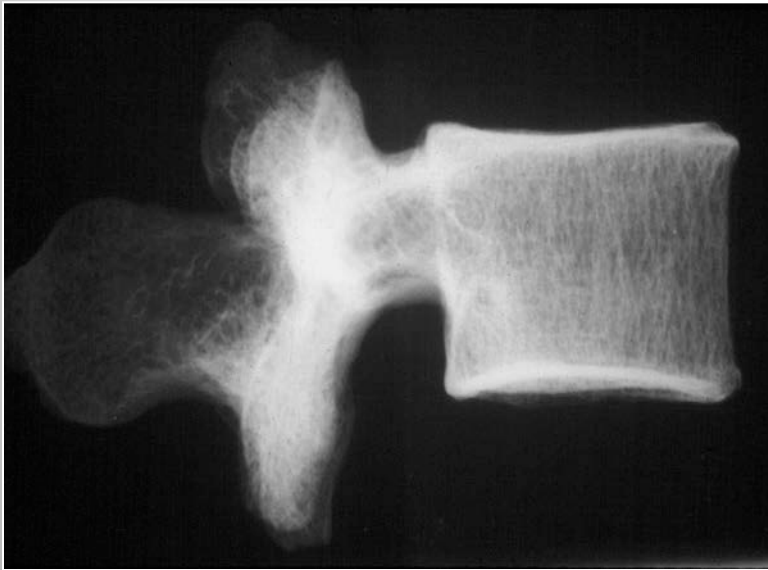




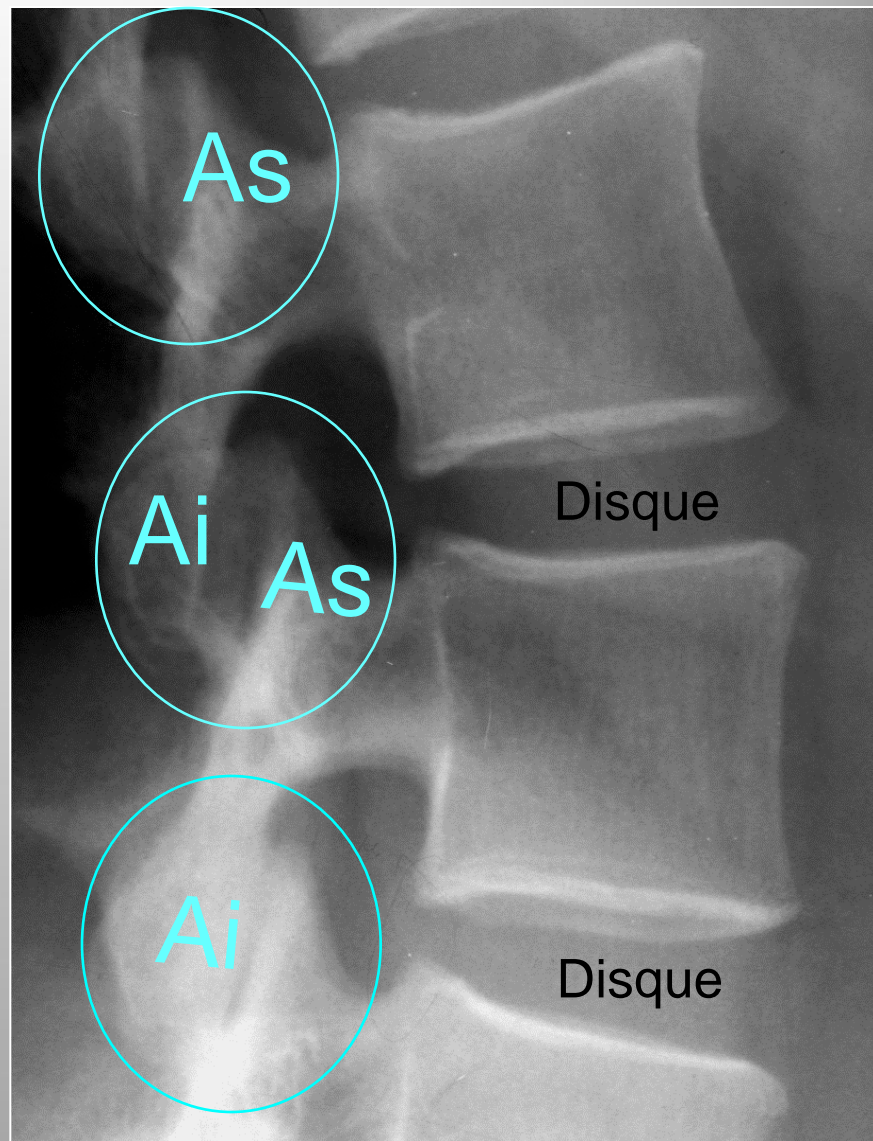
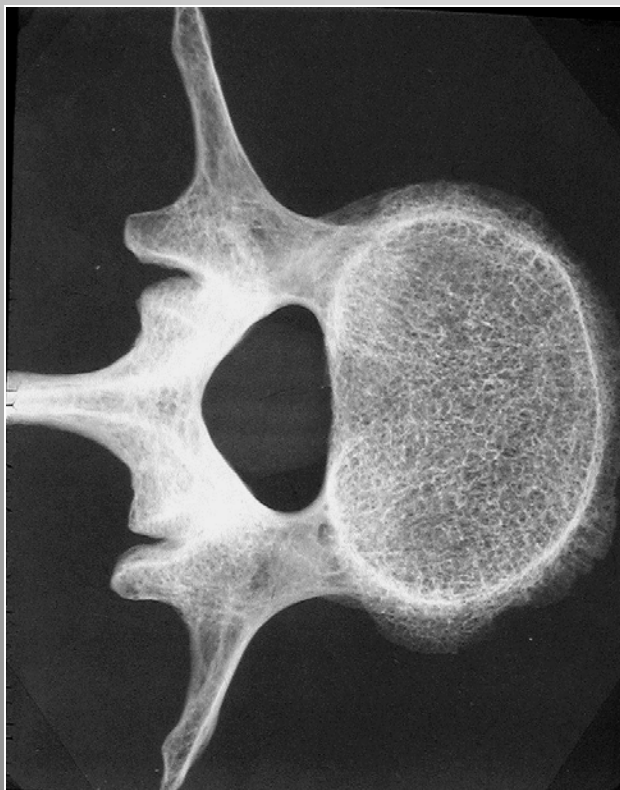
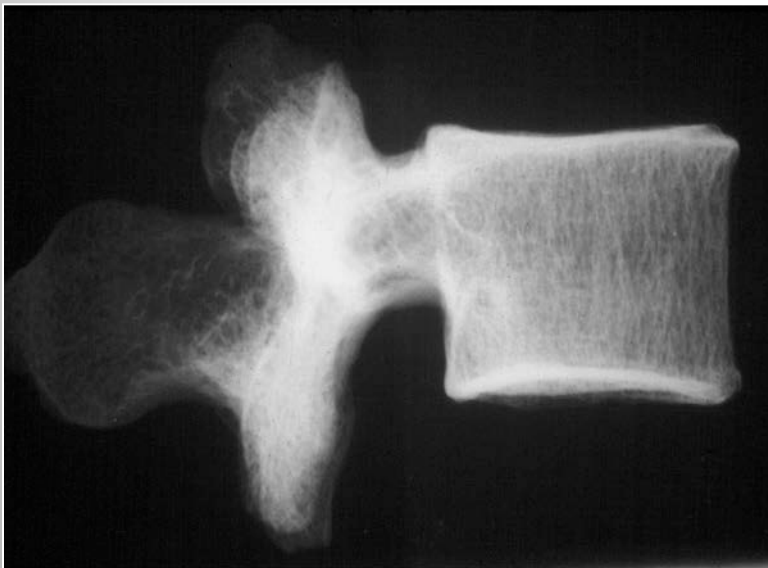


