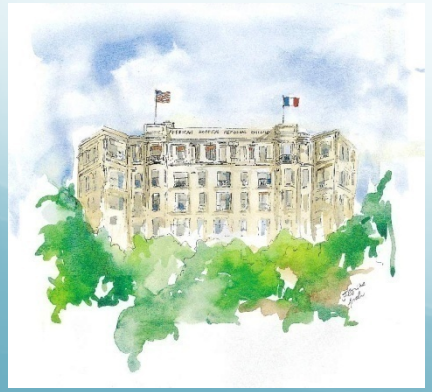
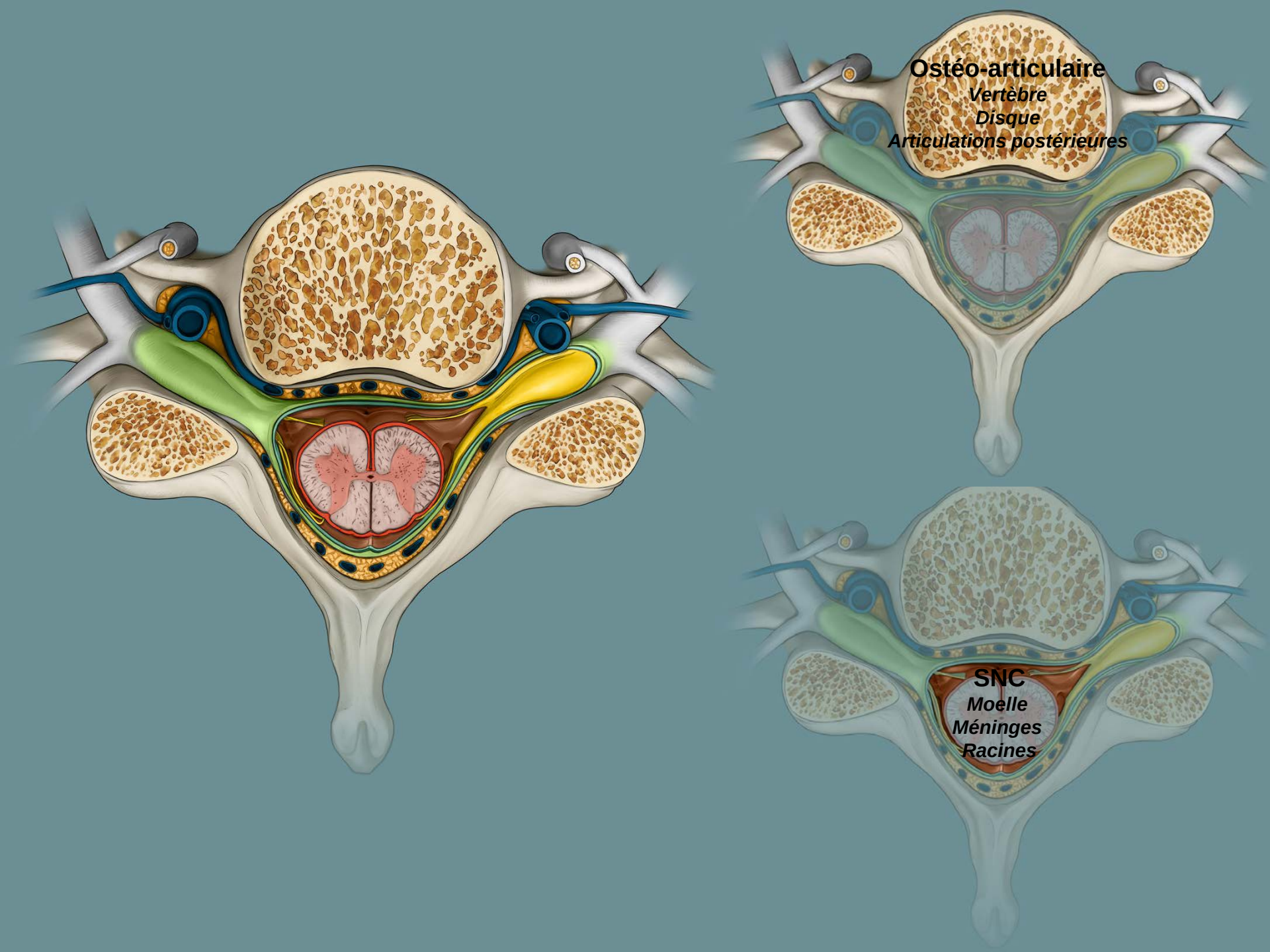
Tumeurs et pseudo Tumeurs spinales intra canalaires

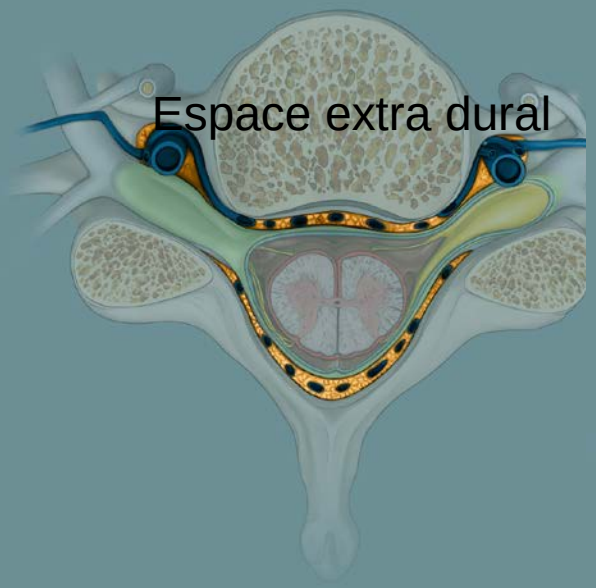
JL Sarrazin, S Hibat, F Benoudiba, D Ducreux

Hôpital Américain de Paris

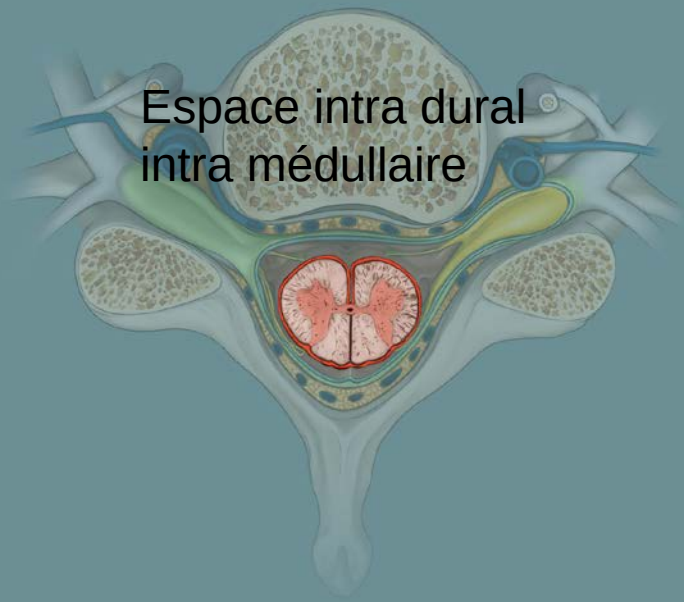
Hôpital de Bicêtre



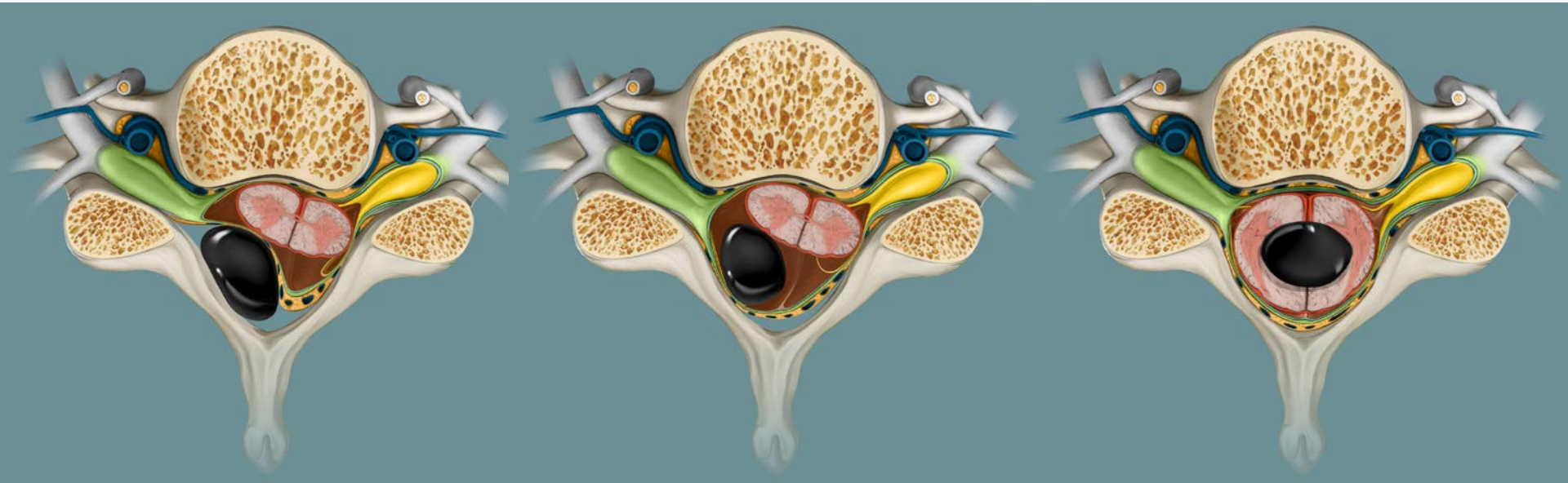

Ostéo-articulaire
Vertèbre
Disque
Articulations postérieures
SNC
Moelle
Méninges
Racines