Face L5 - S1





# Articulations interapophysaires





# Sagittal T2

Cône terminal  
et  
Queue de cheval

D12

Cône

Corps vertébral

Epineuse

Racines  
Queue de  
cheval

Ligament surépineux

Veine basivertébrale

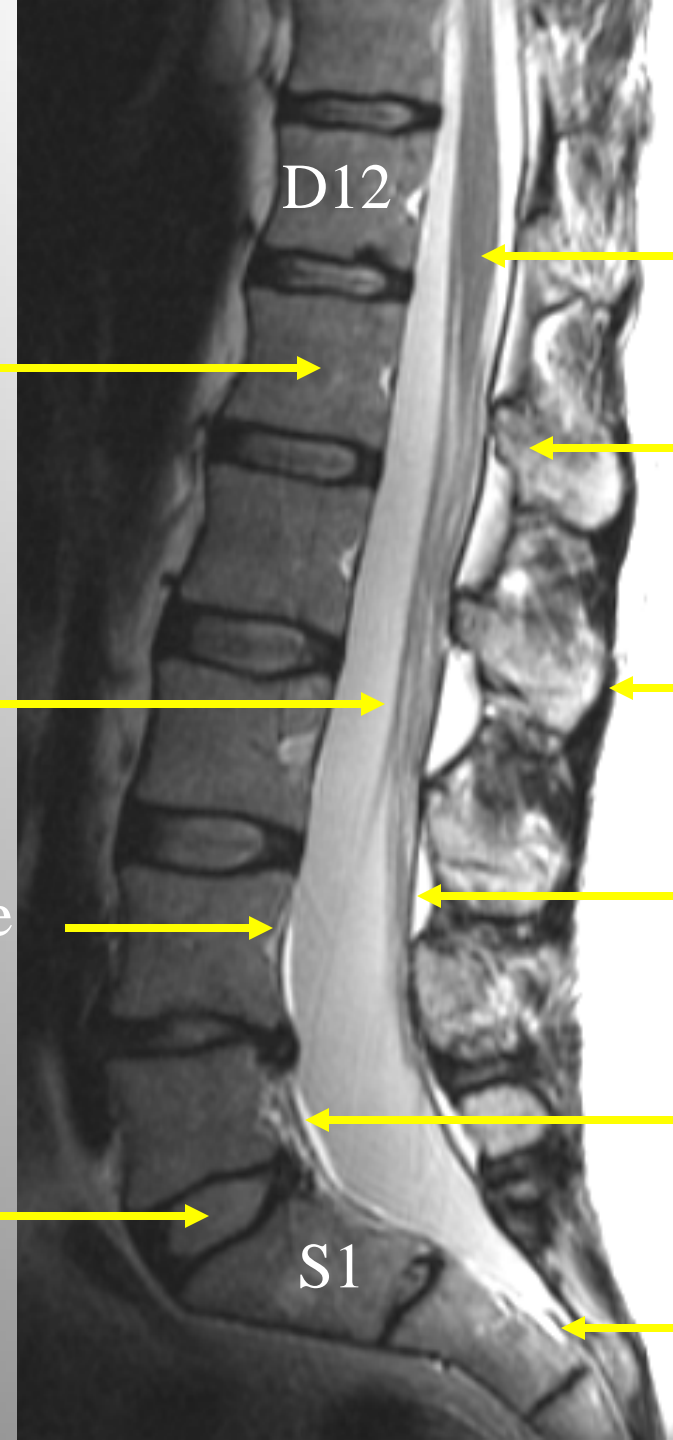
Graisse épidurale

LLP+duremère