Espace extra dural


Espace intra dural
extra médullaire

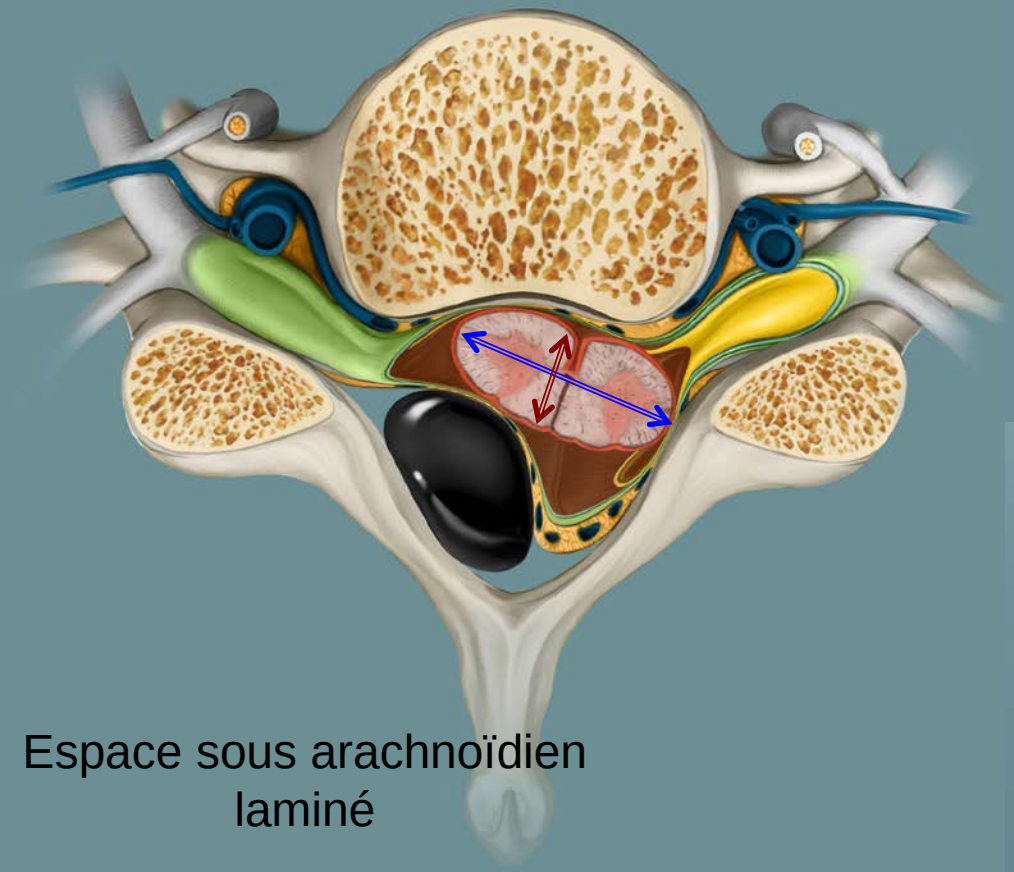

Espace intra dural
intra médullaire

Séméiologie

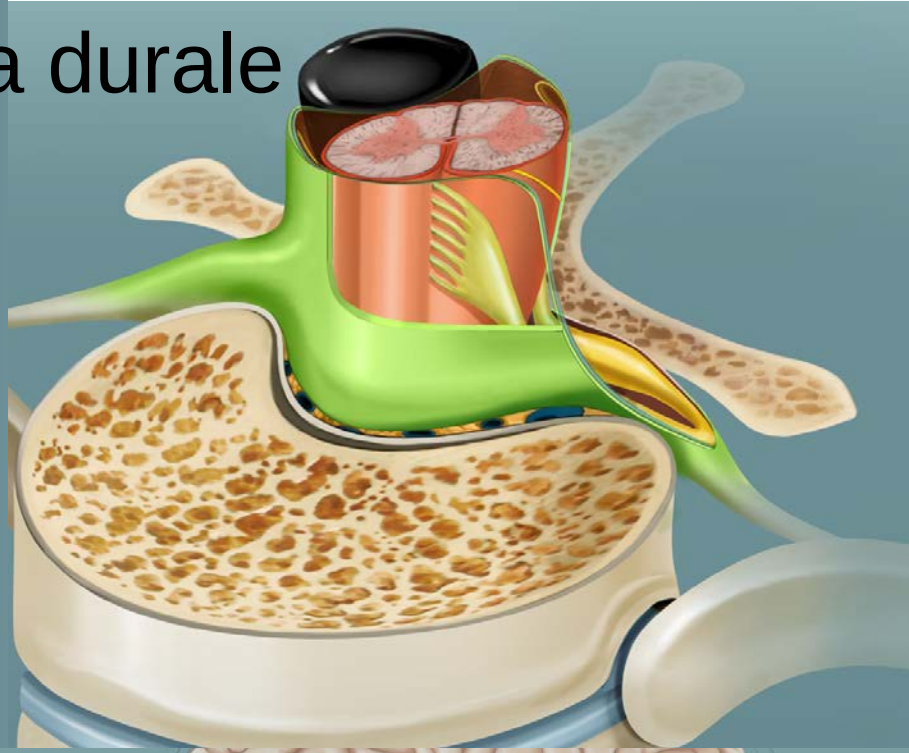


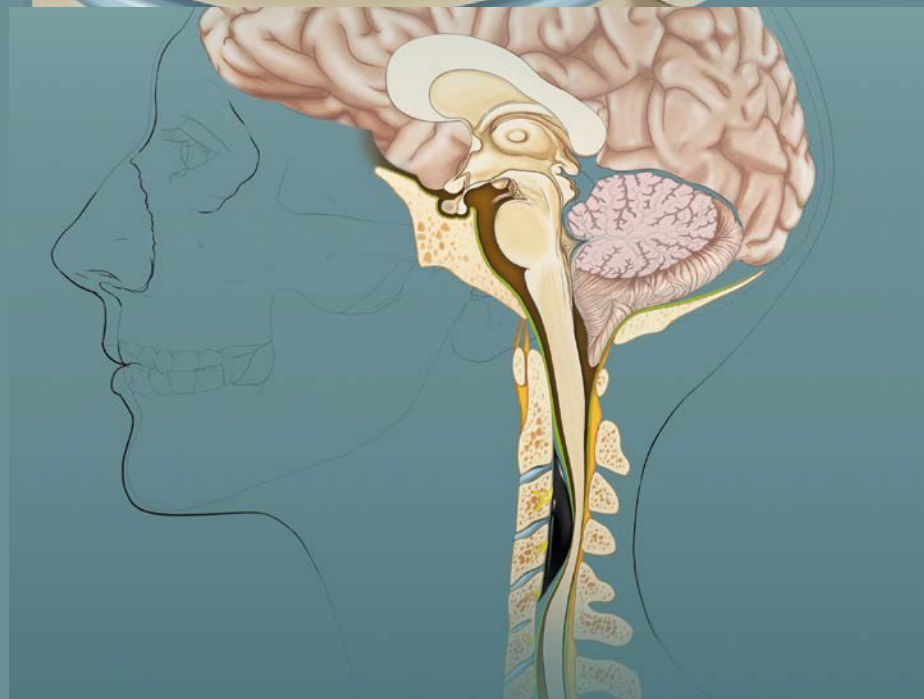
Masse extra durale

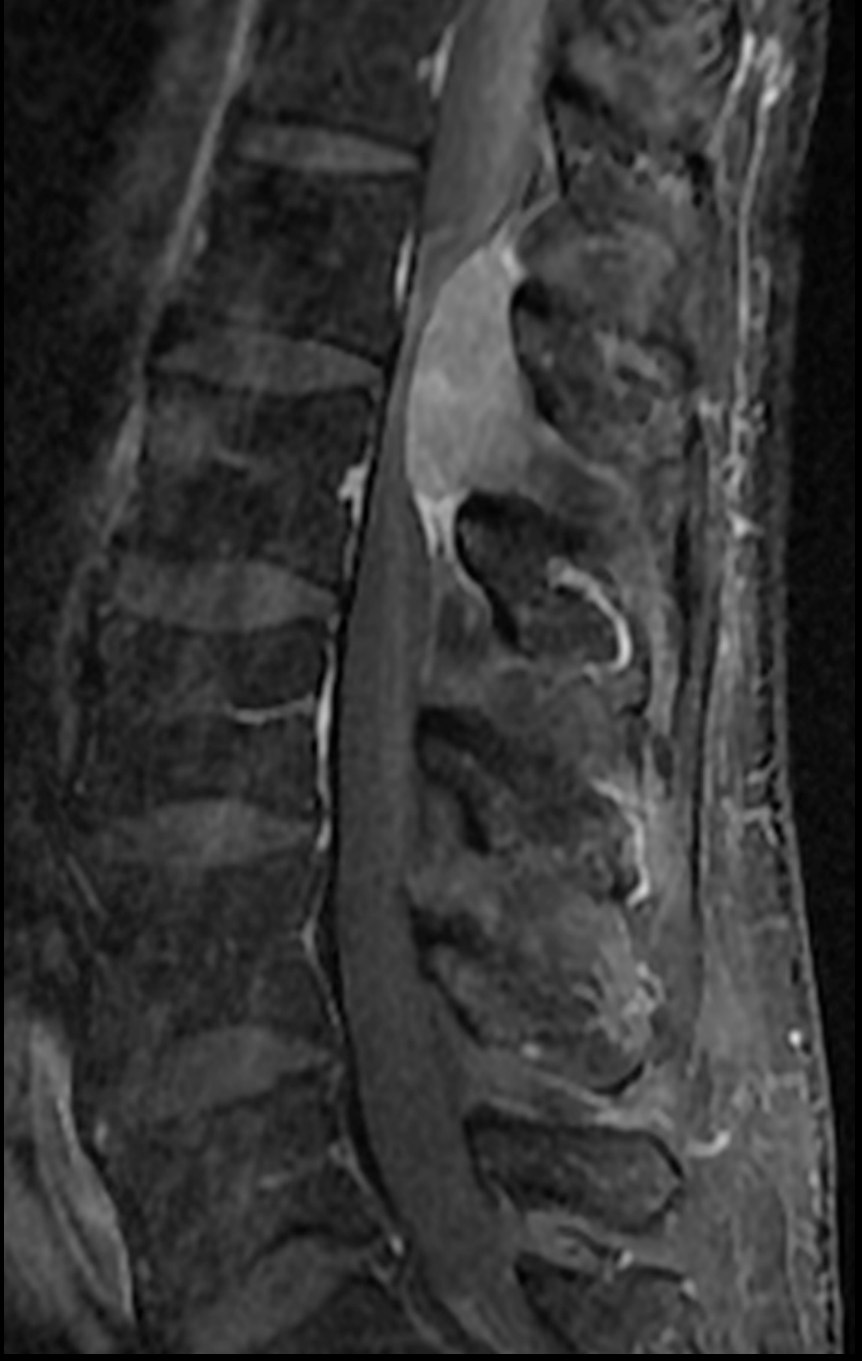
Moelle
- Élargie
- Amincie



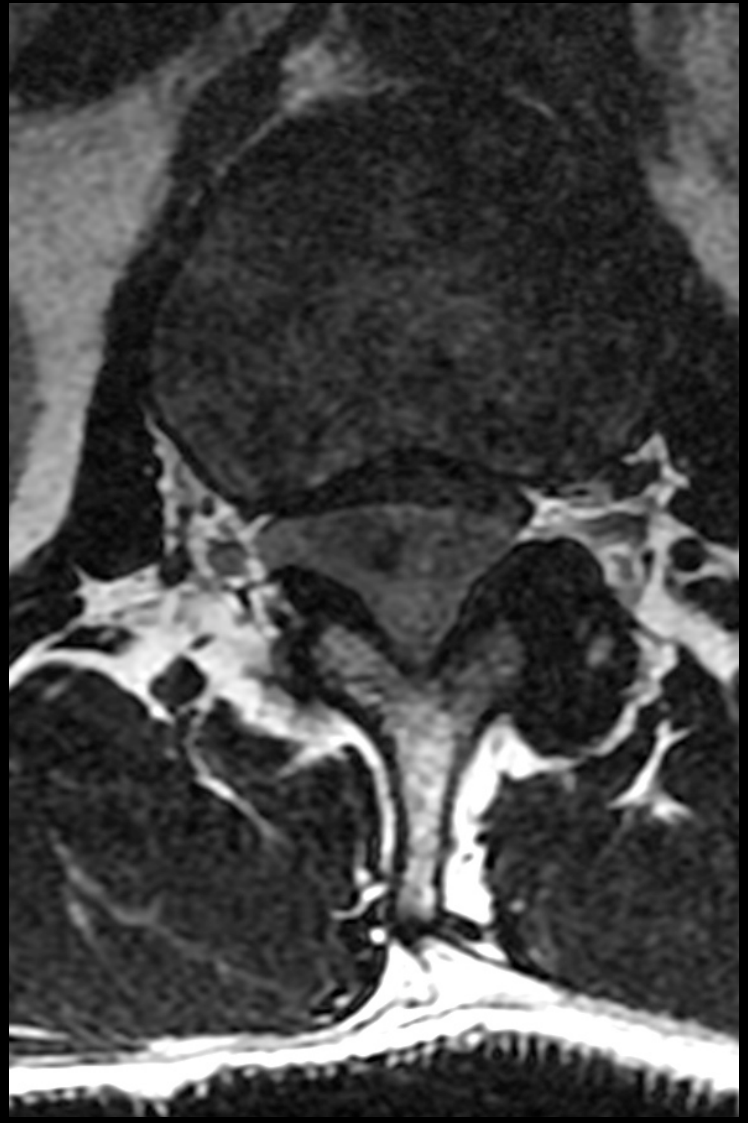
Espace sous arachnoïdien laminé







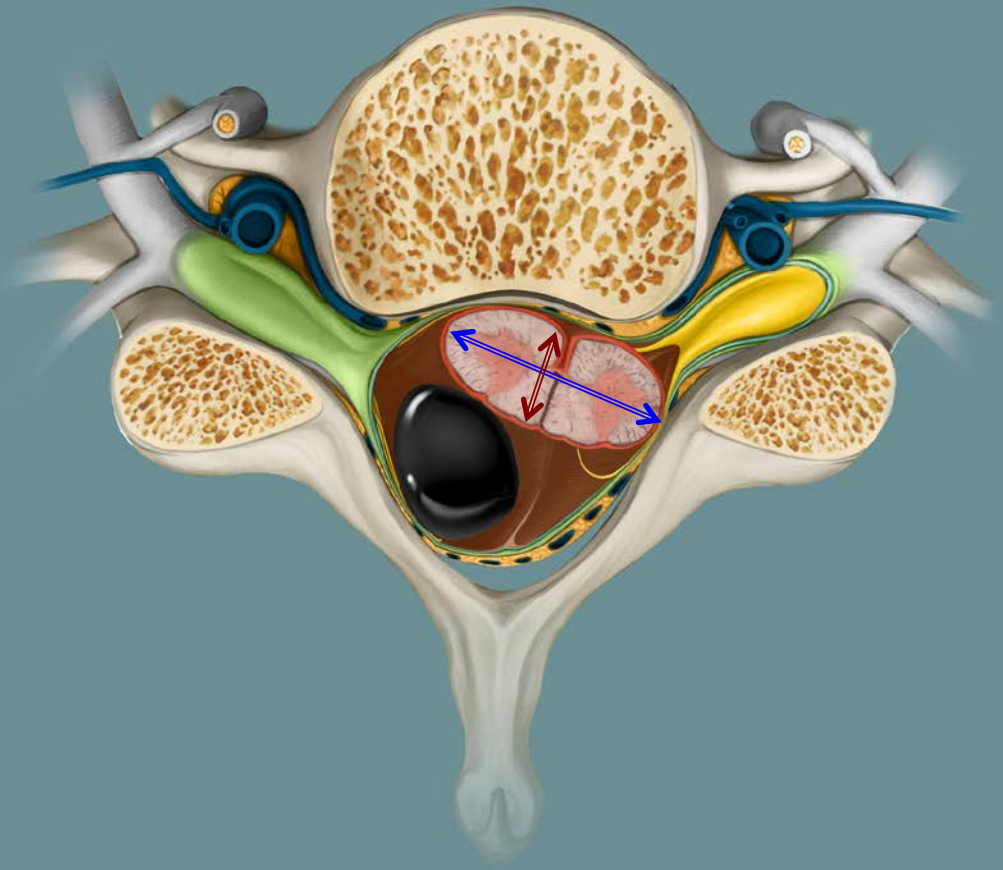
Métastase épidurale



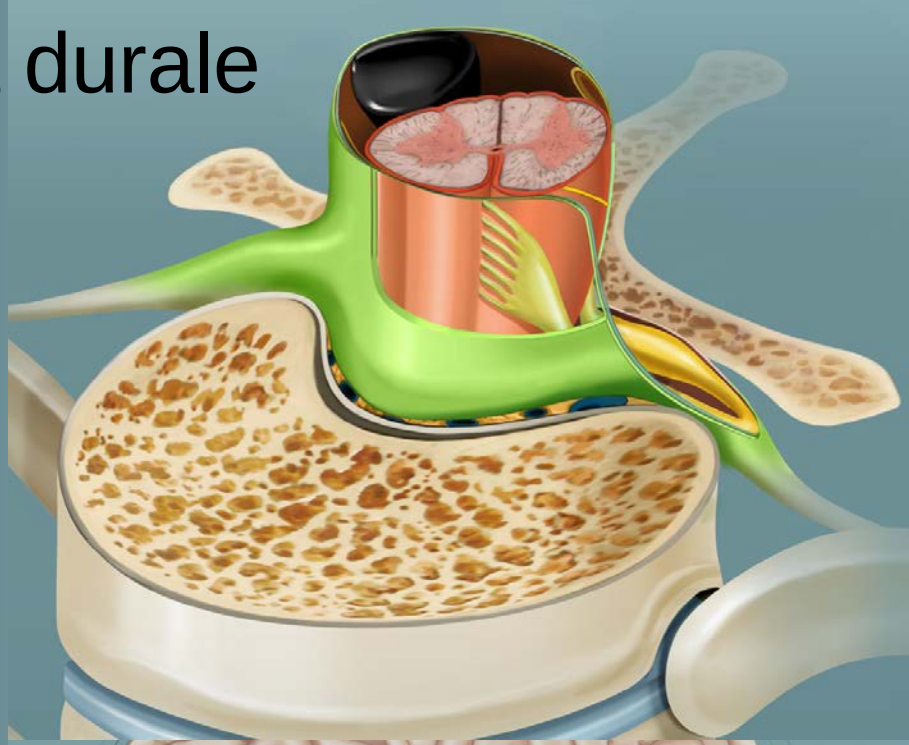
Espace sous dural laminé
Angle de raccordement obtus

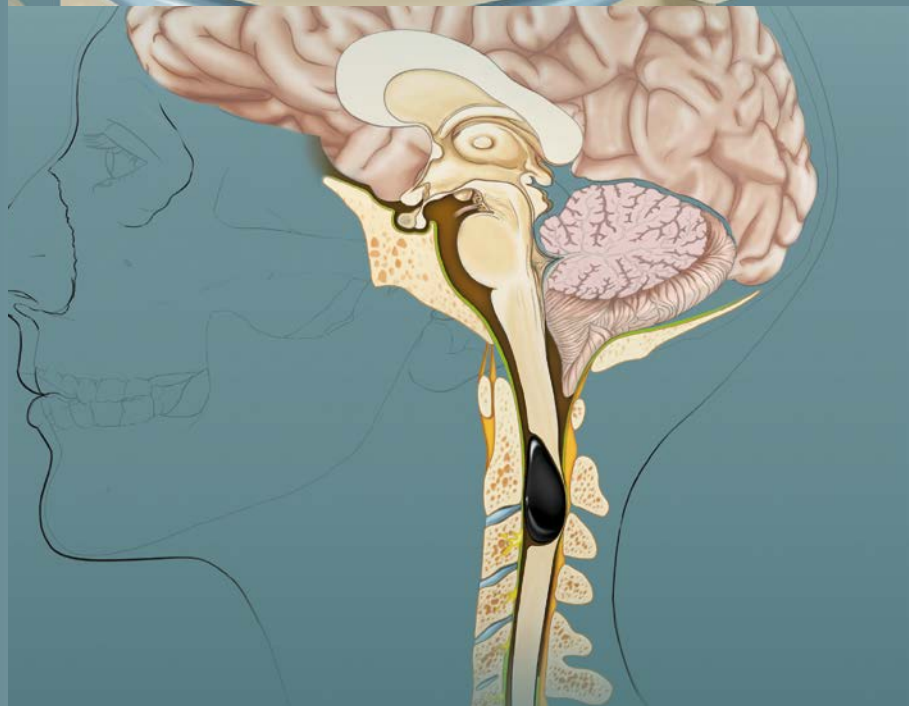
Masse intra durale

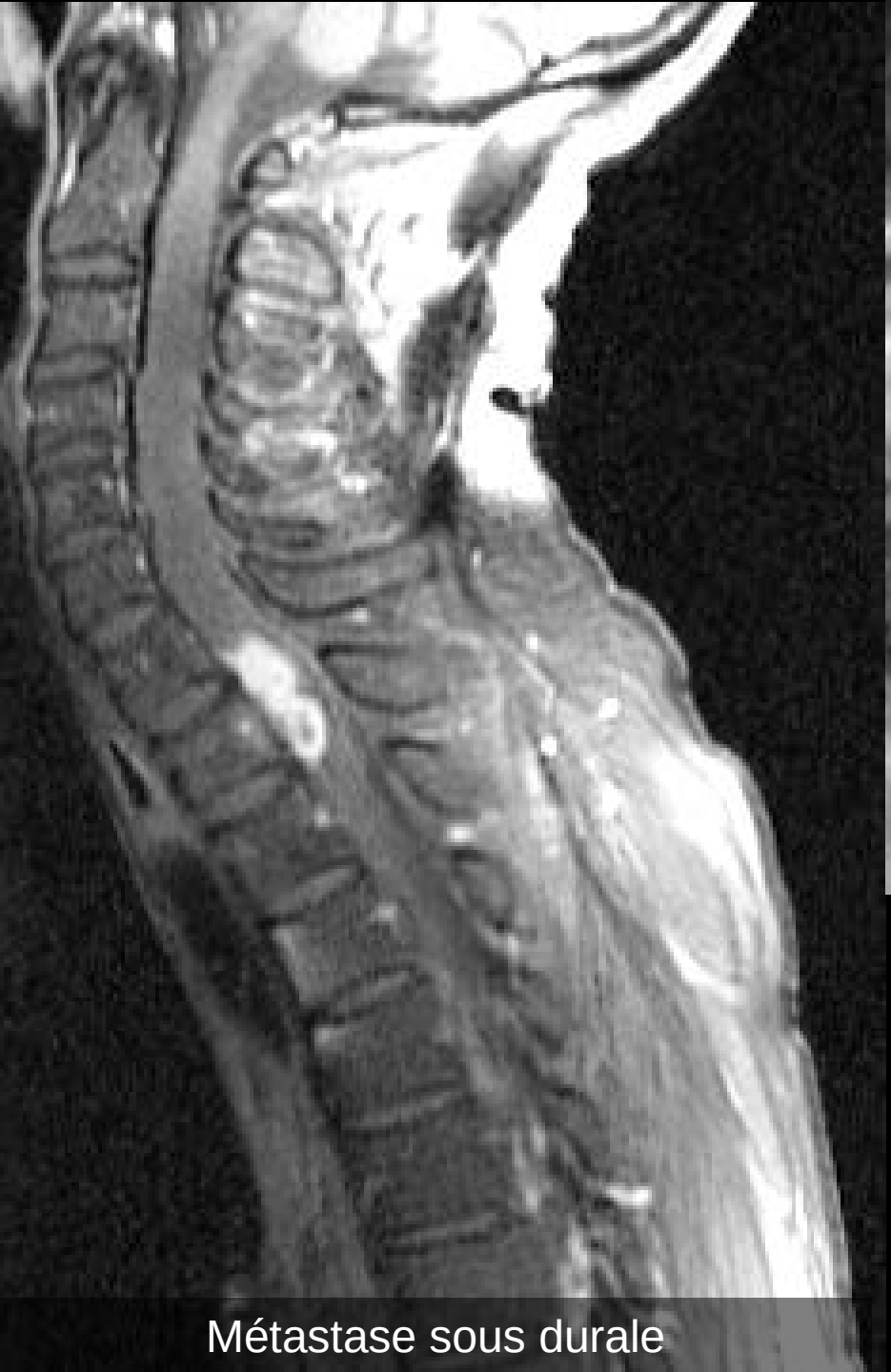
Moelle
- Élargie
- Amincie



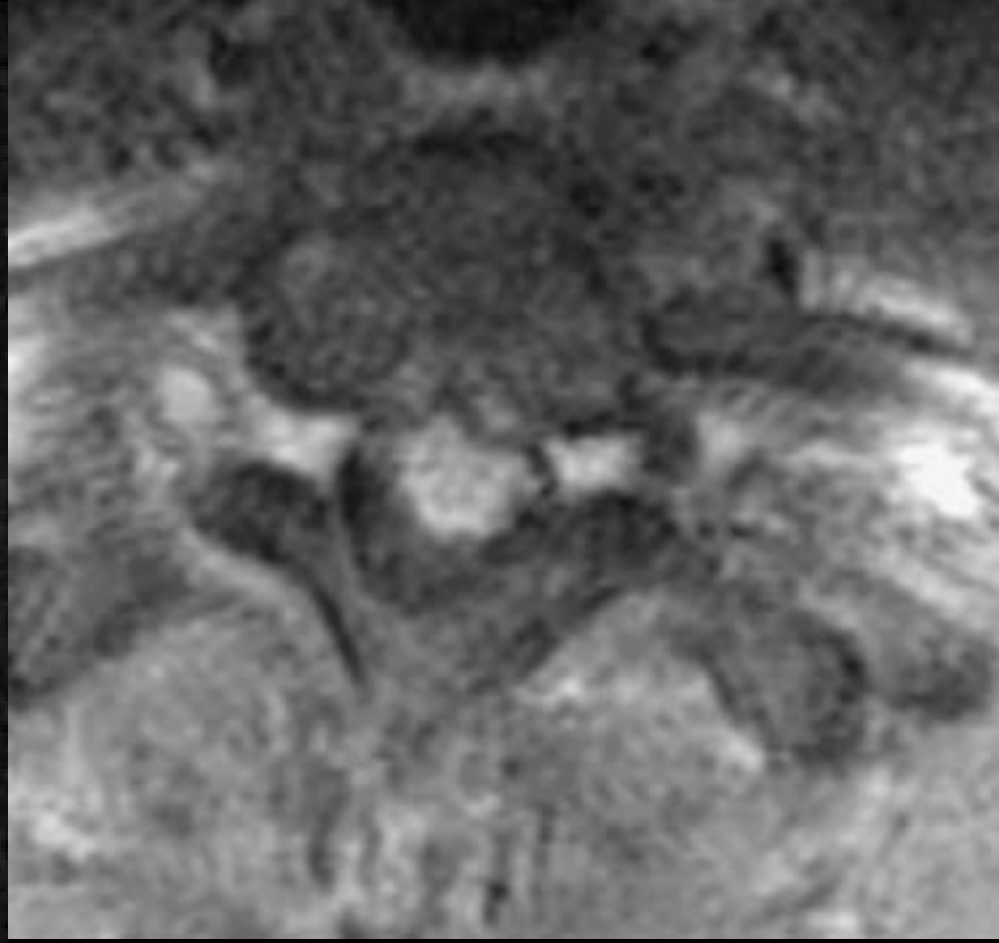
Espace sous arachnoïdien
élargi







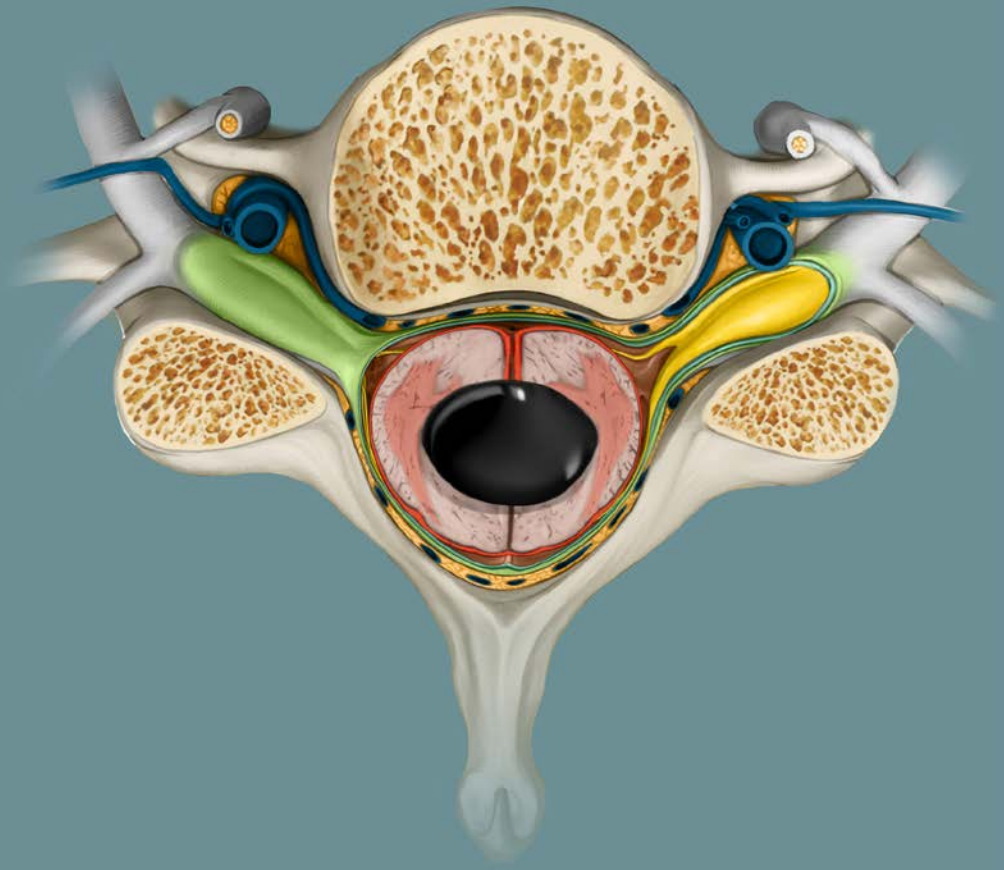
Métastase sous durale



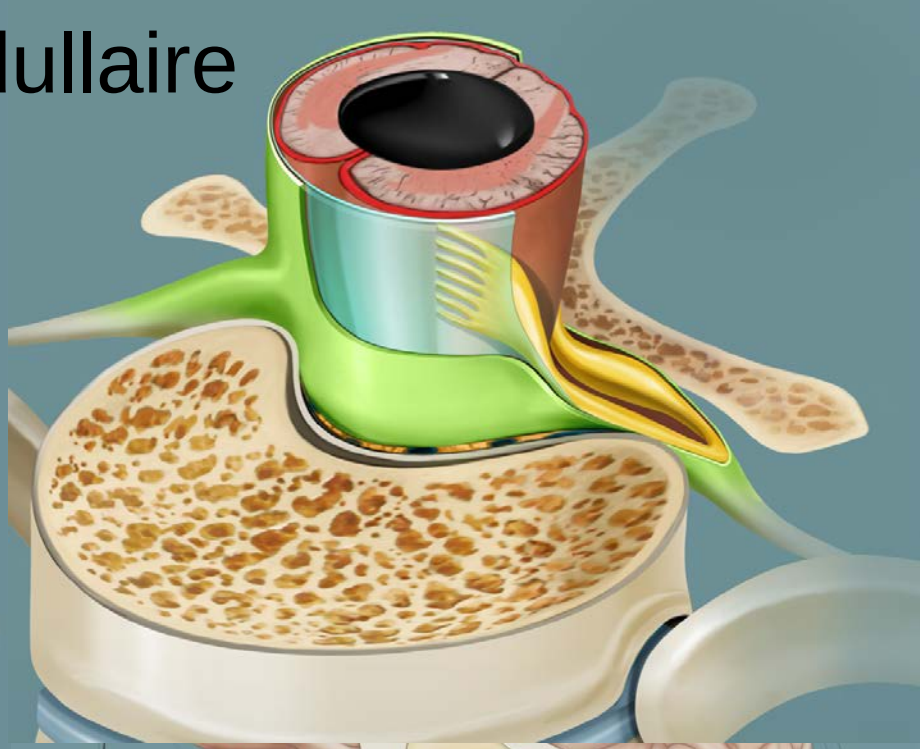
Elargissement de l’espace sous dural
Angles de raccordement aigu