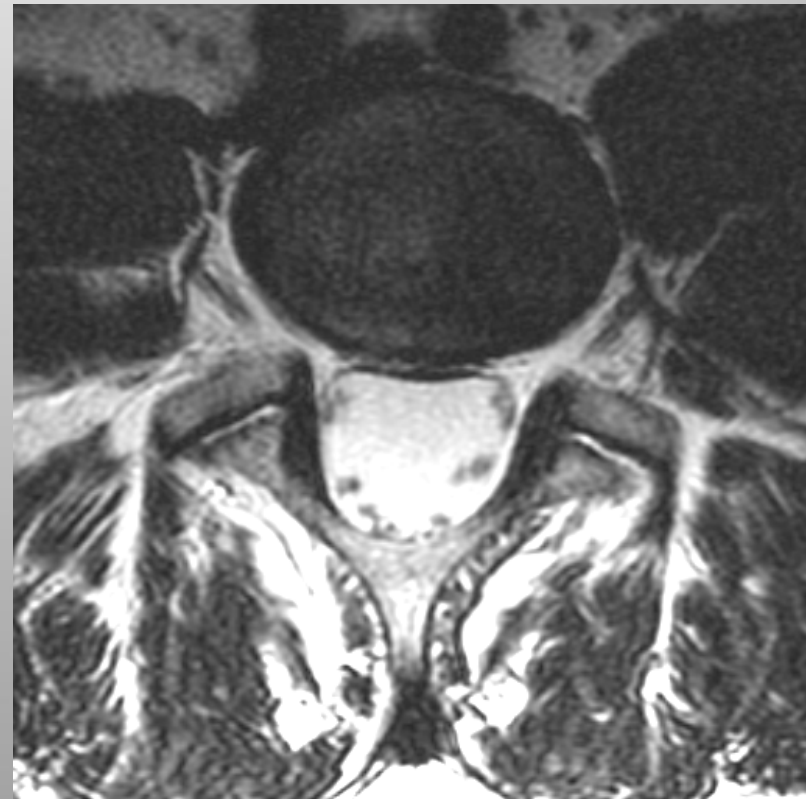
Disque

S1

Filum Terminale

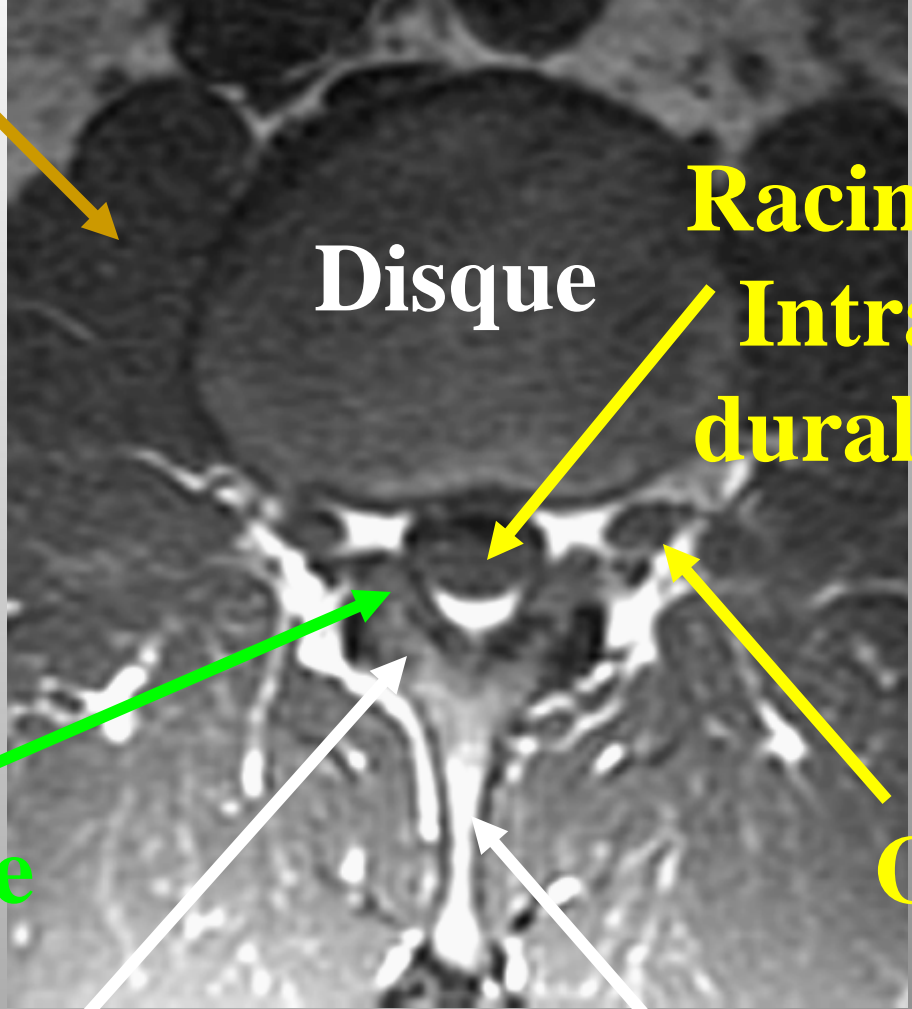


# Racines intrathécales





**Ligt jaune**



**VCI AO**

**Psoas**

**Disque**

**Racines**

**Intra dures**

**Gg**

**Lame**

**Epineuse**

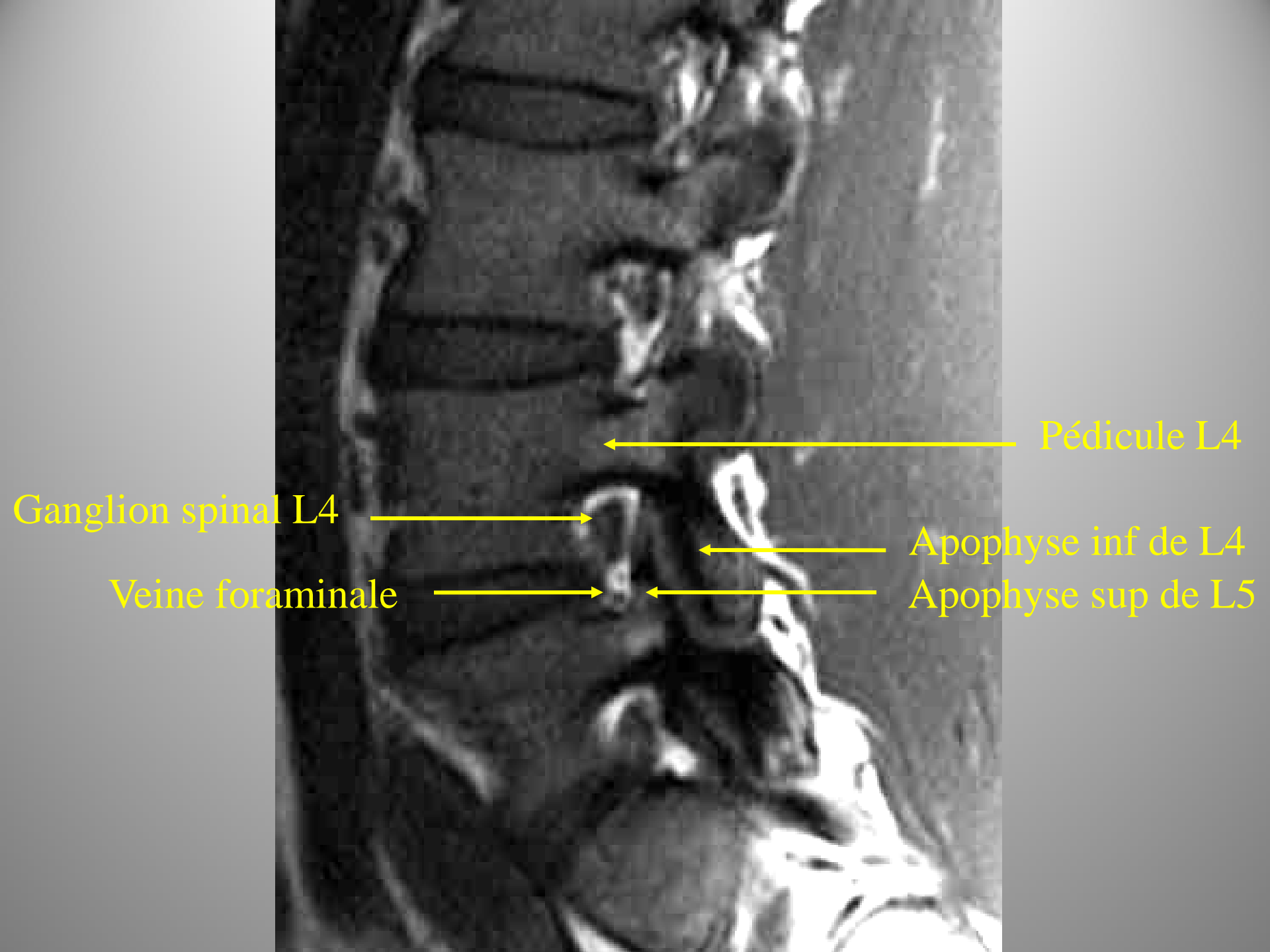




Pondération T1



Pondération T2



Pédicule L4

Ganglion spinal L4

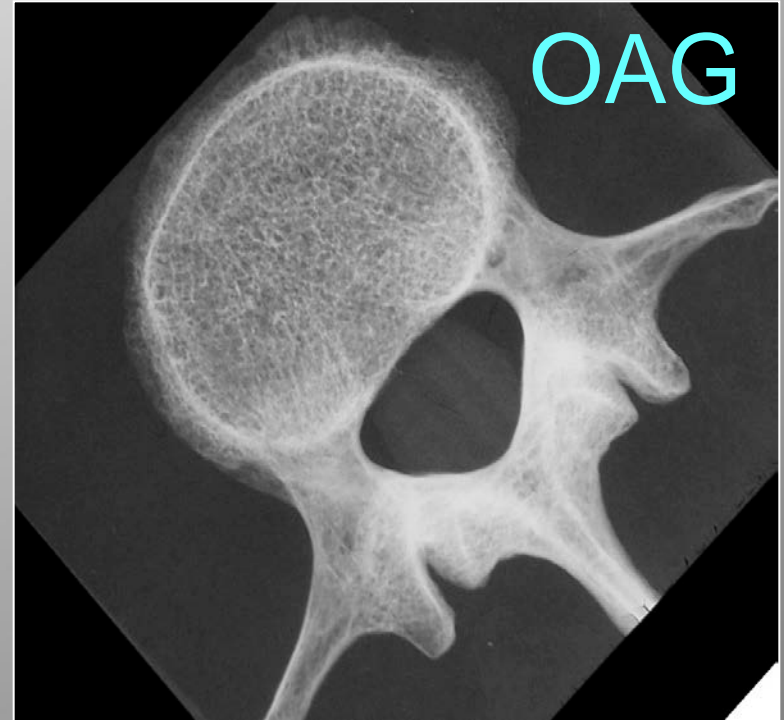
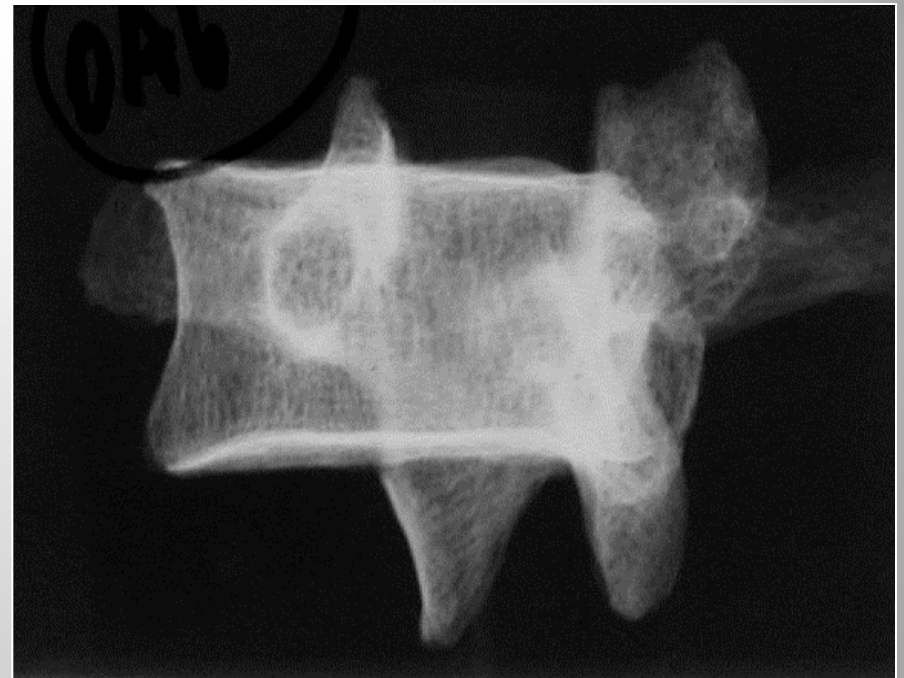
Apophyse inf de L4

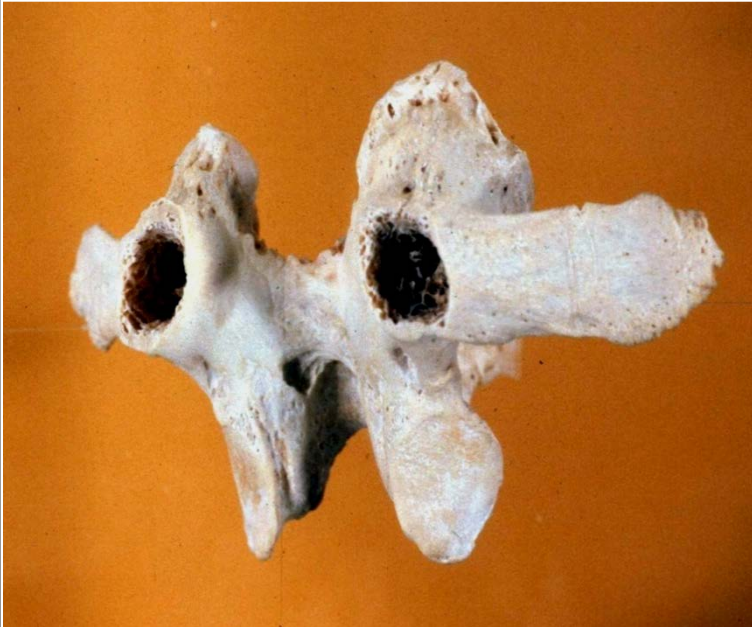
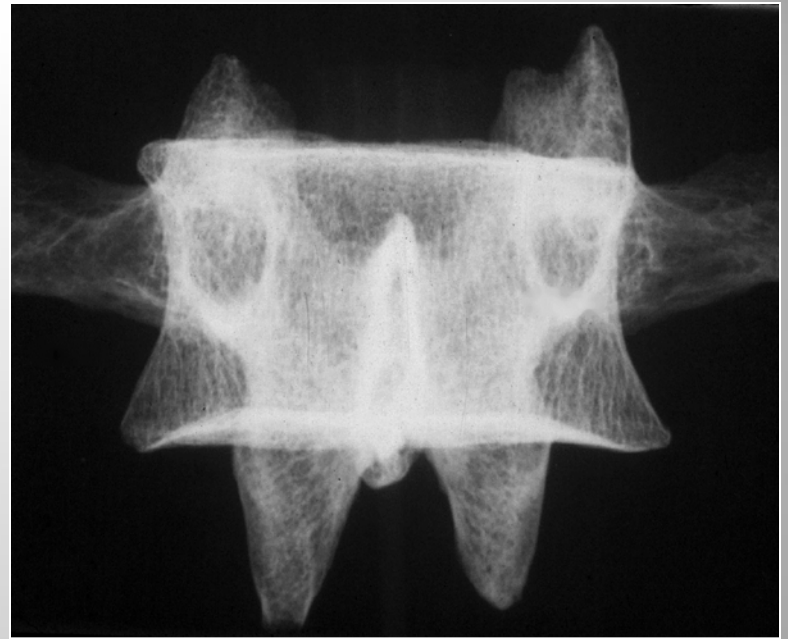
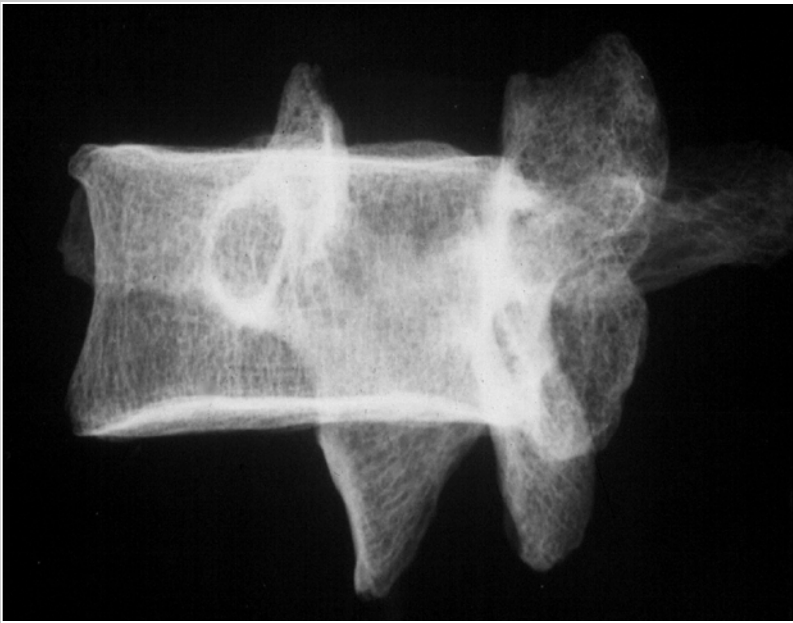
Veine foraminale