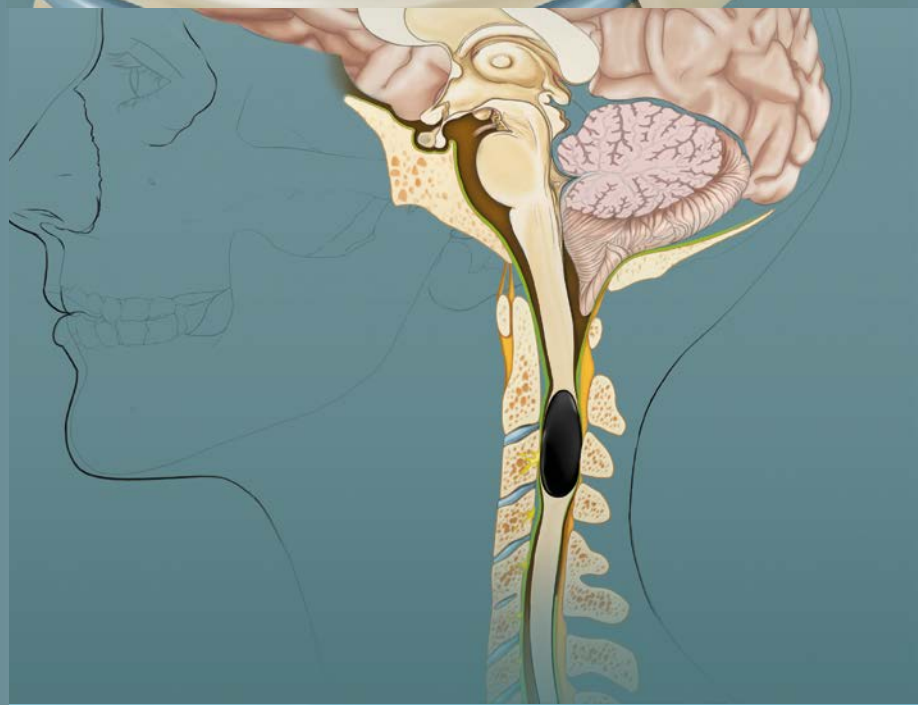
Masse médullaire

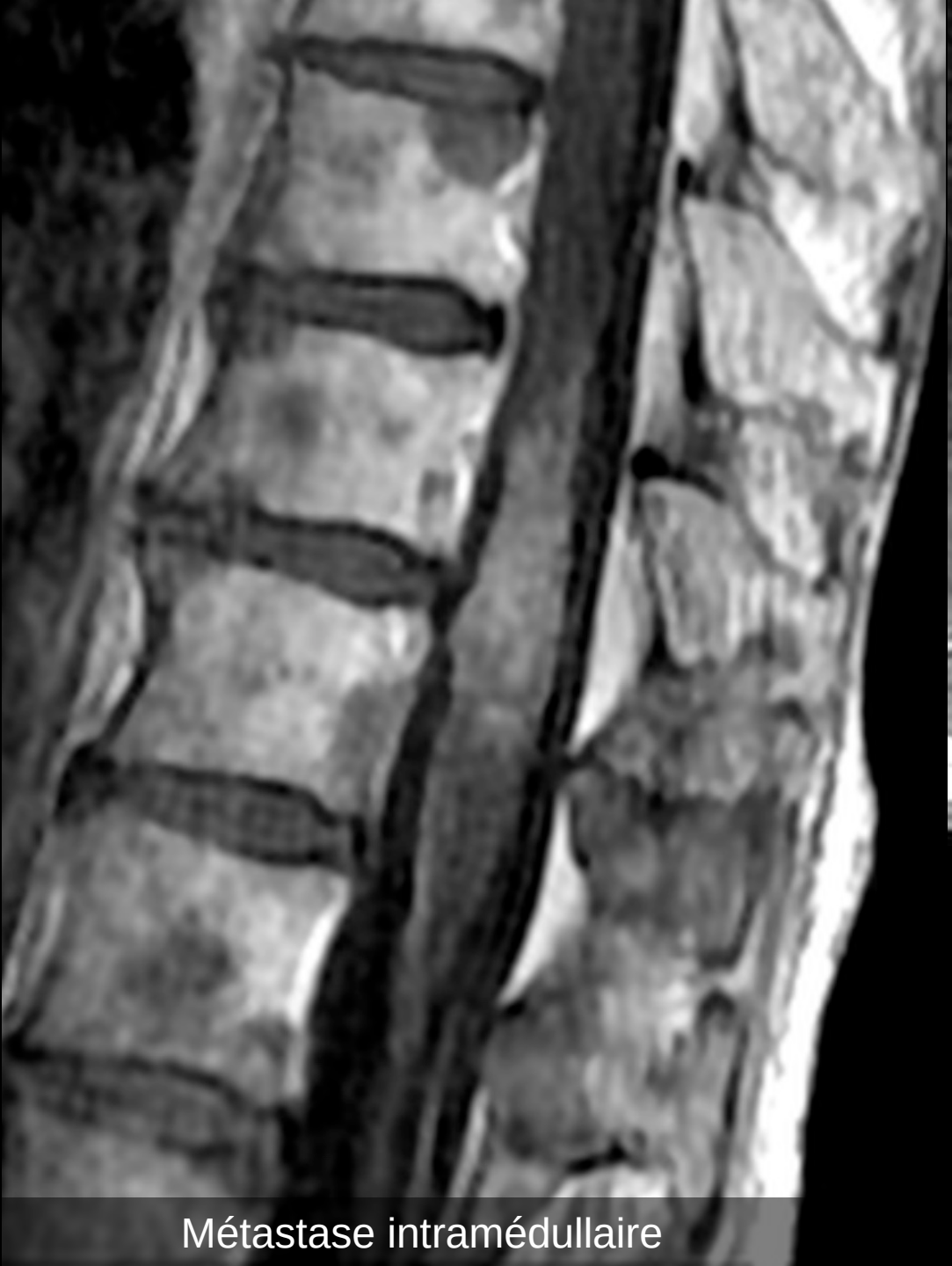
Moelle élargie



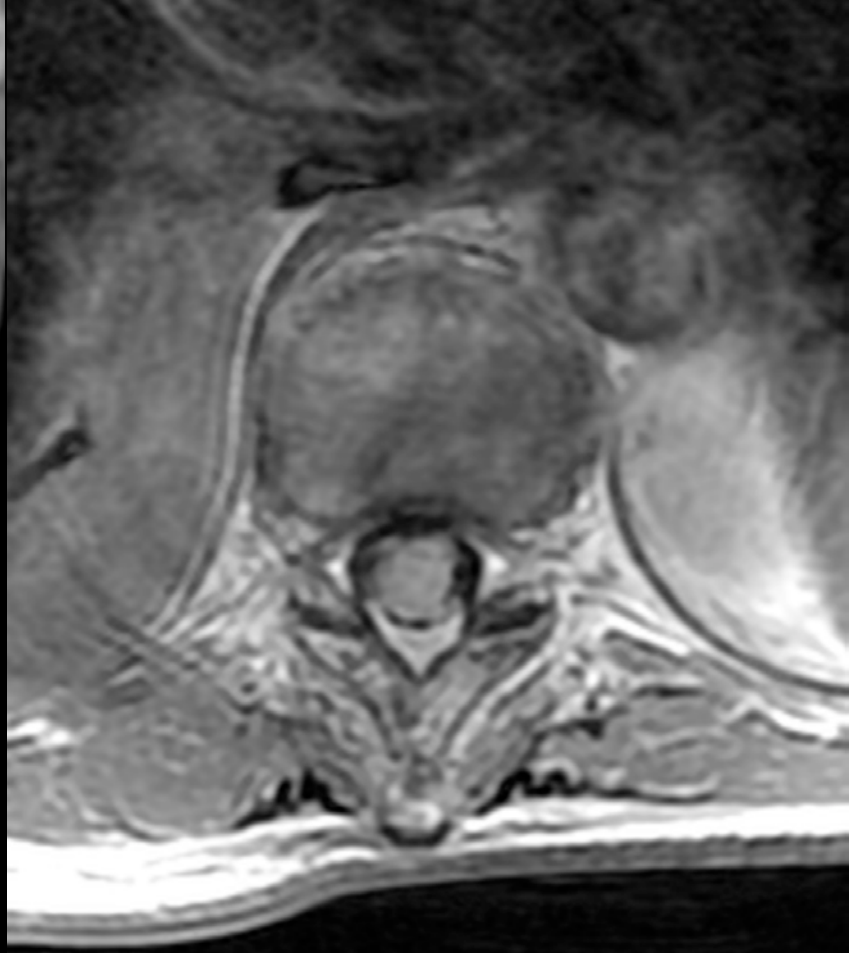
Espace sous arachnoïdien laminé



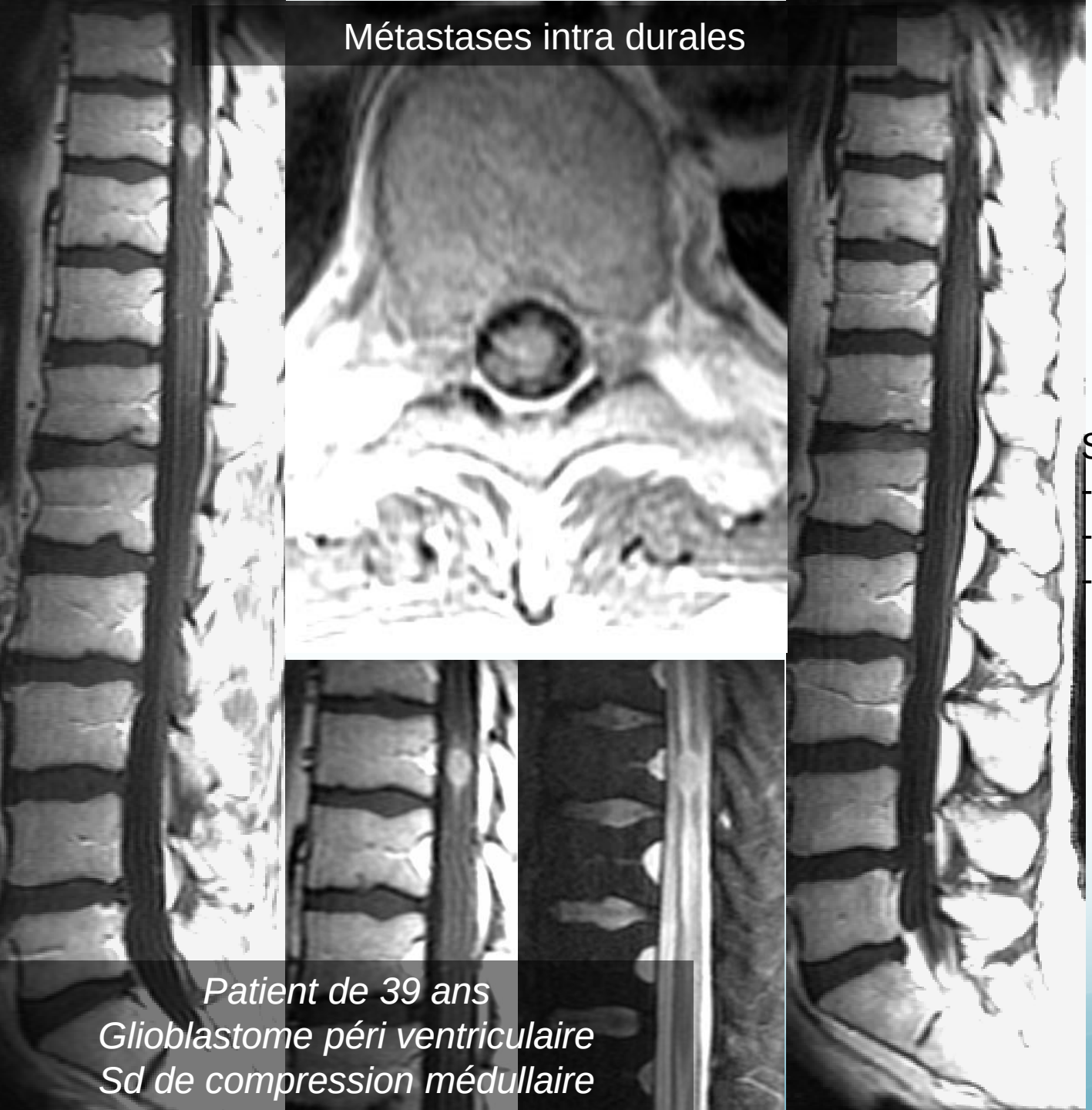




Métastase intramédullaire



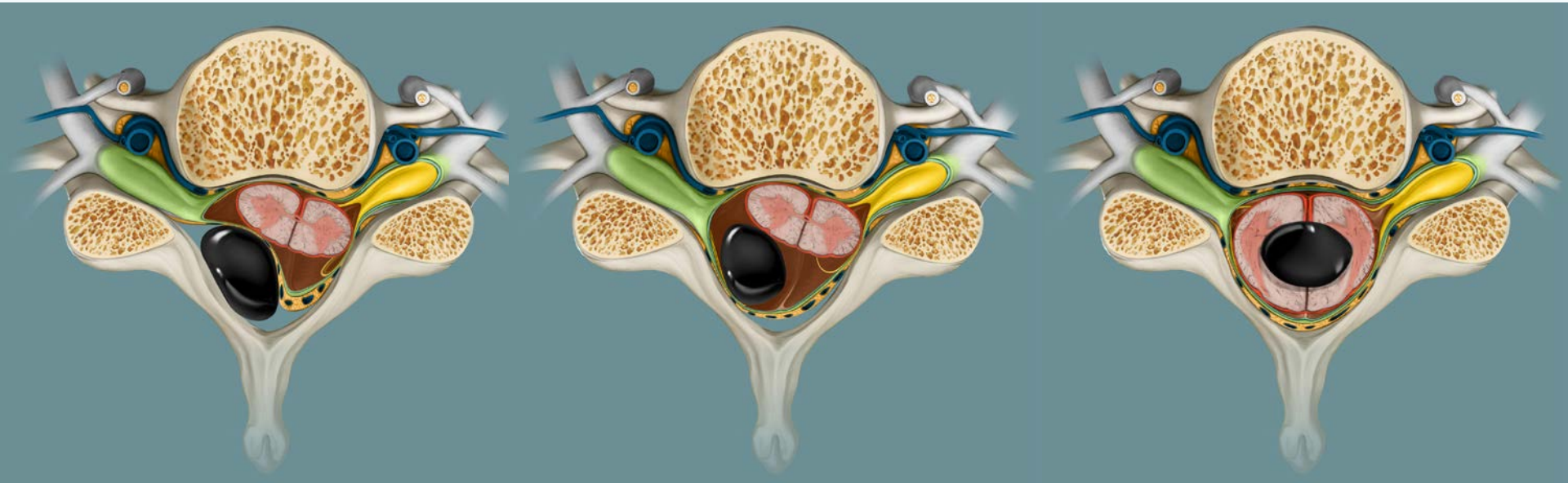
Elargissement de la moelle



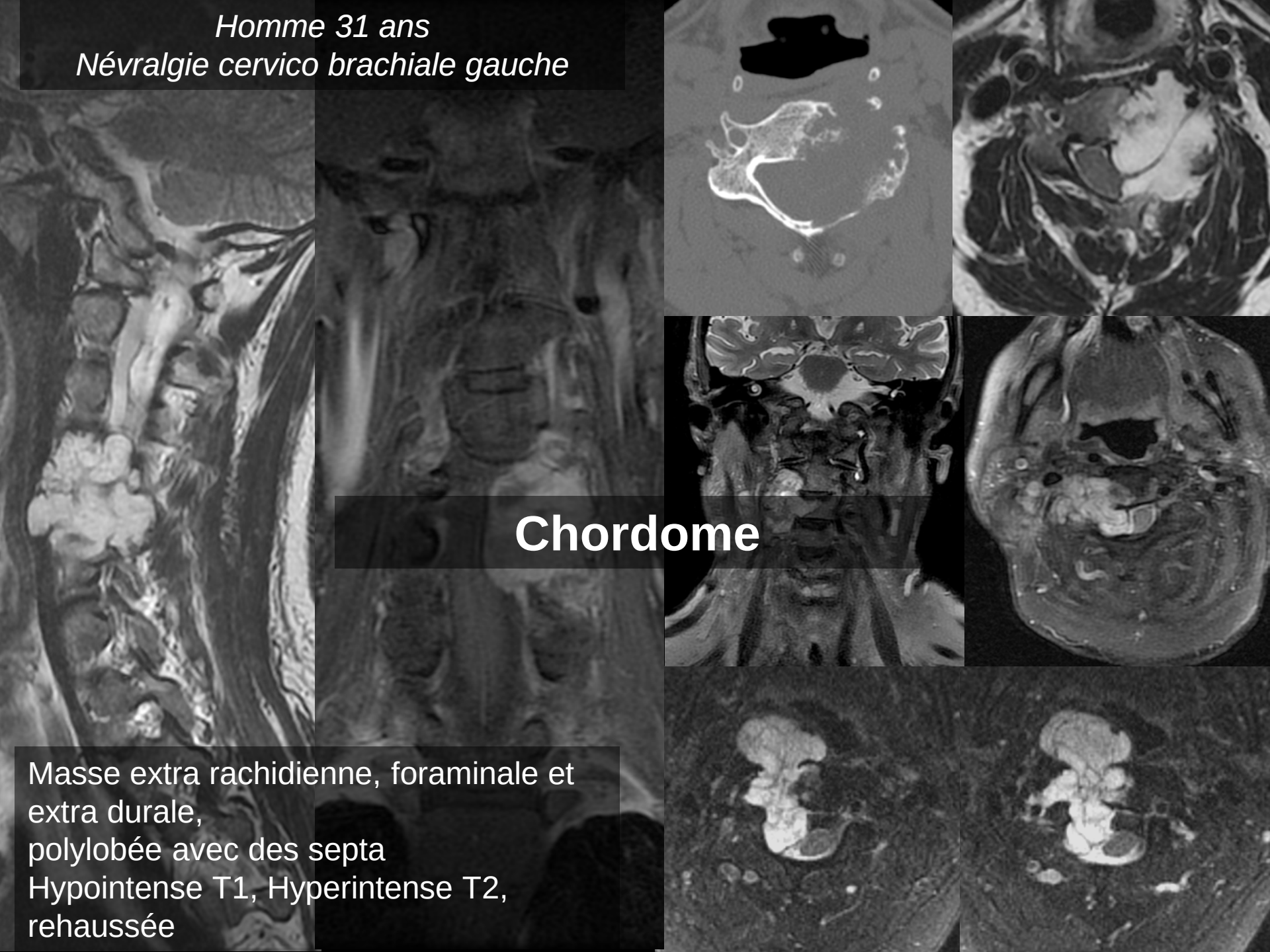
Siége :

- Analyse géométrique
- Autres localisations
- Environnement (os….)

Tumeurs intra canalaires
Analyse par espace



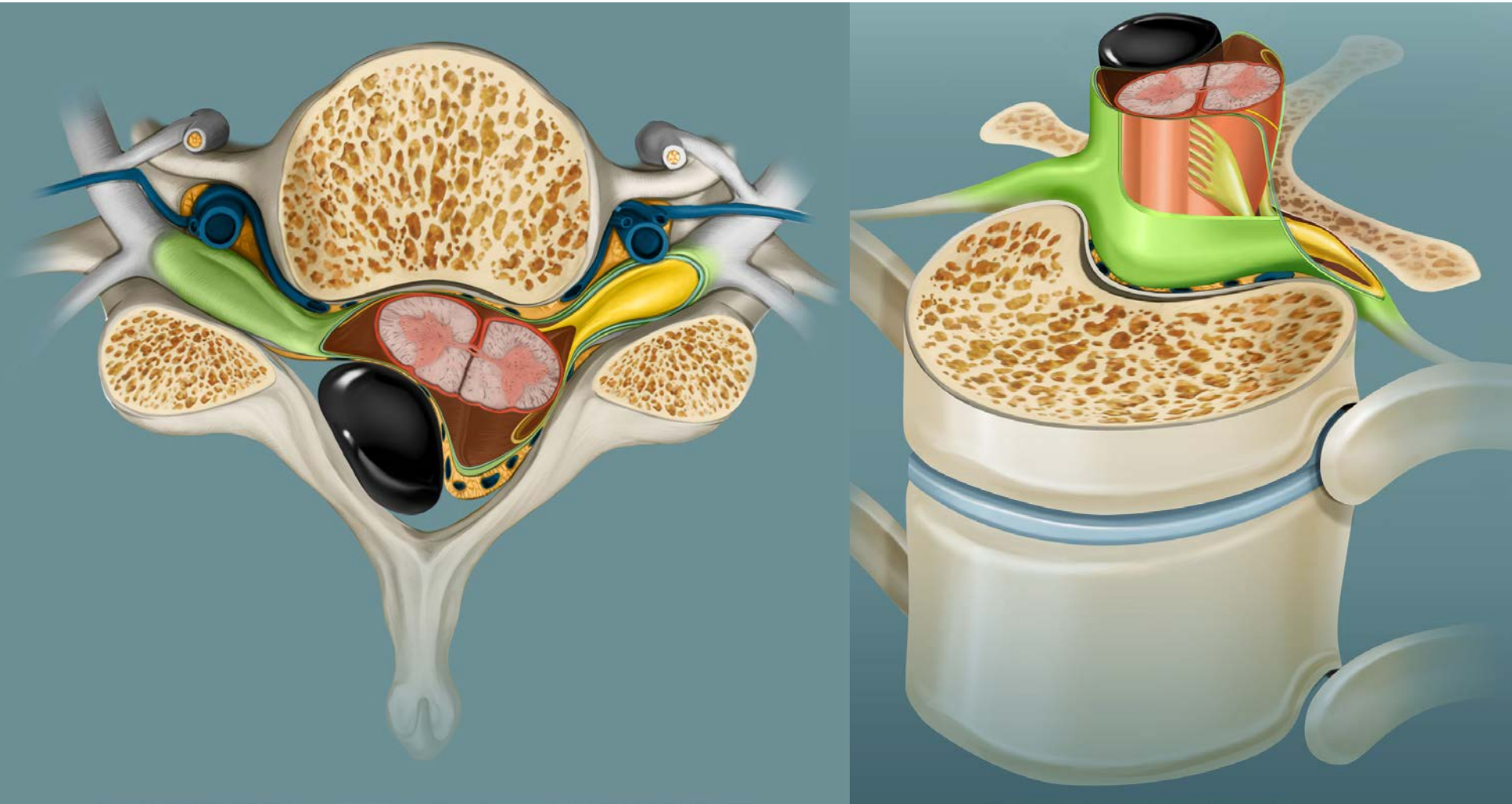
Homme 31 ans
Névralgie cervico brachiale gauche



Chordome

Masse extra rachidienne, foraminale et extra durale,
polylobée avec des septa
Hypointense T1, Hyperintense T2, rehaussée

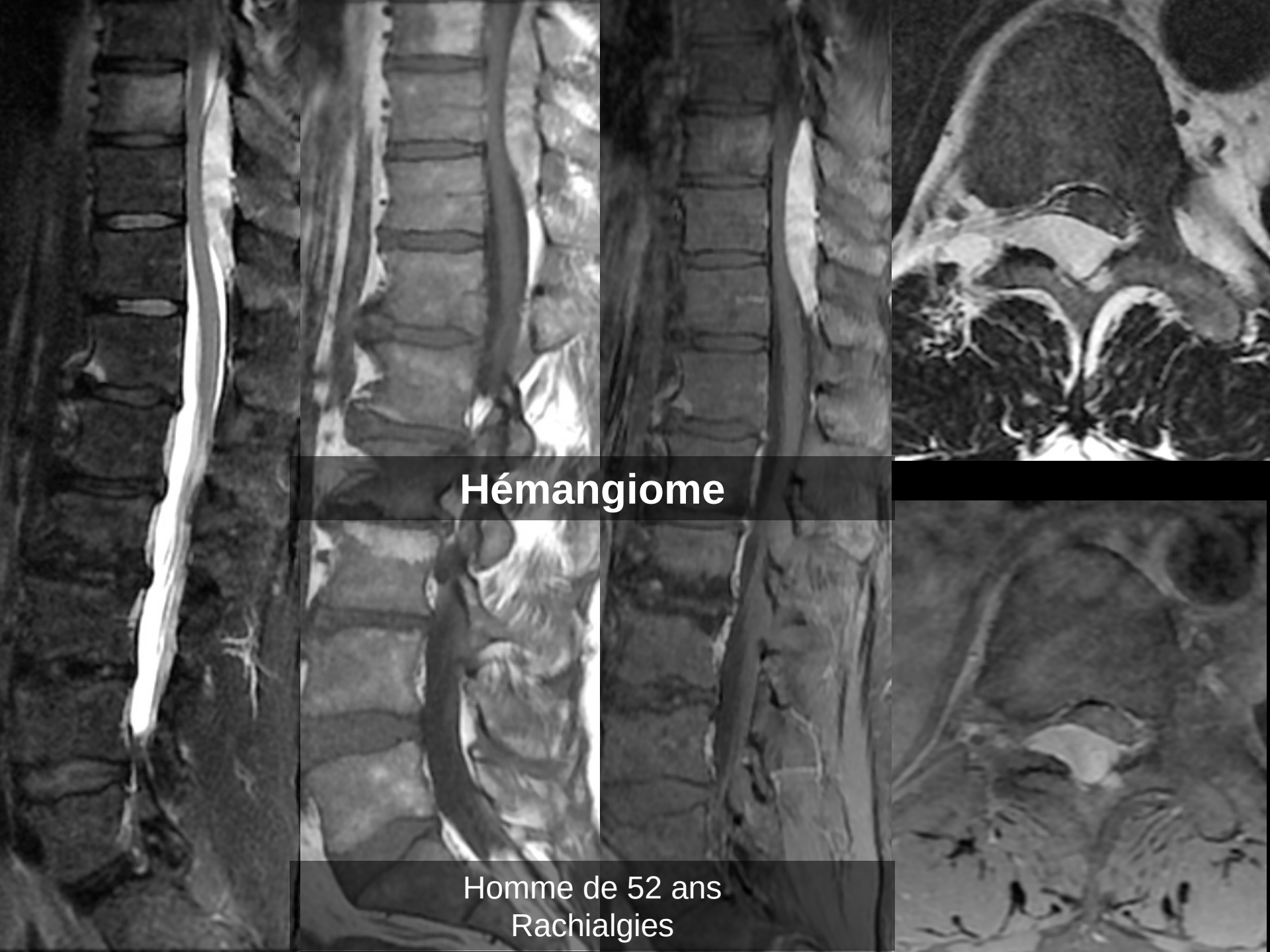
Tumeurs extra durales



Gamme des tumeurs extra durales

- *Metastases*
- *Hémangiome agressif*
- *Ostéoblastome*
- *Kyste anévrysmal*
- *Chordome*

Origine osseuse


Hémangiome
Homme de 52 ans
Rachialgies

Hémangiome épidural

Spinal Epidural Hemangiomas: Various Types of MR Imaging Features with Histopathologic Correlation

From the Departments of Radiology (J.W.L., J.H.K., H.S.K.) and Orthopaedic Surgery (J.-S.Y.), Seoul National University Bundang Hospital, Gyeongi-Do, Korea; Departments of Pathology (E.Y.C.) and Radiology and Center for Imaging Science (H.W.C.), Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea; and the Department of Radiology and Institute of Radiation Medicine (S.H.H., K.-H.C., J.-Y.C.), Seoul National University College of Medicine, Seoul, Korea.

Lee | AJNR 28 | Aug 2007 | www.ajnr.org

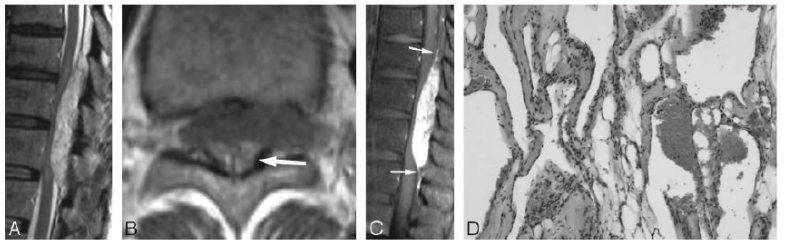


Fig 3. Case 6, a solid hypervascular mass (type C).

A, Sagittal T2-weighted spin-echo MR image demonstrates the mass at the posterior epidural space of T9-T11. The mass shows homogeneous high signal intensity. The spinal cord is severely compressed by the mass and shows high signal intensity, suggestive of compressive myelopathy.

B, On noncontrast transverse T1-weighted spin-echo MR image, the mass shows heterogeneous isointensity with area of high signal intensity (*arrow*) at the posterior portion of the mass. The mass extends to the left neural foramen.

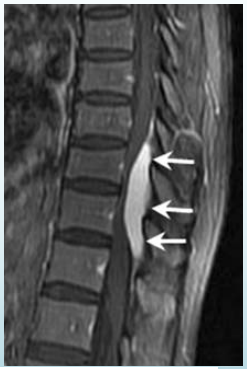
C, On sagittal postcontrast T1-weighted image, the mass shows homogeneous strong enhancement. A dural tail sign is also seen (*arrows*).

D, Photomicrograph reveals the formation of large cavernous vascular channels separated by a scant connective stroma. The spaces are lined by a flattened monolayer of endothelial cells (H&E, × 100).

Table 3: MR imaging–pathologic correlation of spinal epidural hemangiomas

Case No.	MR Type	Histological Feature	Hematoma	Location	Epidural	Level	CC
1	A	Arteriovenous	Yes	Lumbosacral	Ant	1	Radiculopathy
2	B	Venous	No	Cervicothoracic	Post	2	Radiculopathy
3	A	Arteriovenous	Yes	Lumbar	Ant	1	Radiculopathy
4	C	Cavernous	No	Thoracic	Post	2	Radiculopathy
5	C	Cavernous	No	Thoracic	Post	4	Axial pain
6	C	Cavernous	No	Thoracic	Post	4	Myelopathy
7	C	Cavernous	No	Cervicothoracic	Post	4	Myelopathy
8	D	Cavernous	Yes	Cervicothoracic	Post	7	Myelopathy
9	C	Cavernous	No	Thoracic	Post	2	Myelopathy
10	D	Cavernous	Yes	Cervical	Post	4	Radiculopathy
11	C	Cavernous	No	Thoracic	Post	2	Myelopathy
12	B	Venous	No	Lumbar	Ant	1	Radiculopathy
13	B	Venous	No	Lumbar	Ant	1	Radiculopathy
14	C	Cavernous	No	Cervicothoracic	Ant	5	Myelopathy

Note:—A indicates cystlike mass with T1 hyperintensity; B, cystlike mass with T1 isointensity; C, solid hypervascular mass; D, epidural hematoma; Epidural, location of masses either anterior (Ant) or posterior (Post) epidural space; Level, craniocaudal extension described as the number of vertebrae where mass was present; CC, chief complaint.



MRI diagnosis and preoperative evaluation for pure epidural cavernous hemangiomas

Neuroradiology (2009) 51:741–747

Jie Feng · Yi-Kai Xu · Long Li · Rui-Meng Yang · Xiang-Hua Ye · Nan Zhang · Tian Yu · Bing-Quan Lin

HÉMANGIOME CAPILLAIRE MÉDULLAIRE

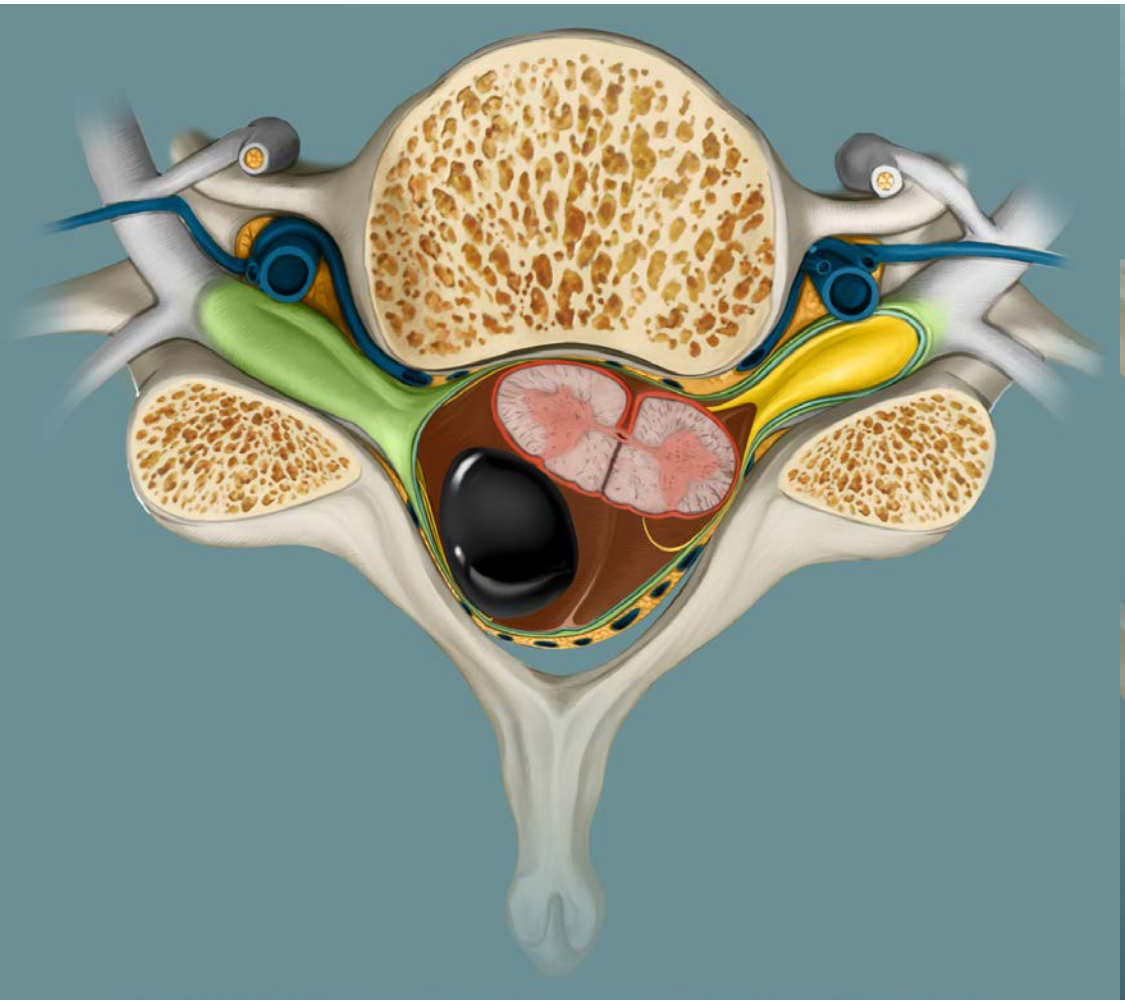
Un nouveau cas

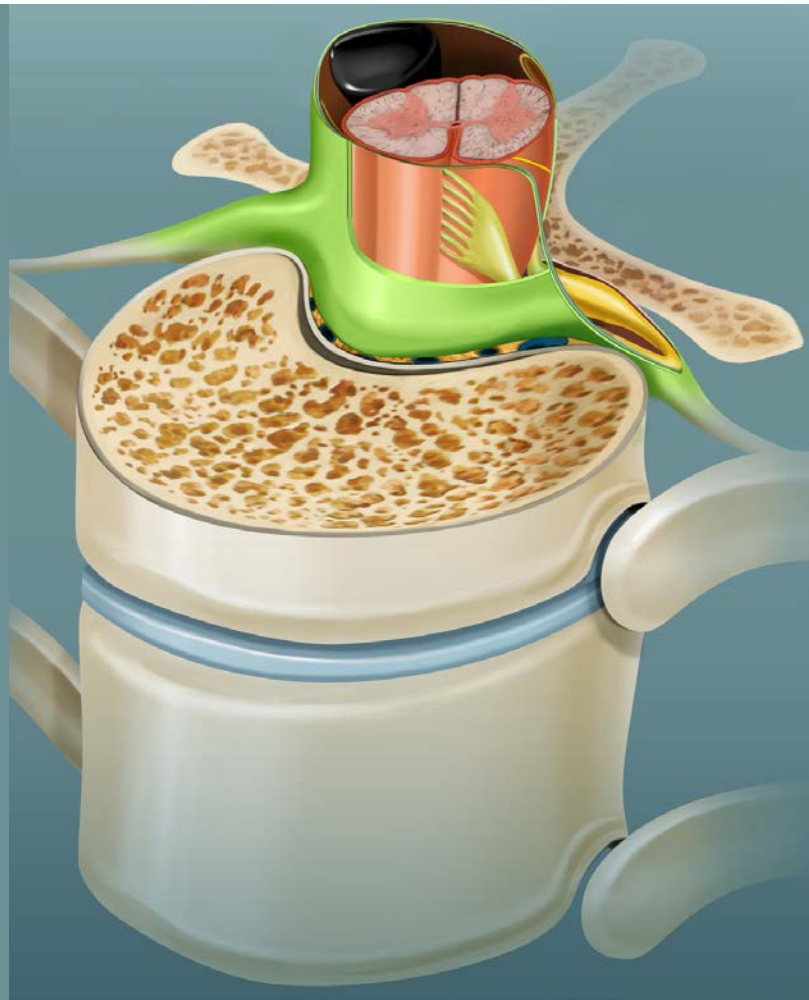
Neurochirurgie, 2002, *48*, n° 5, 440-444