Apophyse sup de L5

# Projections obliques

Mise en évidence  
de l'isthme interapophysaire





OAG

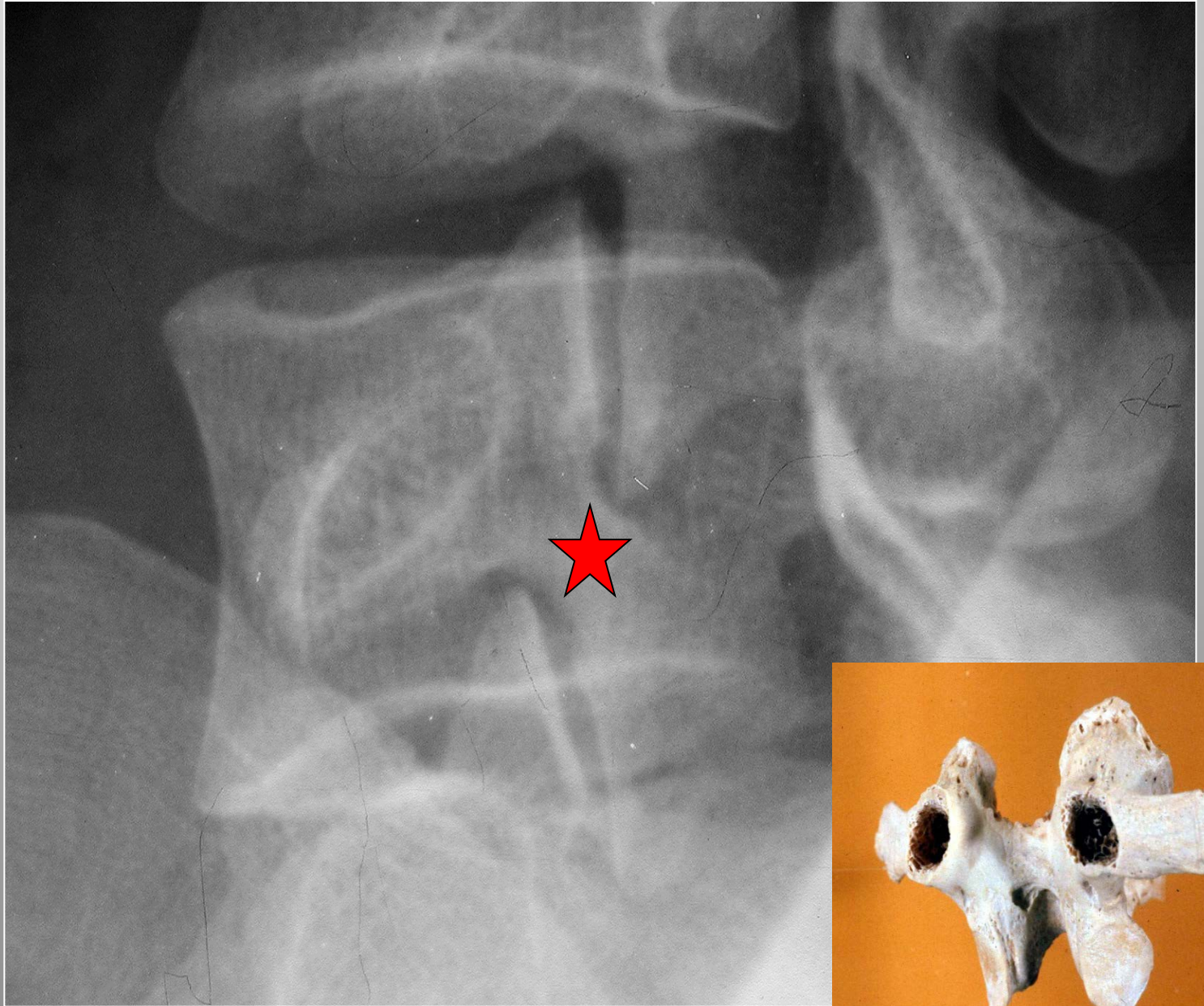


OAG

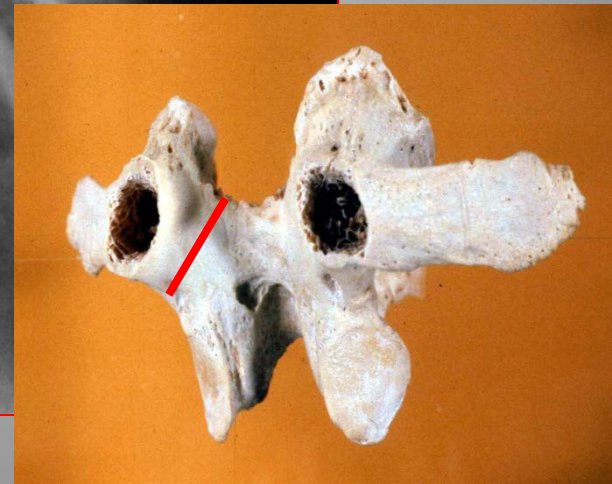
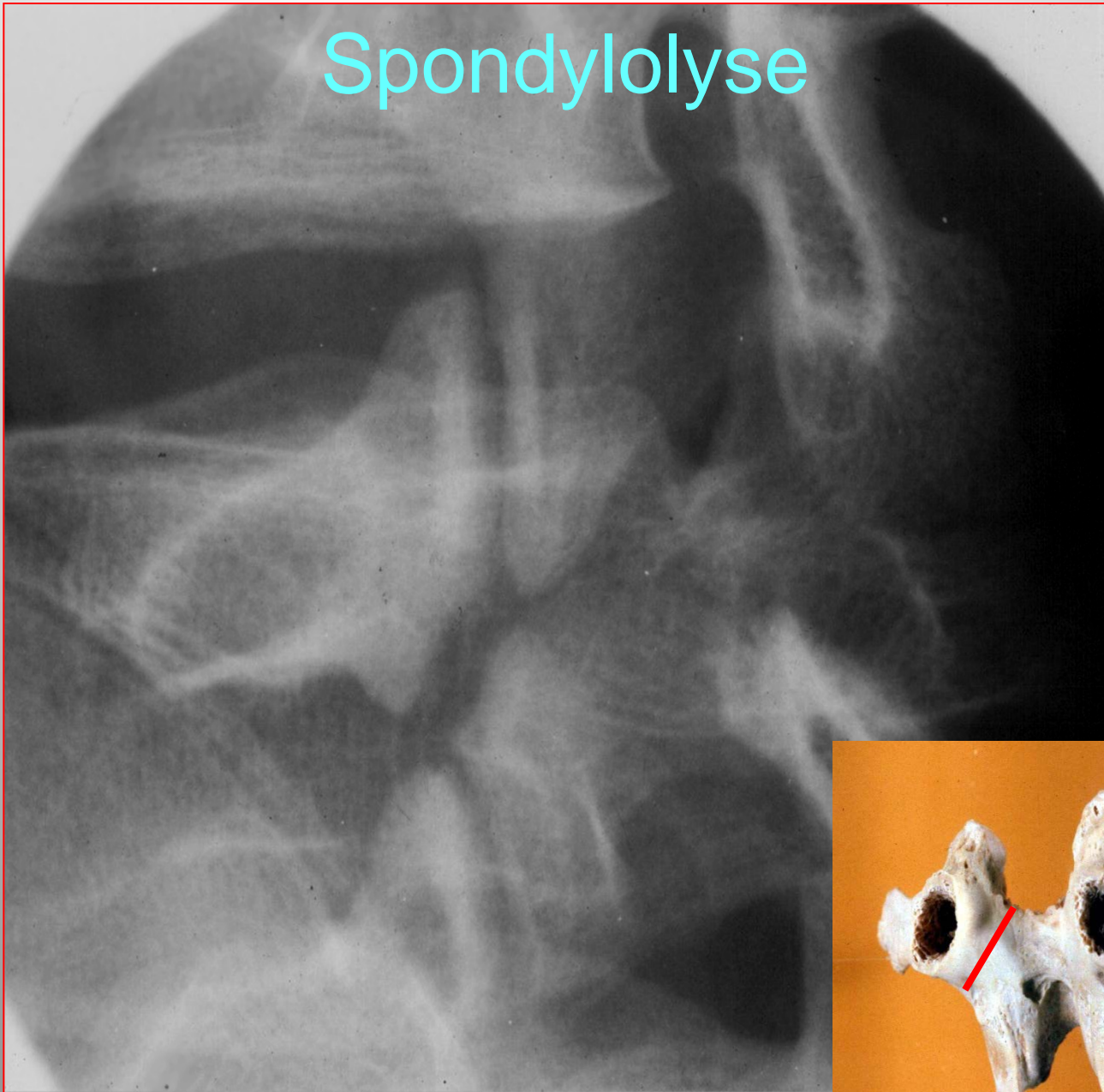