M. RIVIEREZ (1), D. HEYMAN (1), A. JOUANNELLE (2), S. ARFI (3)

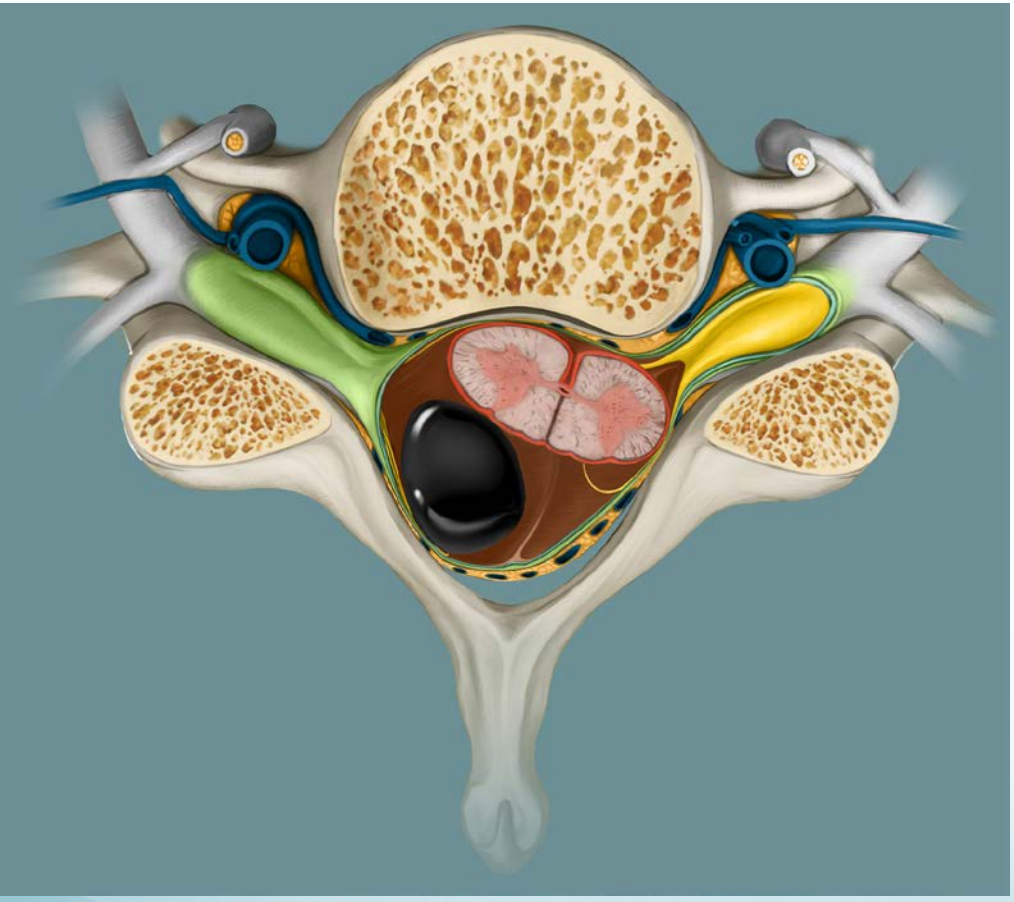
(1) Service de Neurochirurgie,
(2) Service d'Anatomie Pathologique,
(3) Service de Médecine Interne,
Hôpital P. Zobda-Quitman, CHU, 97200 Fort-de-France, Ile de la Martinique

Tumeurs
intra durales extra médullaires
(80% des tumeurs intra durales)





Tumeurs intra durales



Tumeurs primitives

Croissance lente

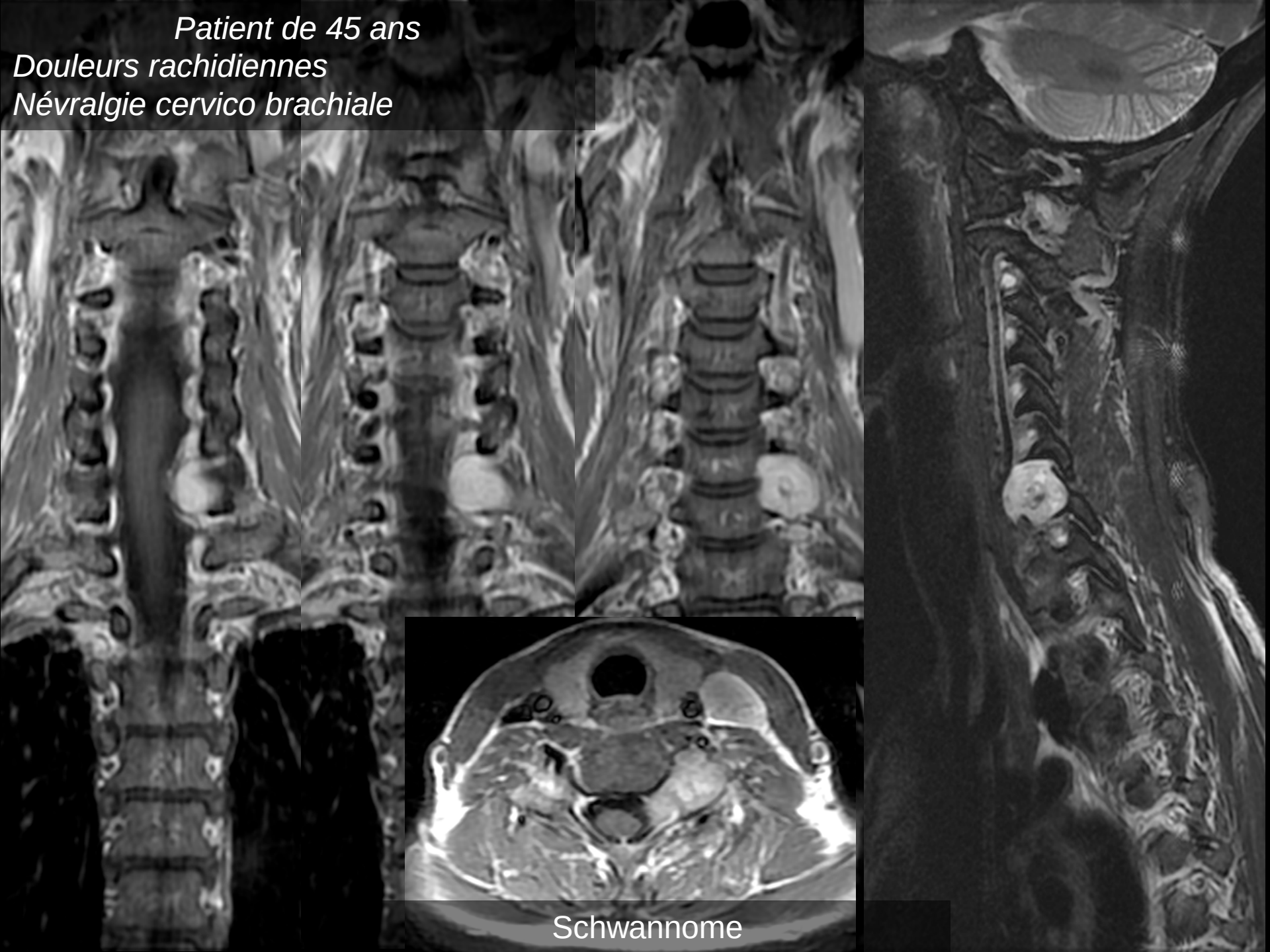
Clinique

Douleur rachidienne ou radiculaire

Troubles sensitifs

Troubles moteurs et troubles sphinctériens : moins fréquents

Patient de 45 ans
Douleurs rachidiennes
Névralgie cervico brachiale

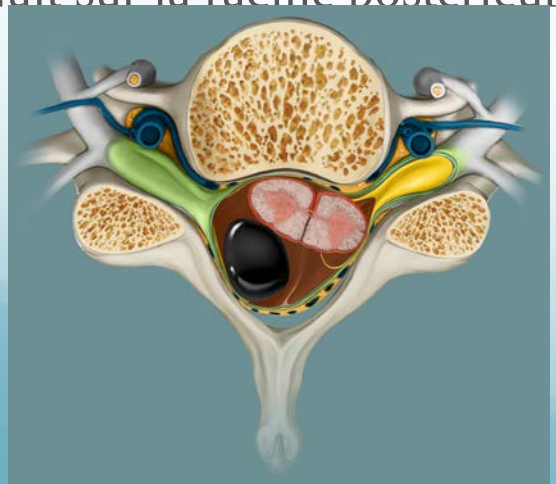


Schwannome

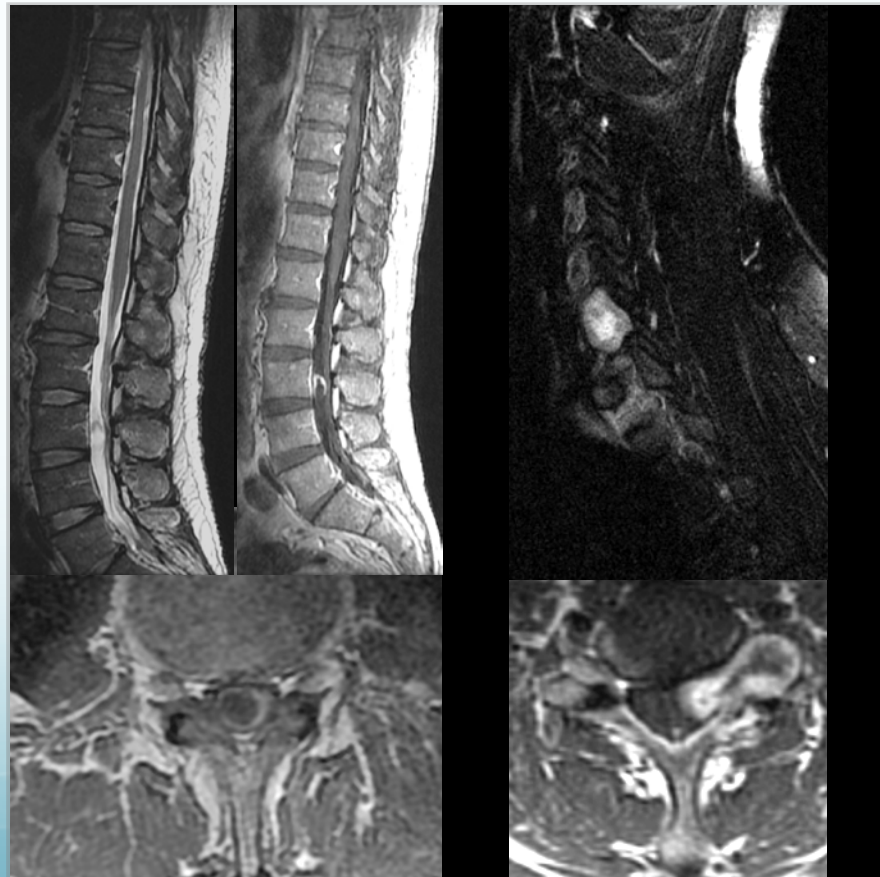
SCHWANNOME

- Douleur rachidienne et/ou radiculaire, signes de compression médullaire
- 4° et 5° décennies. Croissance lente
- Siège

  Lombaire > thoracique, cervical
- Extra dural, **intra dural extra médullaire**, médullaire
- Nait sur la racine postérieure

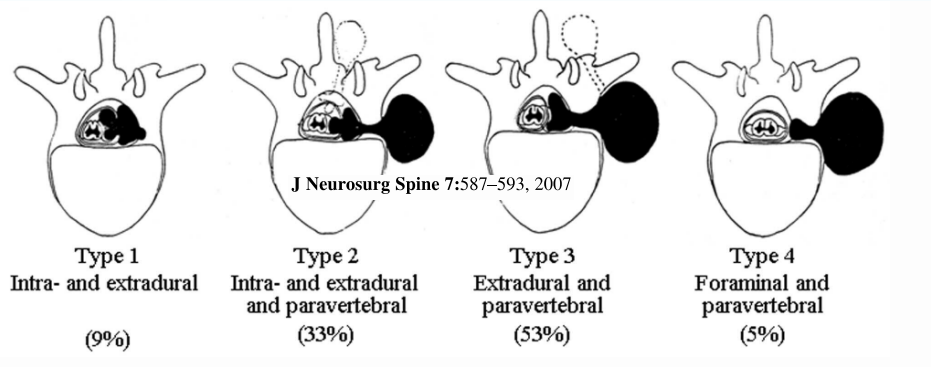


- Masse « douce », bords convexes
- Hyper T2, Iso T1, Rehaussée
- Centre nécrotique (lombaire +++)
- Elargissement foraminal



SCHWANNOME

- Extra dural
- Extra et intra dural
- Intra dural
- Intra médullaire



Magnetic resonance imaging of intramedullary spinal cord schwannomas

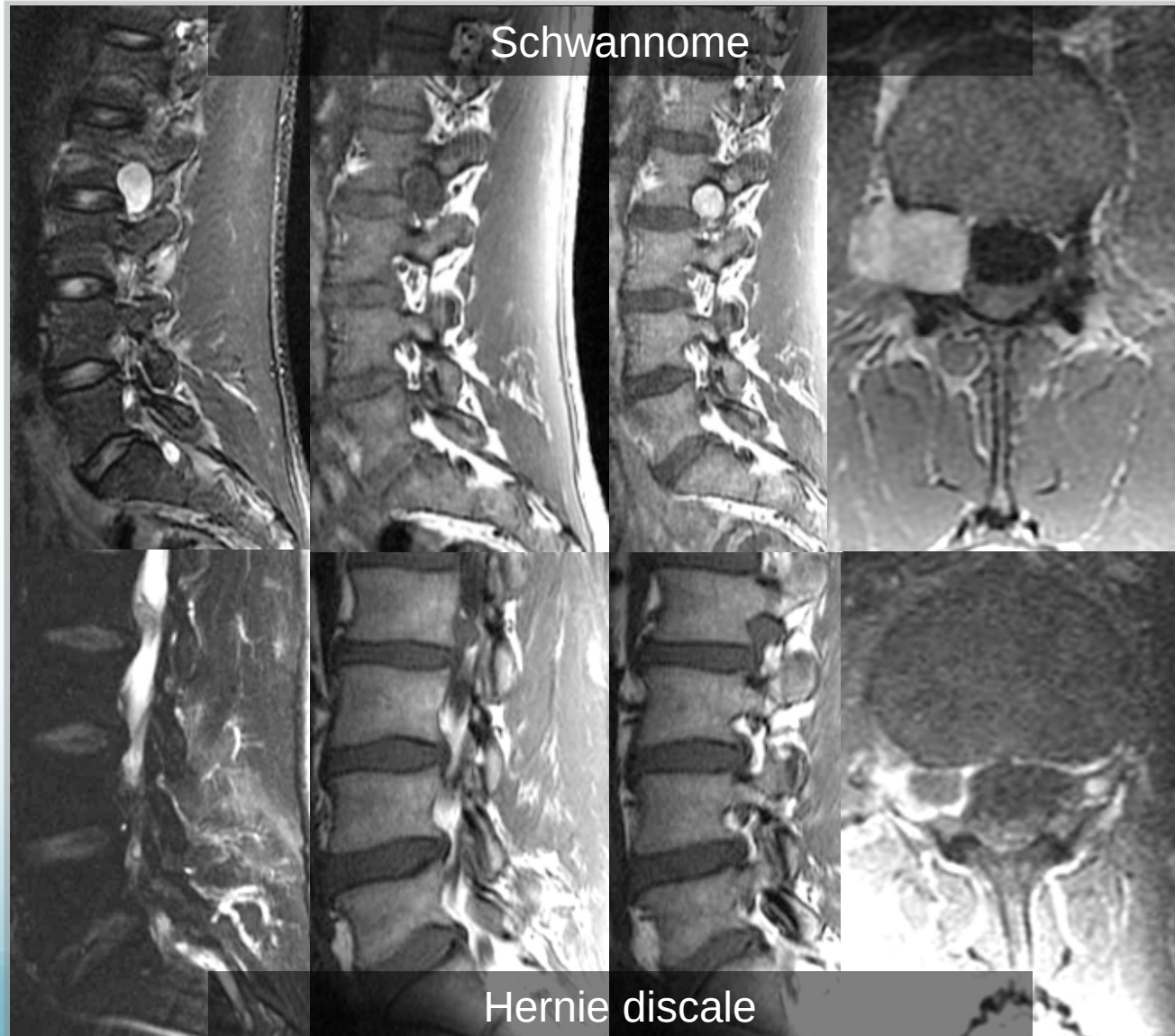
J Neurosurg (Spine 1) 99:114–117, 2003

Report of two cases and review of the literature

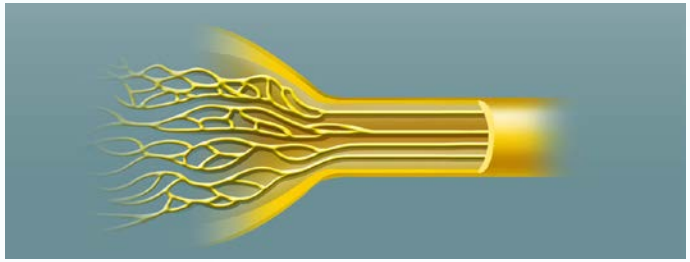
CESARE COLOSIMO, M.D., ALFONSO CERASE, M.D., LUCA DENARO, M.D., GIULIO MAIRA, M.D., AND ROMANO GRECO, M.D.

SCHWANNOME
Diagnostic différentiel

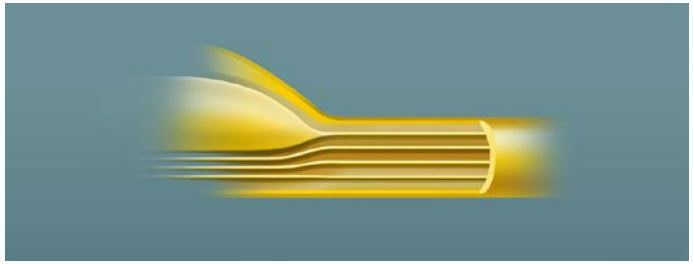
- Meningiome
- Metastases
- Hernie discale



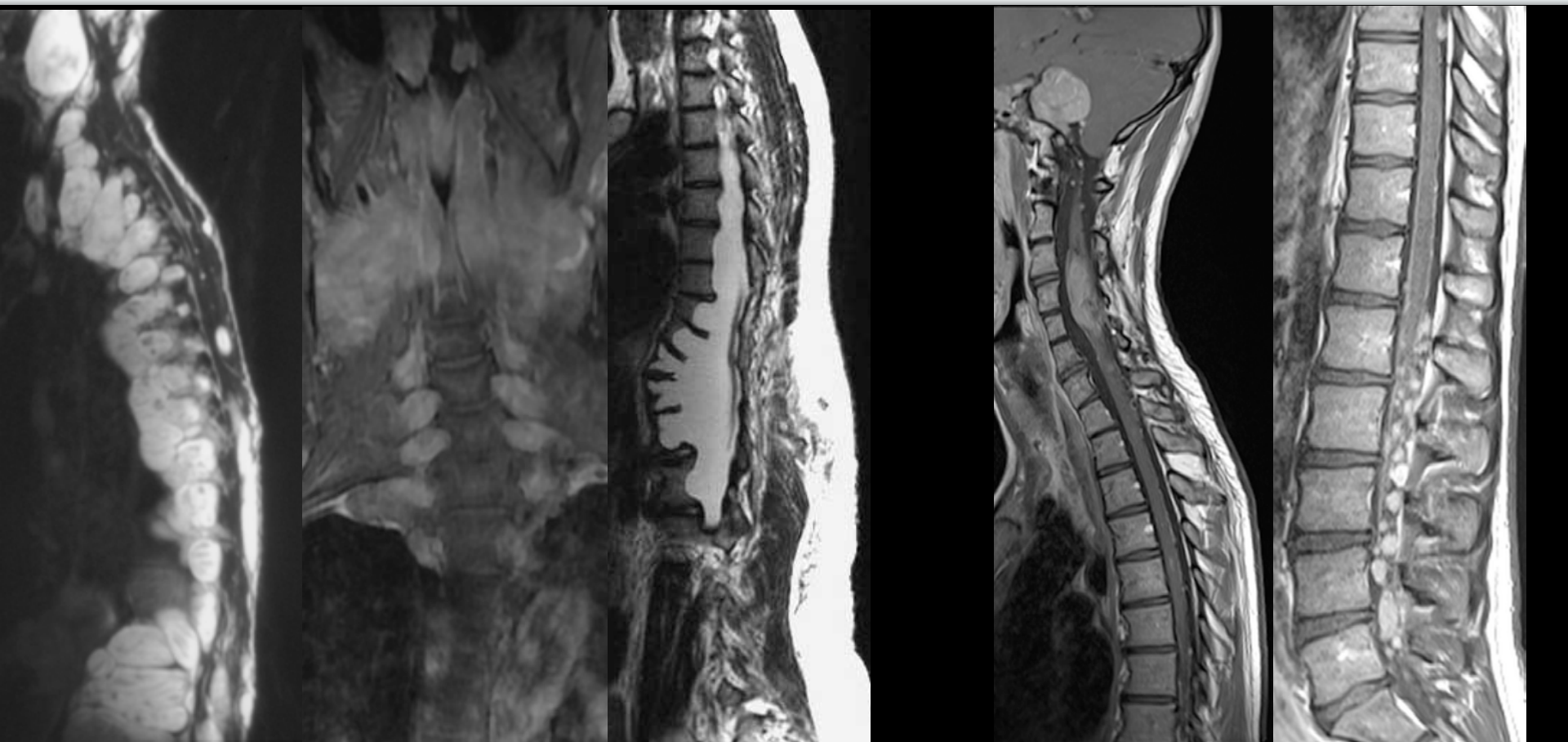
Tumeurs des gaines des nerfs



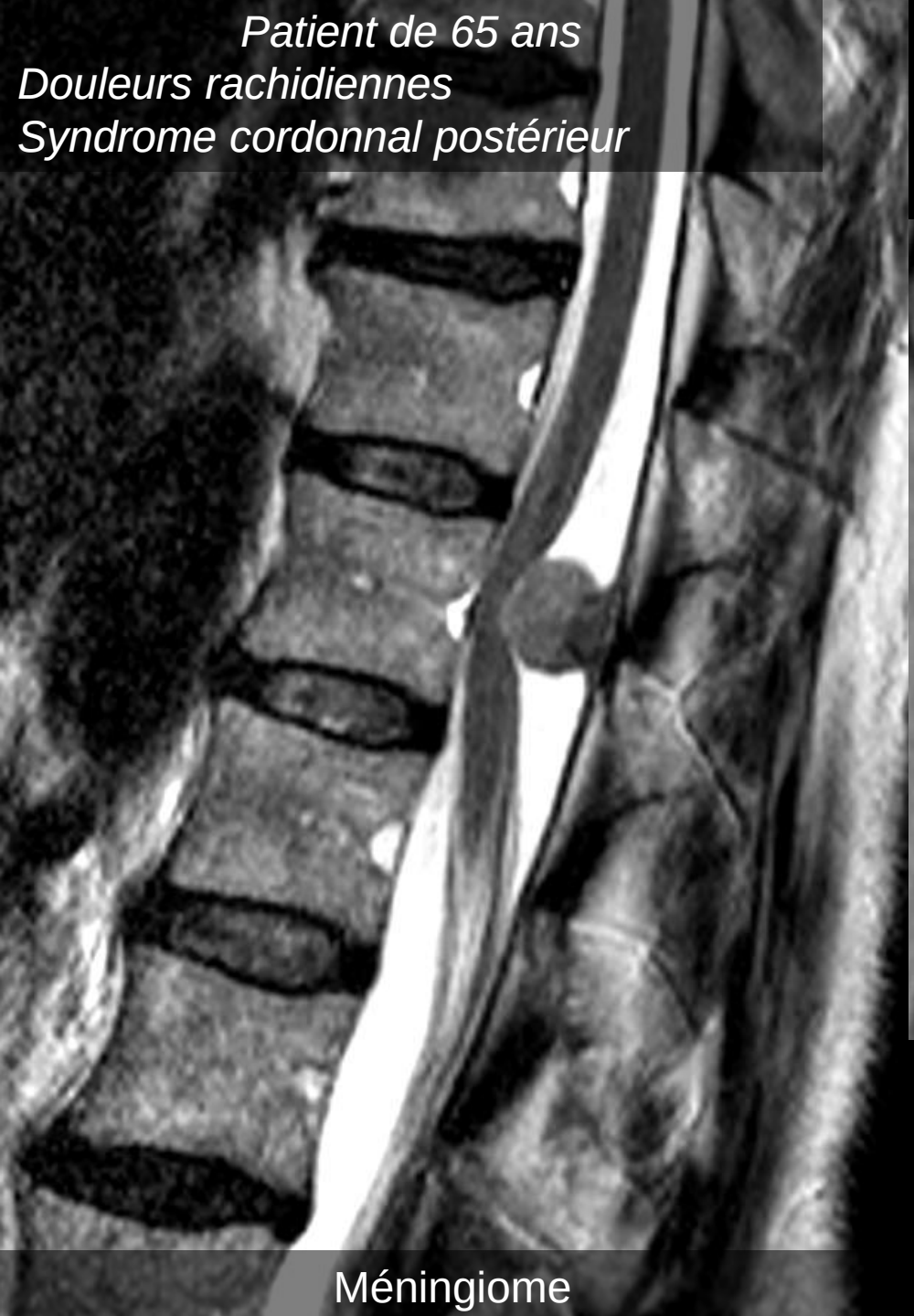
- Neurofibrome NF1

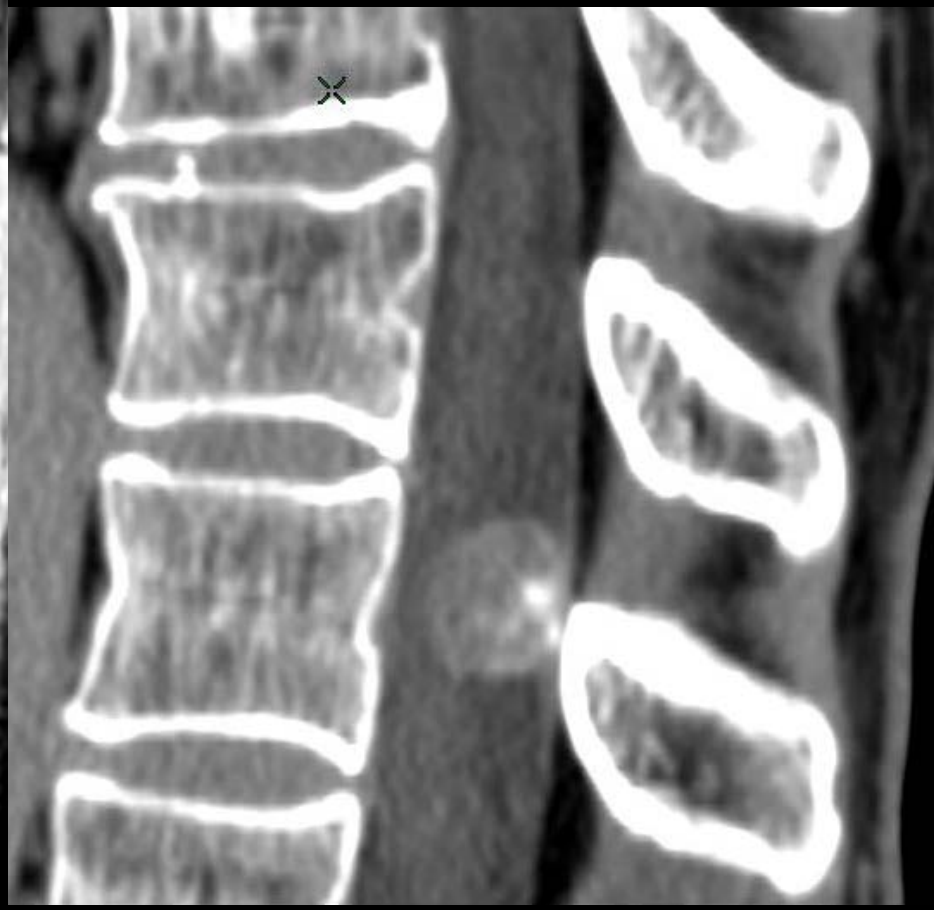


- Schwannome NF2

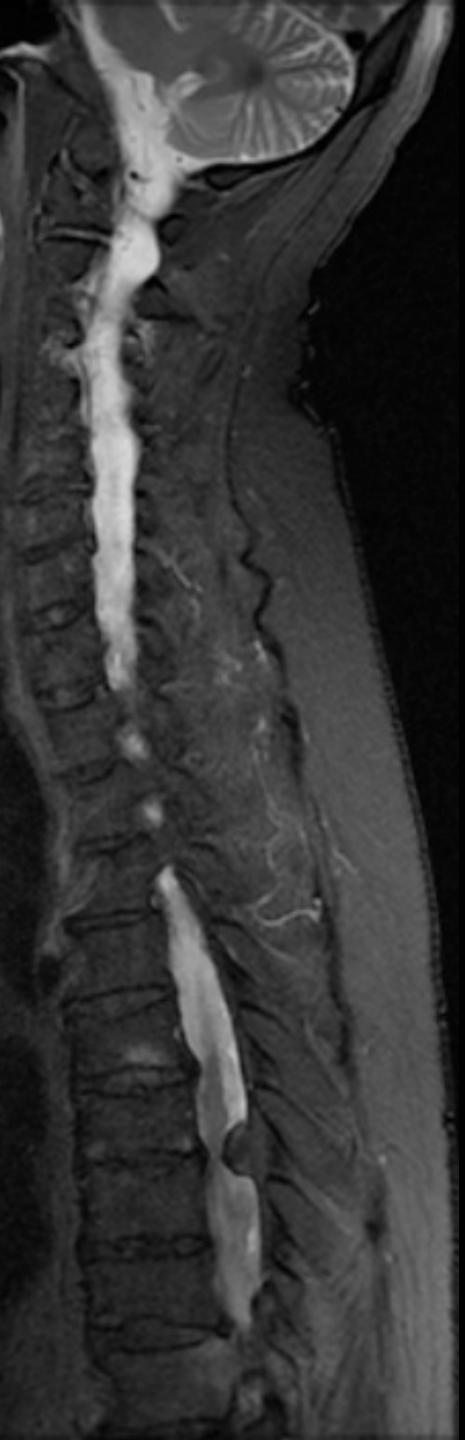
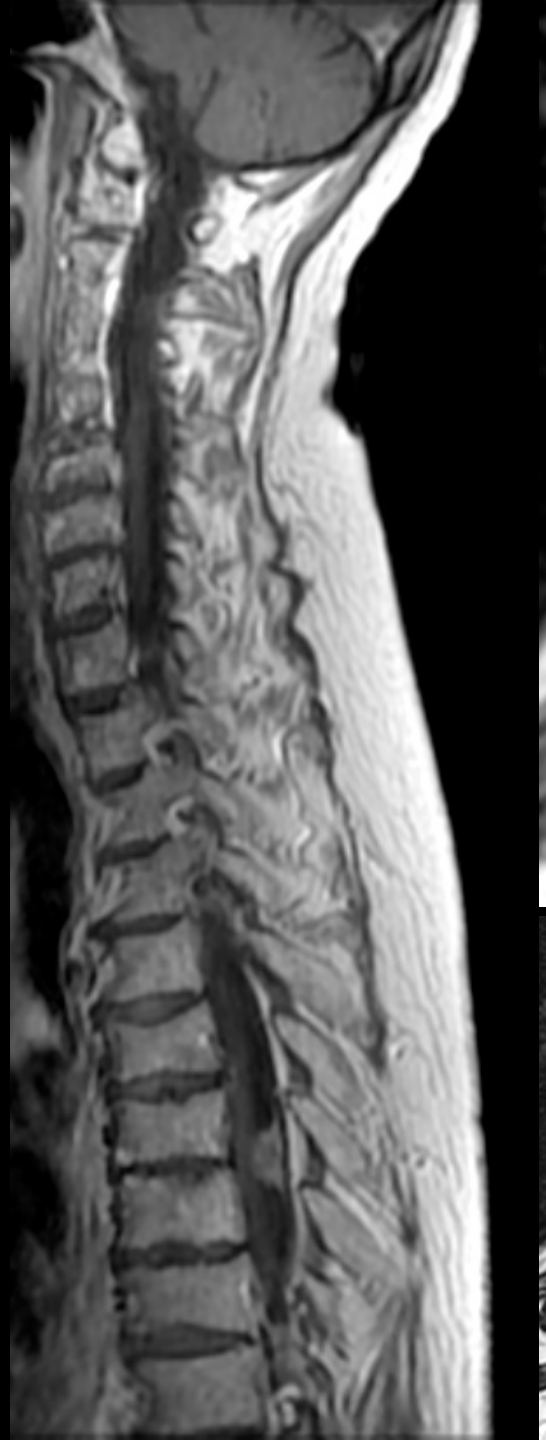
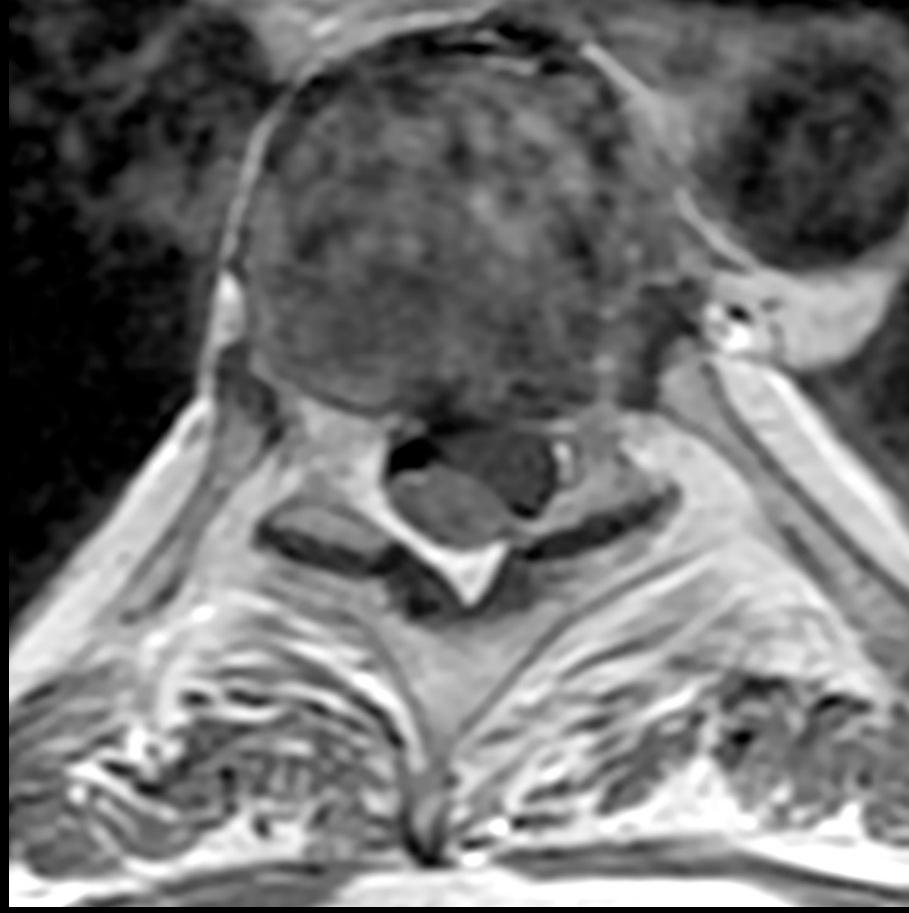
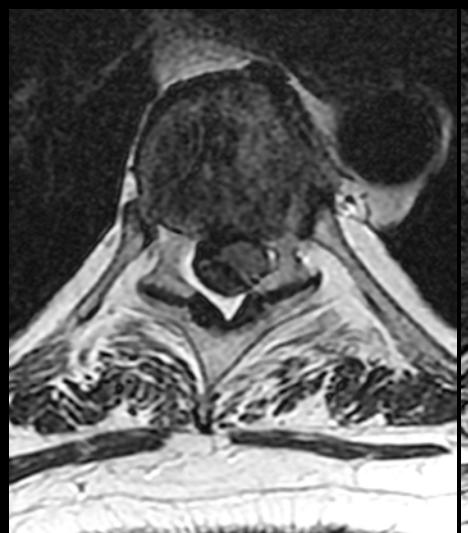
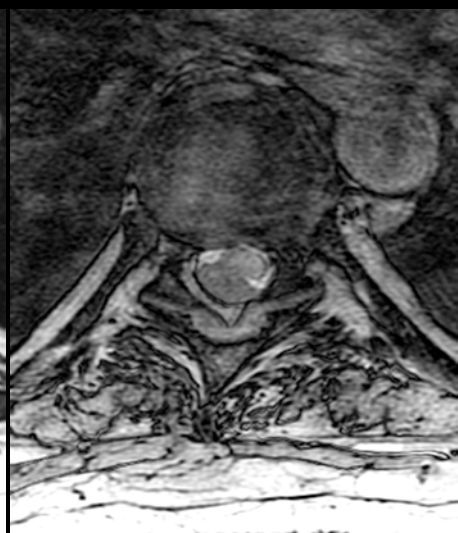