OAD

# Isthme ?



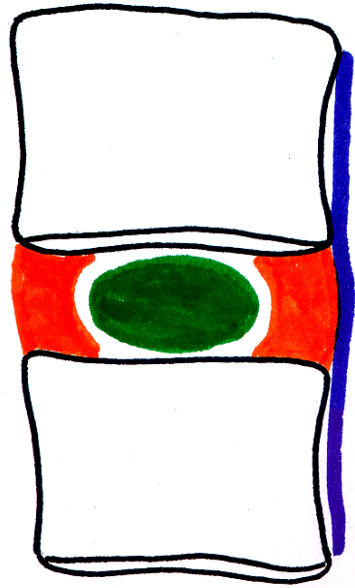
# Spondylolyse



**Le disque  
intervertébral**

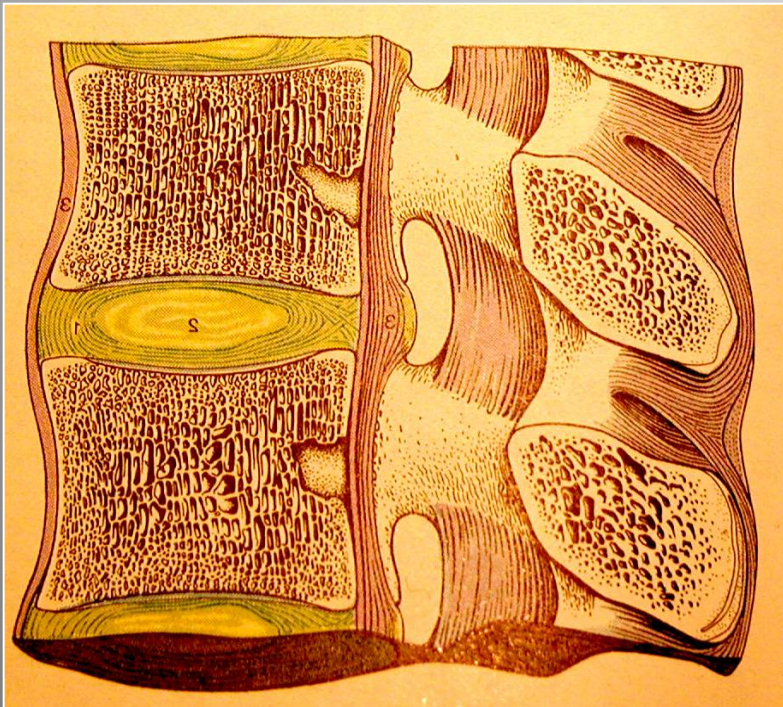
**Un amortisseur  
hydraulique**





Annulus fibrosus

Nucleus pulposus

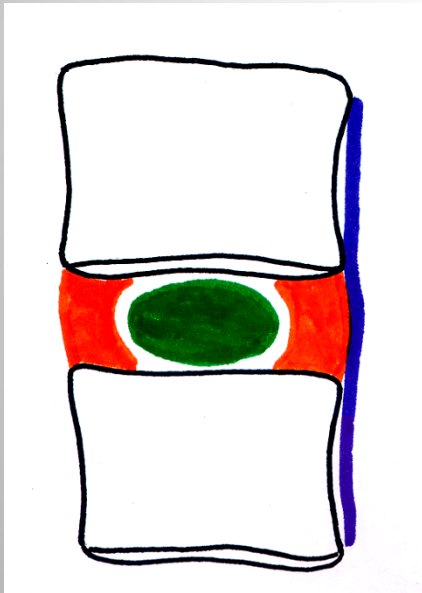




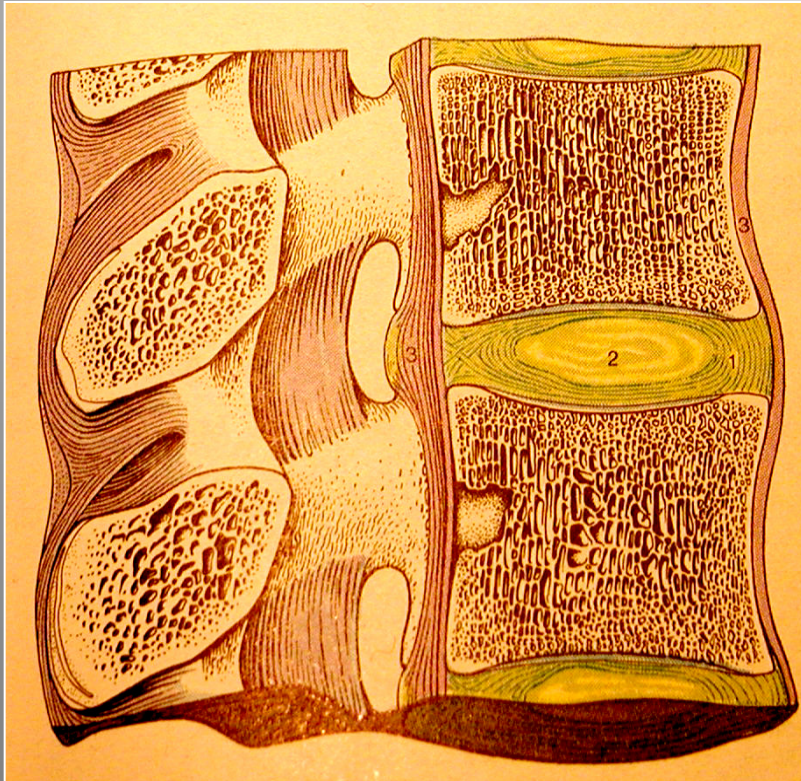
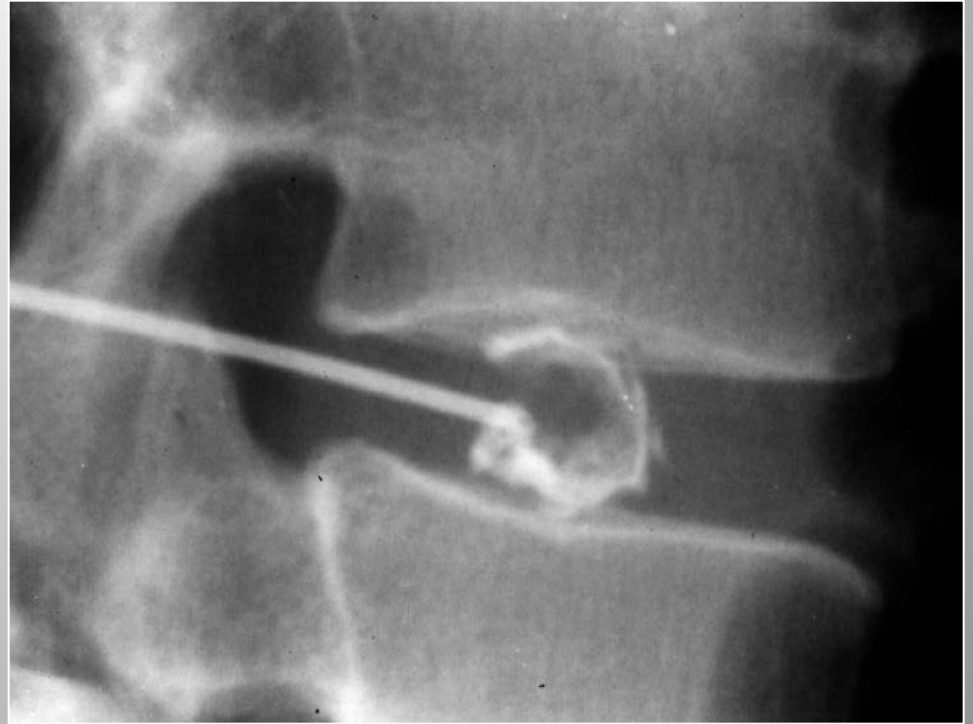
Après Décharge