Patient de 65 ans
Douleurs rachidiennes
Syndrome cordonnal postérieur





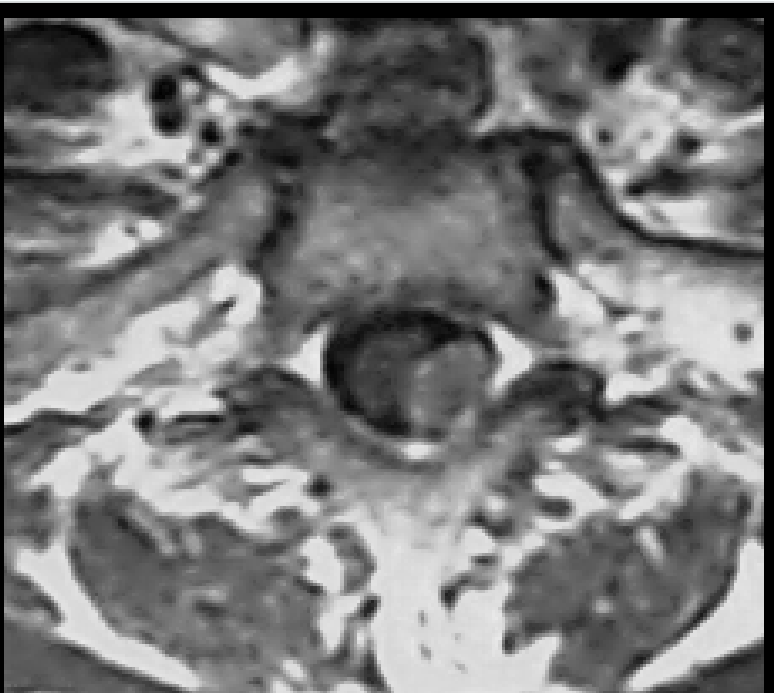
Méningiome

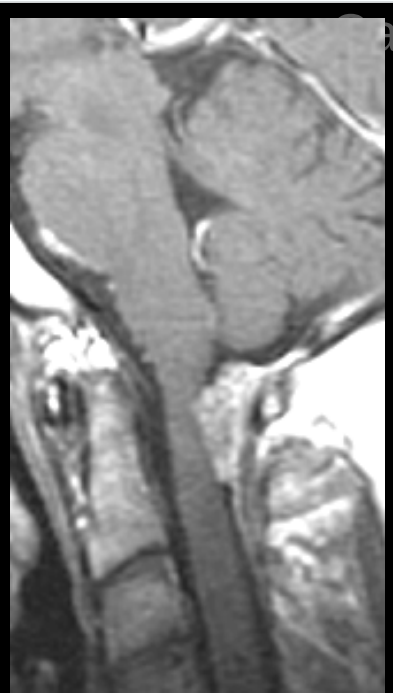






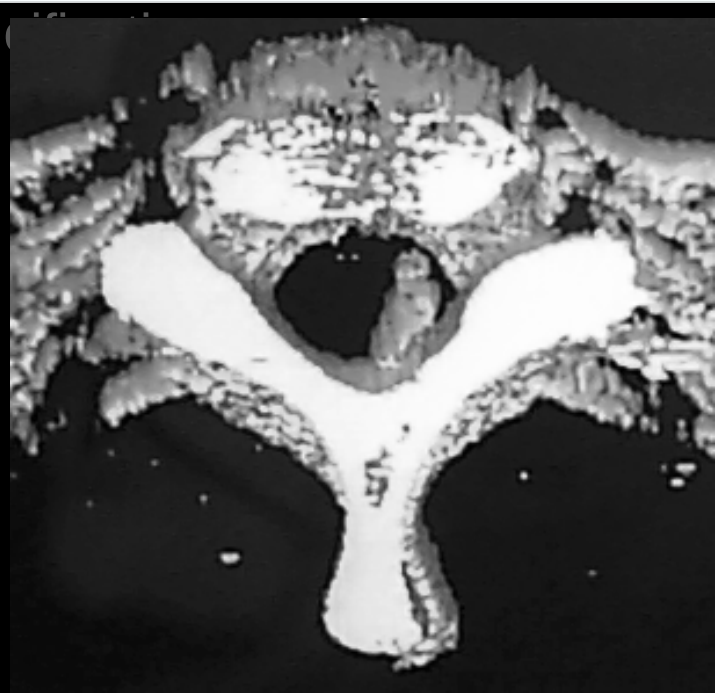
MENINGIOME

- Siège :
  - Thoracique 80%
  - Cervical 17%
  - Lombaire rare 3%
- Sex ratio 4F/1M
- 4° et 7° décennies

- Masse ronde ou ovalaire
- Iso ou très modérément hyperintense T1, plutôt hyperintense T2 sans nécrose centrale, rehaussement modéré
- Signe de la queue de comète







Schwannome versus méningiome

MR IMAGING FEATURES OF SPINAL SCHWANNOMAS AND MENINGIOMAS

J. Neuroradiol., 2005, *32*, 42-49

O. DE VERDELHAN [(1)], C. HAEGELEN [(2)], B. CARSIN-NICOL [(1)], L. RIFFAUD [(2)], S.F.A. AMLASHI [(2)], G. BRASSIER [(2)], M. CARSIN [(1)], X. MORANDI [(2)]

Radiological findings of spinal schwannomas and meningiomas: focus on discrimination of two disease entities

Eur Radiol (2009) 19: 2707–2715

Wei Chiang Liu

Schwannome

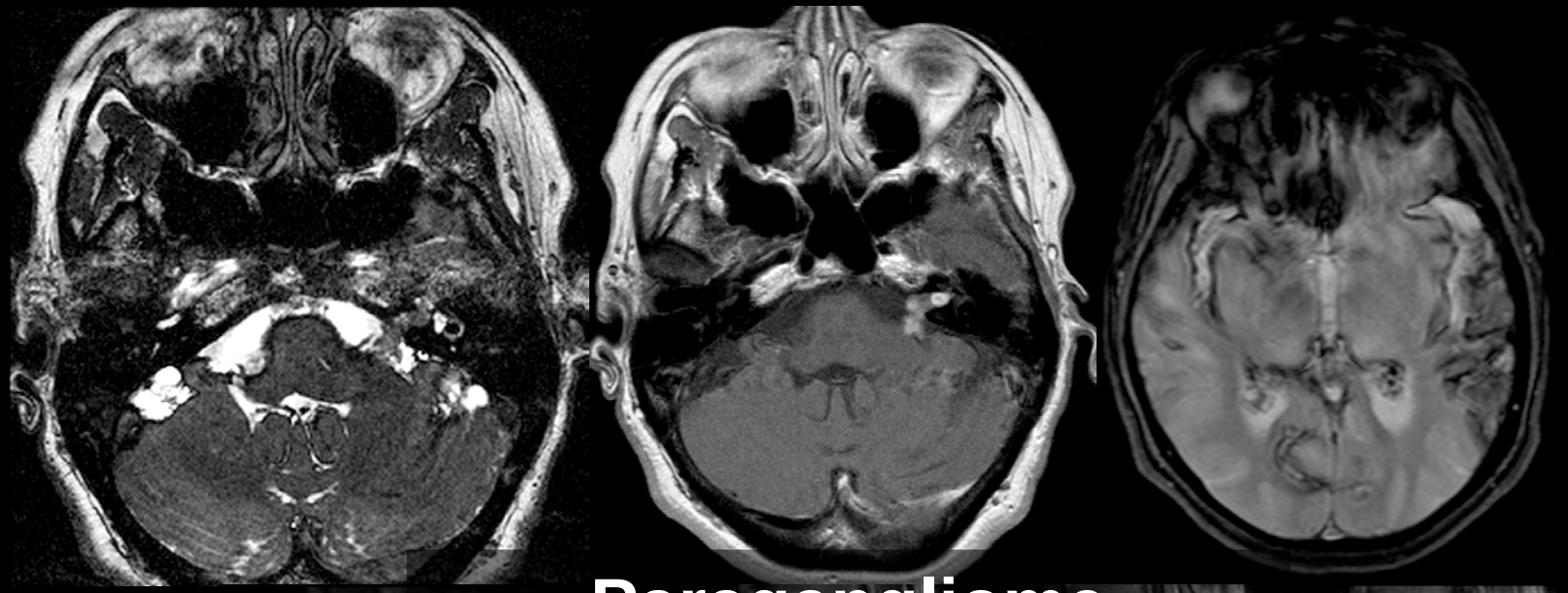
- Hyper intense T2 (nécrose)
- Rehaussement périphérique
- Elargissement foraminal
- Siège lombaire

Méningiome

- Rehaussement homogène
- Queue de comète
- Calcifications
- Siège thoracique postérieur

Intratumoral Microhemorrhages on T2*-Weighted Gradient-Echo Imaging Helps Differentiate Vestibular Schwannoma From Meningioma

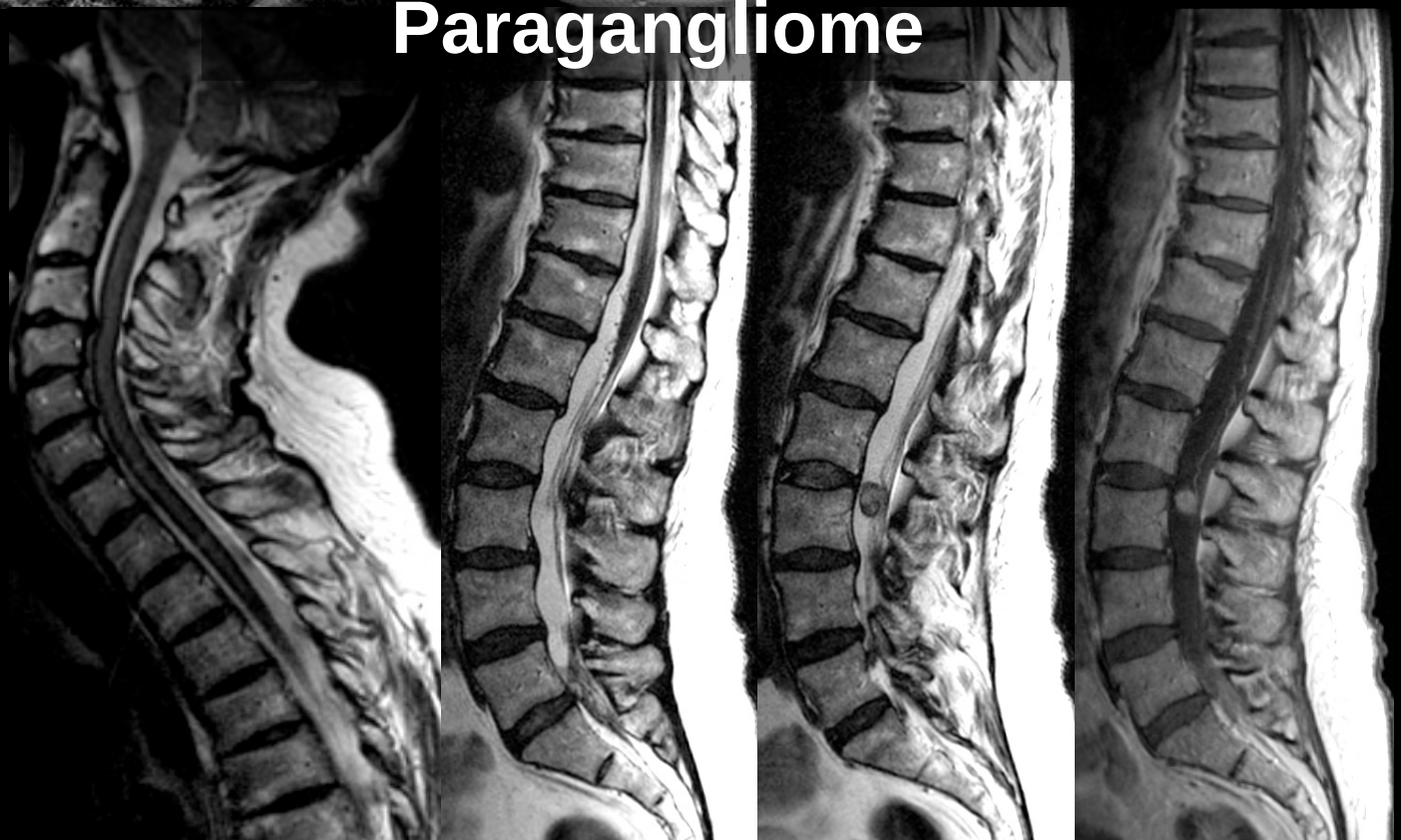
Thamburaj | AJNR 29 | Mar 2008 | www.ajnr.org



Paragangliome

Patiente de 63 ans

Hypoacousie de perception sévère et évolutive, bilatérale prédominant un peu à gauche
Ataxie
Troubles de la marche



Neurochirurgie 58 (2012) 341–345

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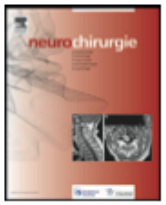


Article original

Paragangliomes de la queue de cheval : à propos de six cas et revue de la littérature

Paraganglioma of the cauda equina region: Report of six cases and review of the literature

B. Mathon[a,*], A. Carpentier[a], S. Clemenceau[a], A.-L. Boch[a], A. Bitar[a], K. Mokhtari[b], C. Adam[b], L. Dainese[b], D. Galanaud[c], F. Kalfon[d], P. Cornu[a]

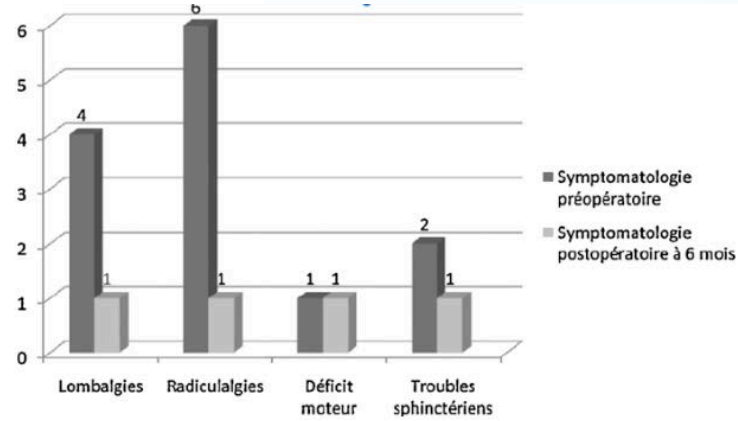
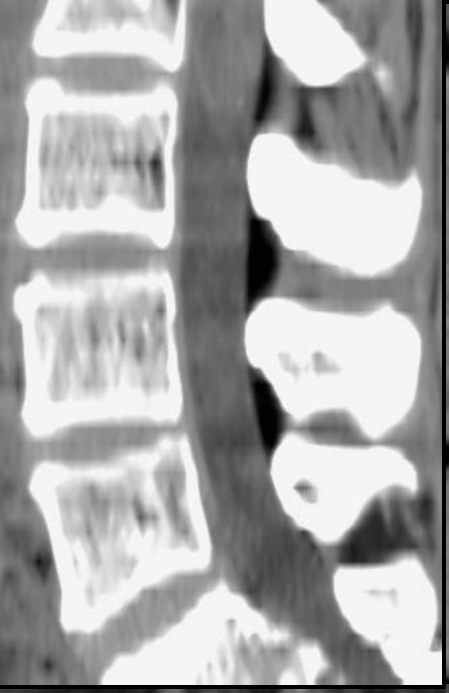


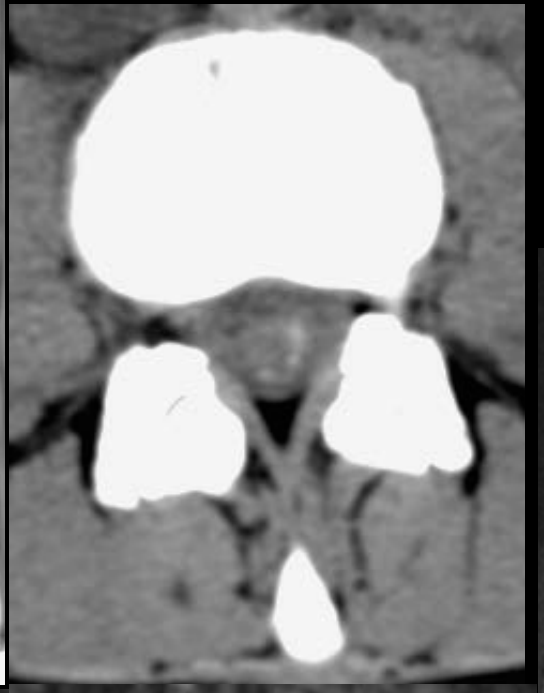
Tableau récapitulatif des données cliniques et des caractéristiques des interventions réalisées chez les patients. Périodes préopératoire/postopératoire (à six mois).
Summary table of preoperative/postoperative (6 months follow-up) clinical data and surgery characteristics.

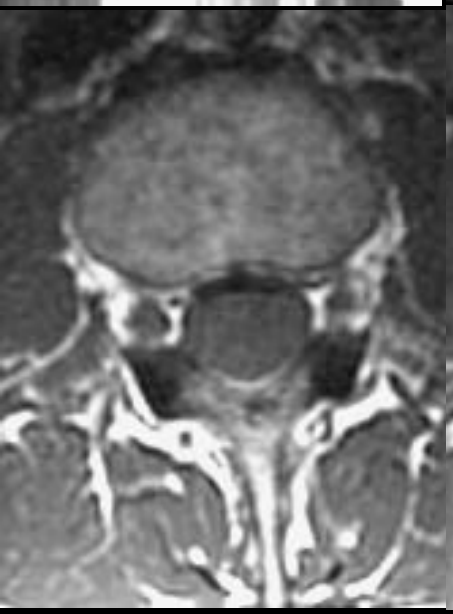
#	Sexe	Âge	Niveau	Déficit moteur avant/après	Troubles sphinctériens avant/après	Neurostimulation	Sacrifice racine porteuse	Suivi en mois	Exérèse complète/Récidive
1	F	35	L3	Non/non	Non/non	Non	Non	6, puis perdue de vue	Oui/non
2	M	77	*Filum terminal*	Oui (⅖D, ⅘G)/oui (⅘G,D)	Oui/oui	Non	Oui	24 (DCD)	Oui/non
3	F	60	S1	Non/non	Non/non	Oui	Oui	34	Oui/non
4	F	63	L2	Non/non	Non/non	Non	Oui	29	Oui/non
5	M	57	*Filum terminal*	Non/non	Non/non	Oui	Oui	6	Oui/non
6	F	72	*Filum terminal*	Non/non	Oui/non	Non	Oui	15	Oui/non