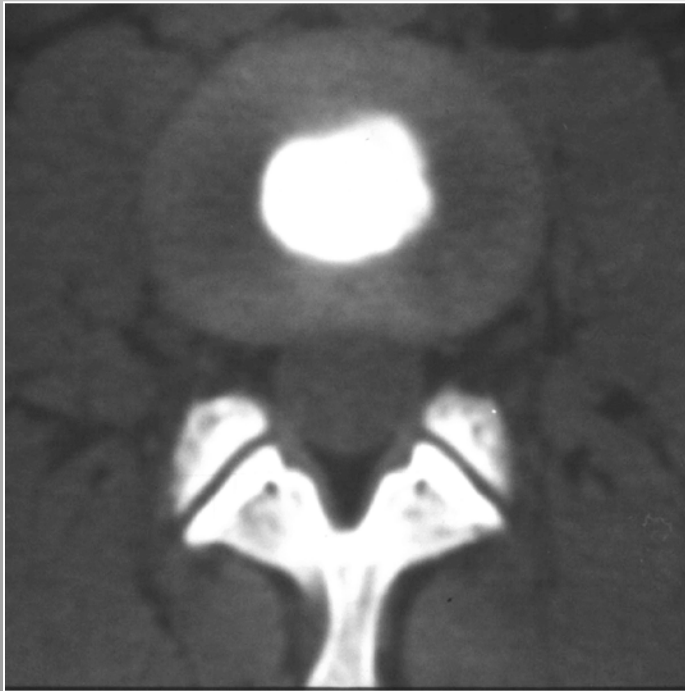
Après Station



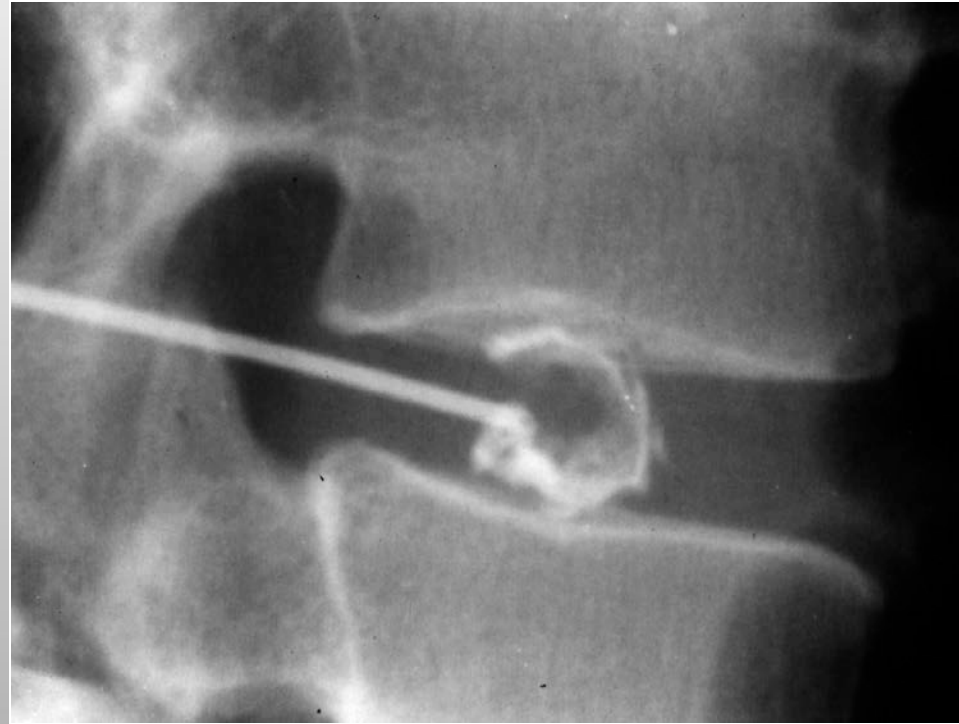
## Geste invasif 1: discographie opaque



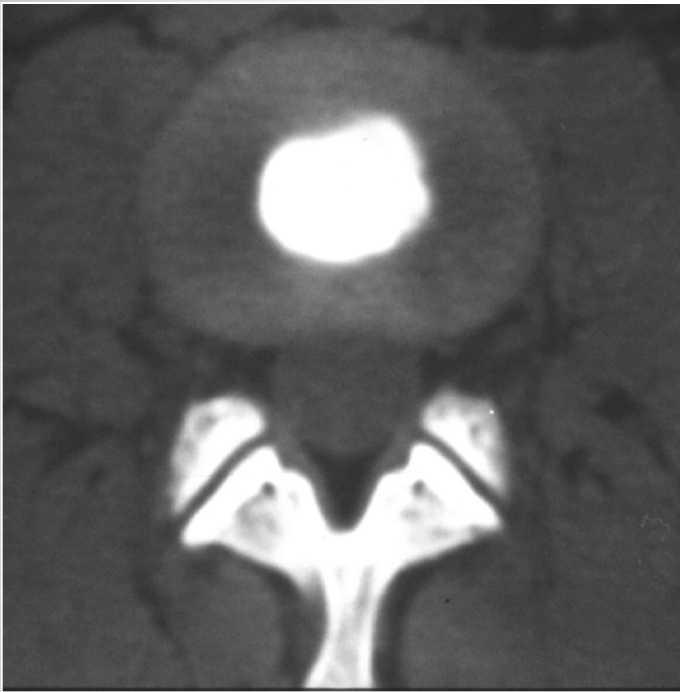
Discographie normale



Coupe axiale



Sujet normal



5

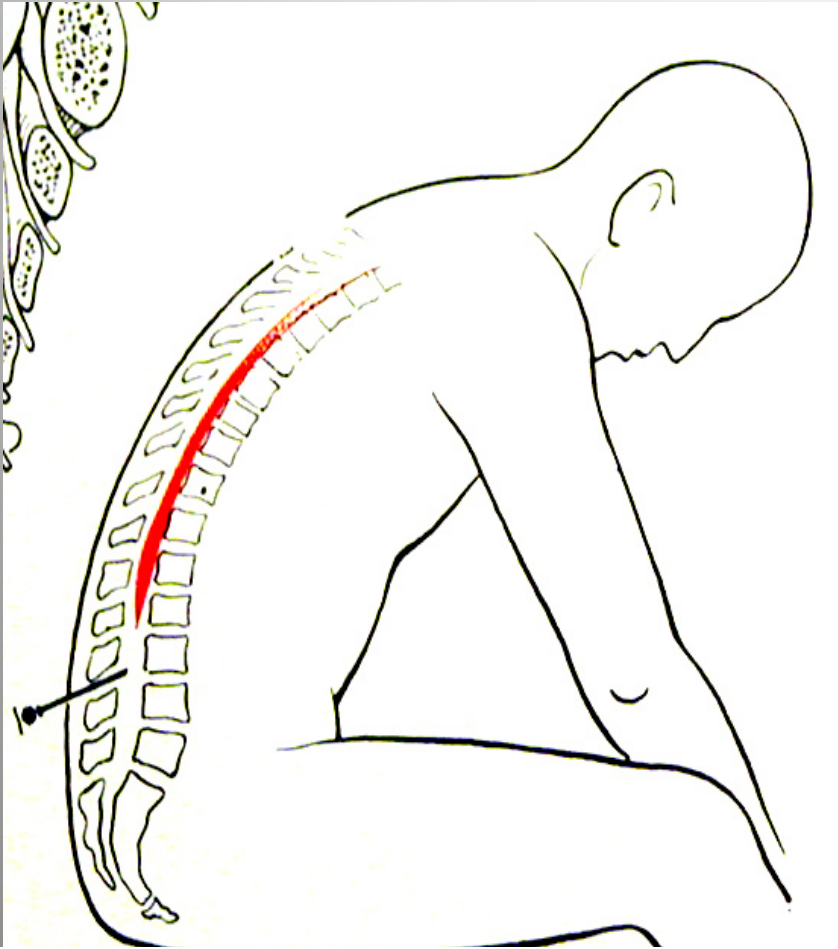
S

Fuite herniaire



## Geste invasif 2:

Myélo-sacco-radiculographie opaque



Ponction lombaire en  
L3-L4



L2

L3

L4

L5

Sacrum

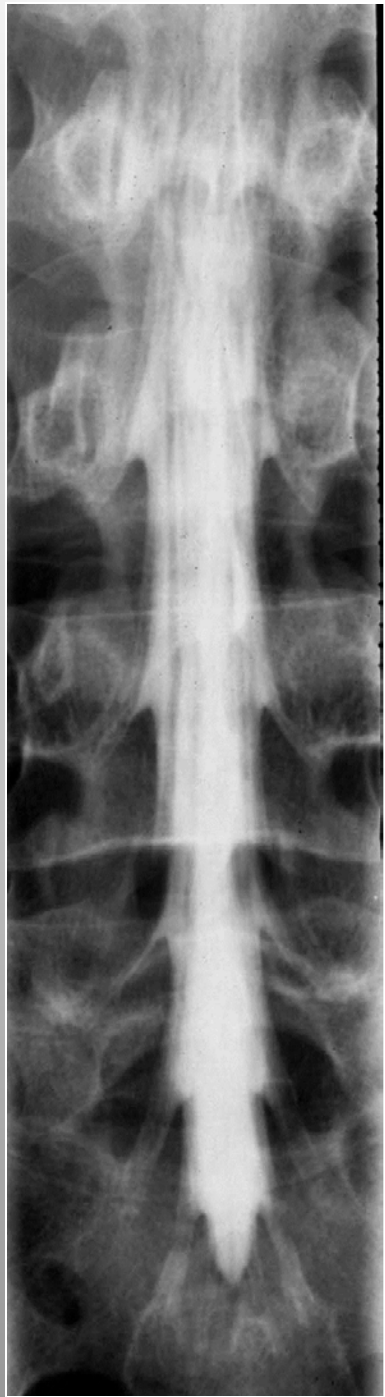
L2

L3

L4

L5

Sacrum



L2

L3

L4

L5

Sacrum



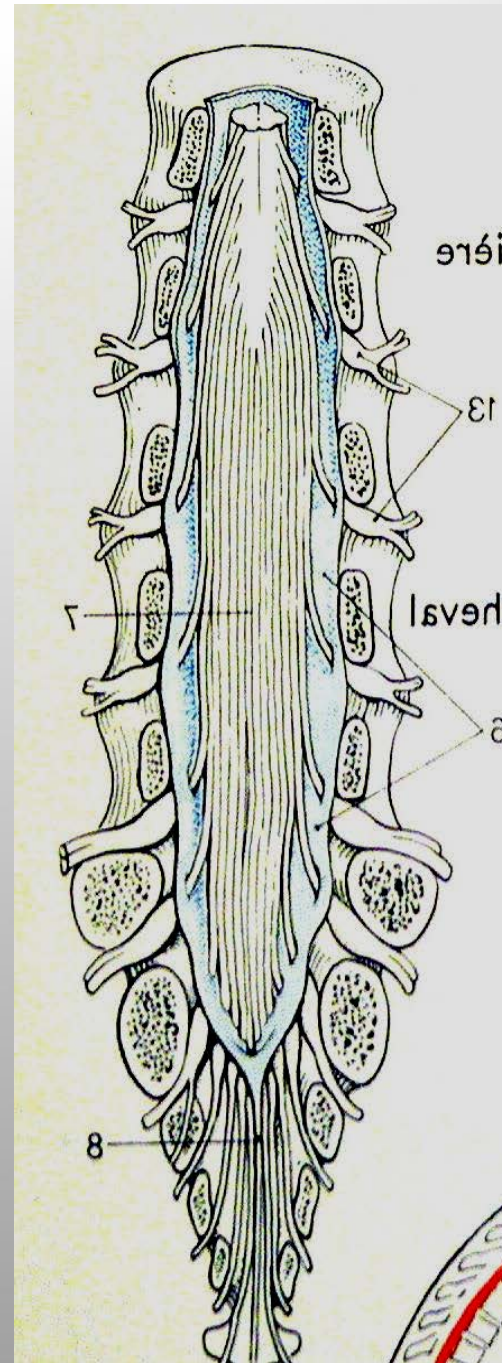
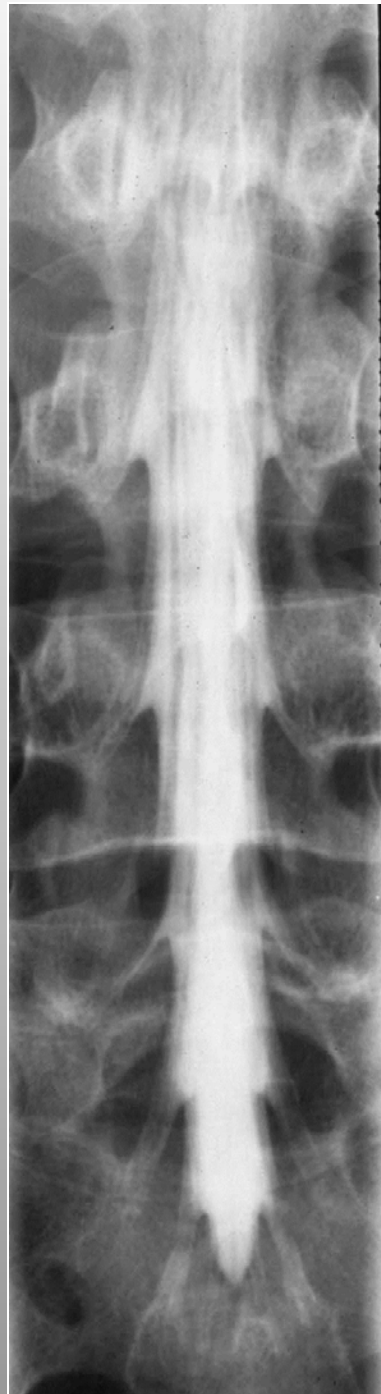
L2

L3

L4

L5

Sacrum



NB  
Chaque  
racine  
passe  
sous le  
pédicule  
corres -  
pondant  
(homonyme)






OAG 



FACE



 OAD