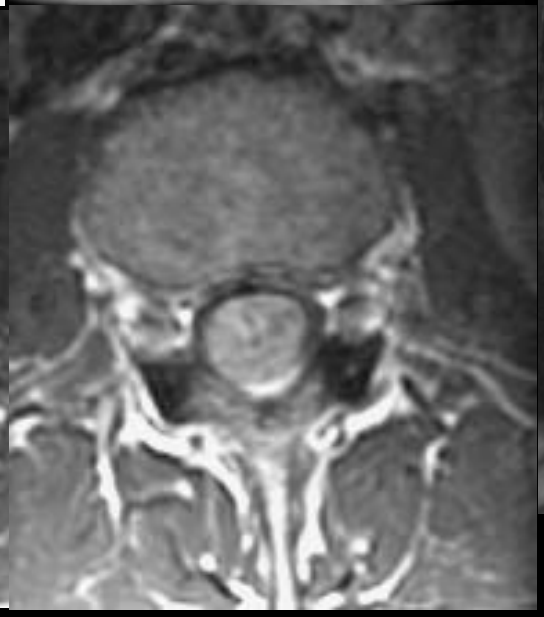
Tumeurs du sac dural

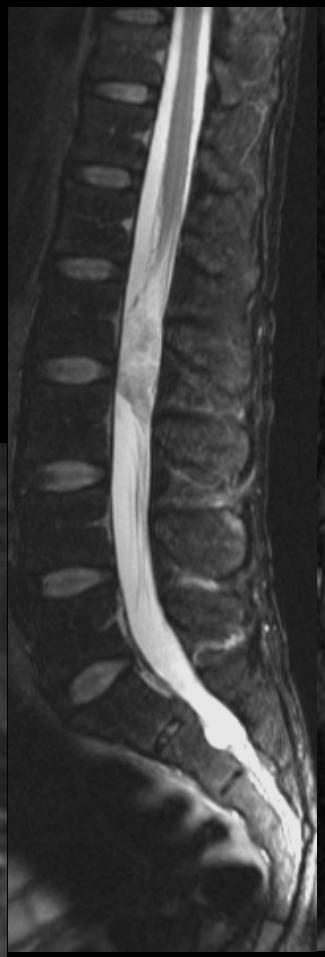
Patiente de 42 ans
Sciatique S1 gauche

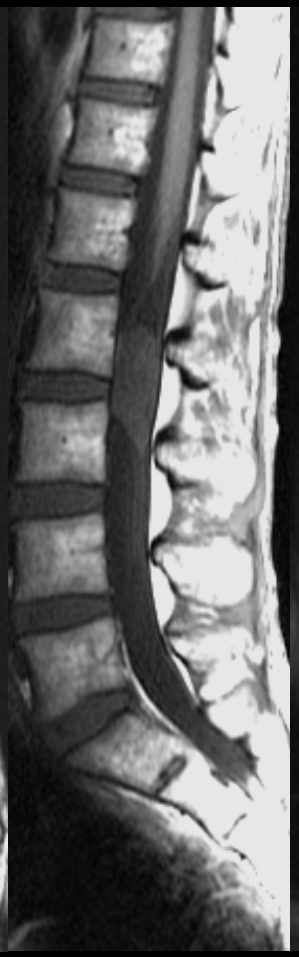


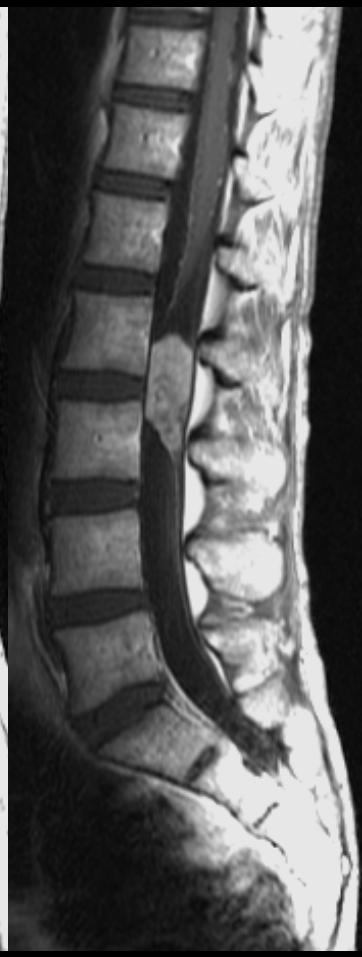








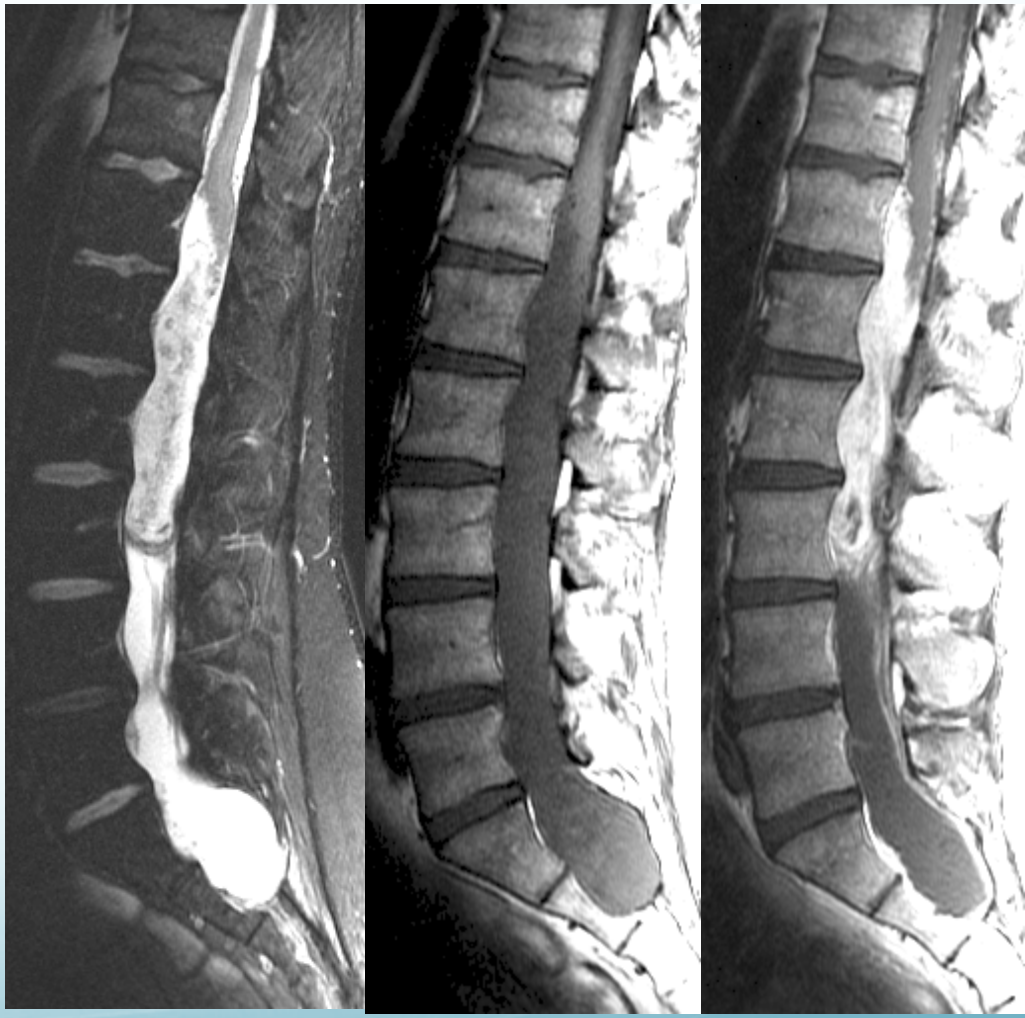




Ependymome myxo papillaire

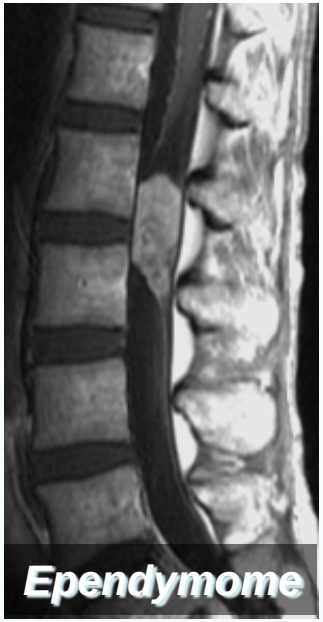
Ependymome myxo-papillaire

- Siège
  Toujours sous le niveau de T9
- Intra dural, extra médullaire. Parfois enchassé dans le cone médullaire
- Hyper T2, iso ou *hyper T1,* rehaussement
- Tumeur de bas grade, croissance lente WHO 1
- Toute âge
- 1° Tumeur du sac dural



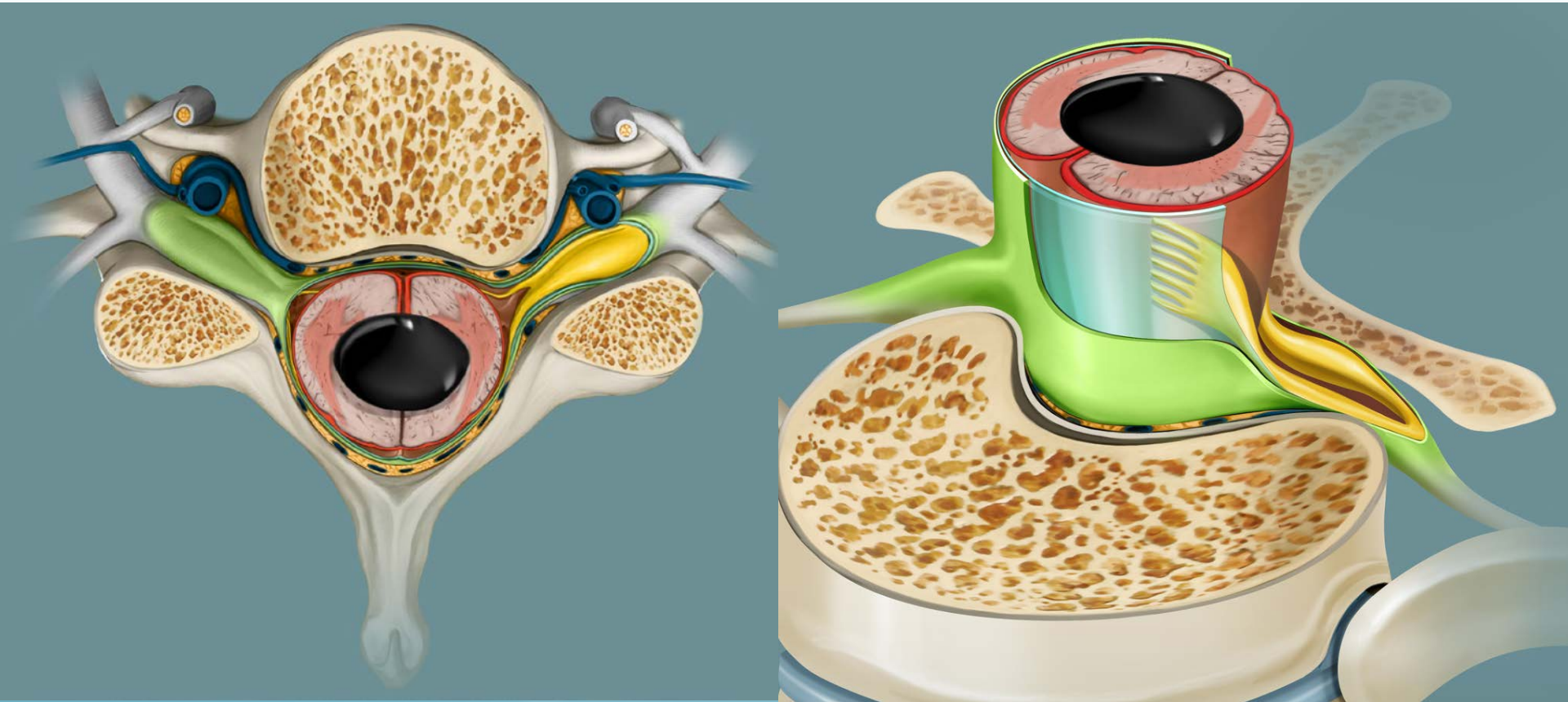
Tumeur du sac dural

- Ependymome myxo papillaire
- Schwannome
- Paragangliome
- Méningiome
- Hémangioblastome
- *Métastases*



Tumeurs intra médullaires

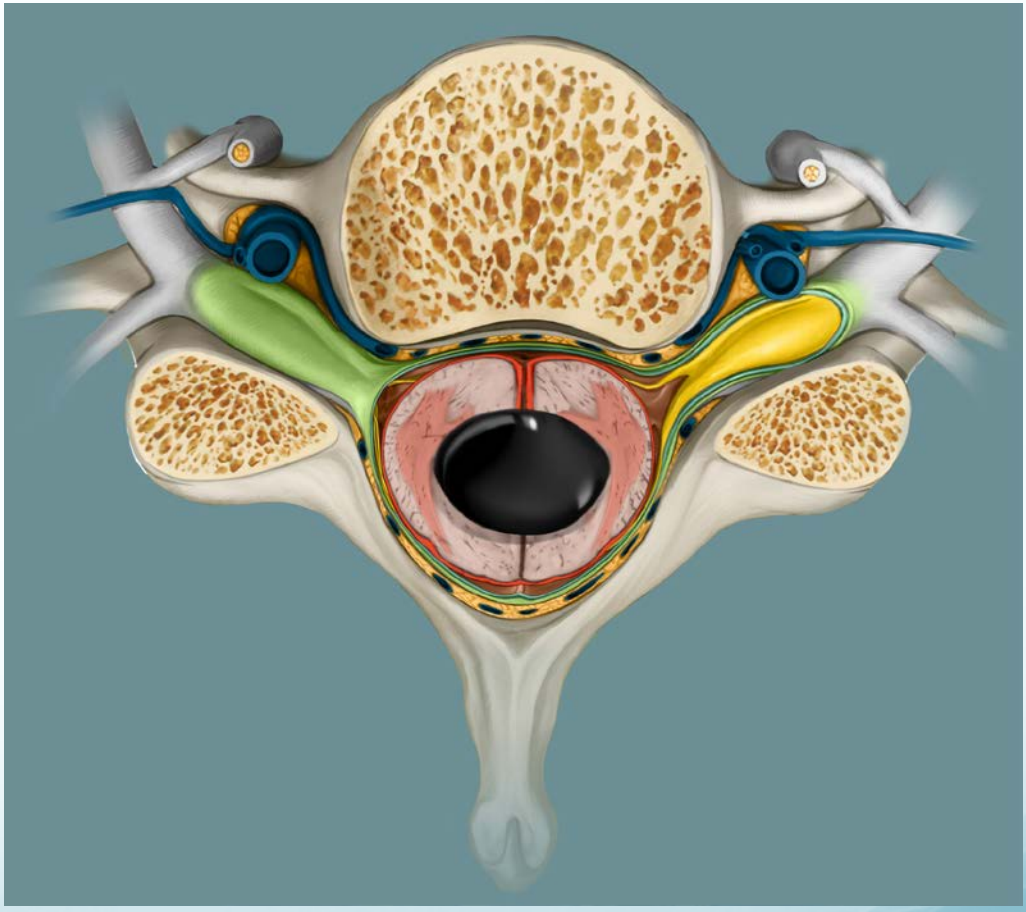
(20% des tumeurs intra durales)

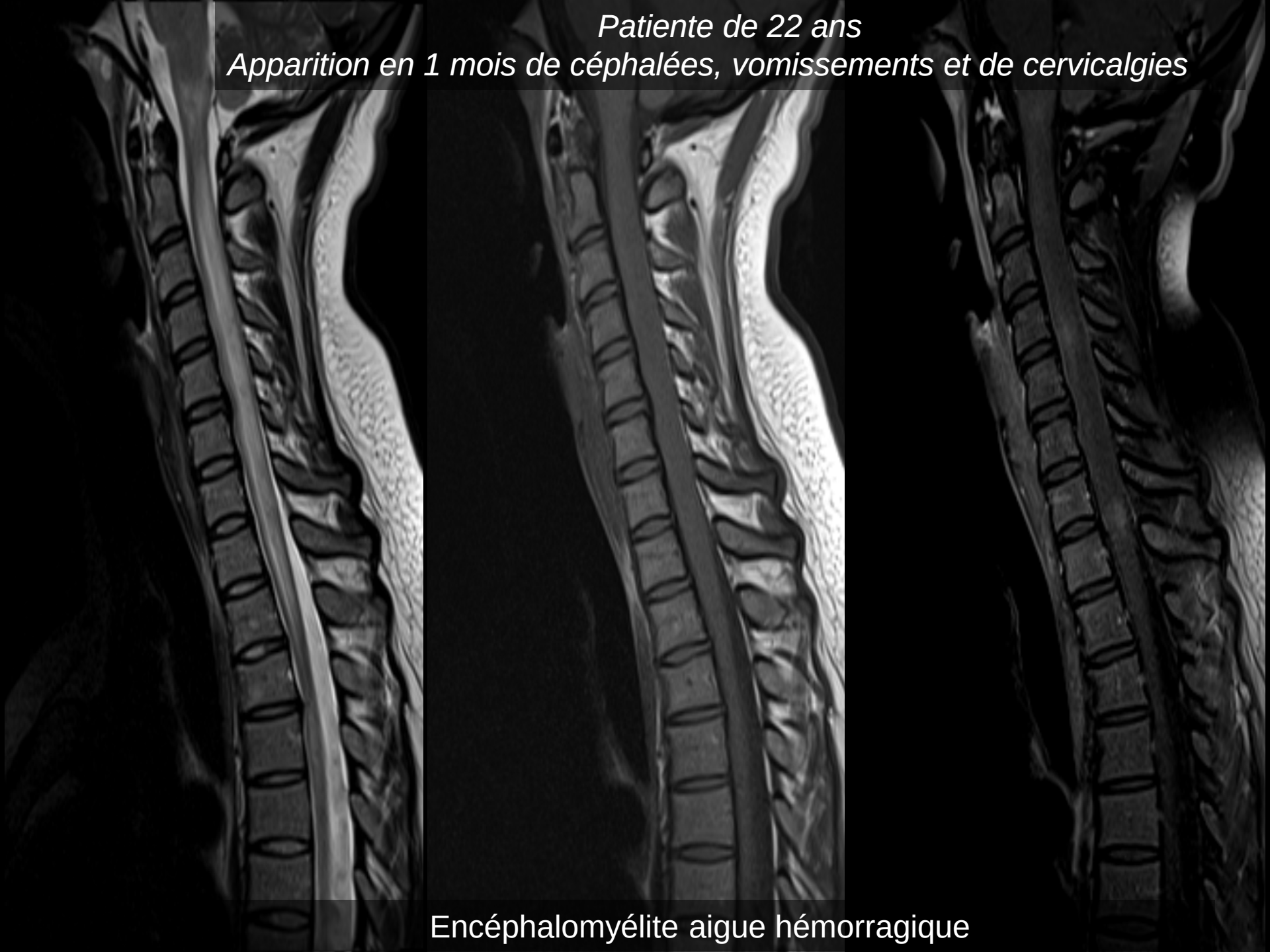


Tumeurs intra médullaires

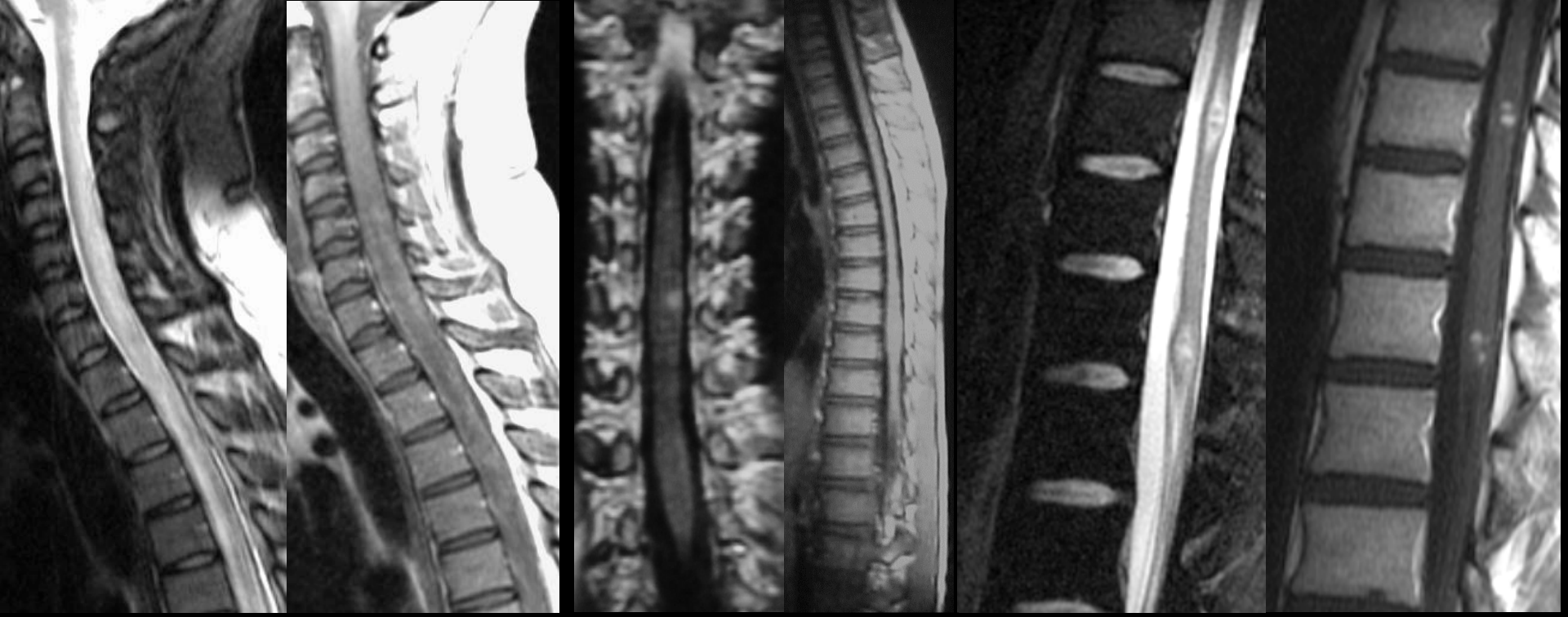
- Tumeurs rares (4% des tumeurs du SNC)
- 2/3 : tumeurs gliales
- Age : patients jeunes
- Clinique:

  Douleurs, troubles sensitifs, troubles moteurs moins fréquents
- Croissance lente, délai diagnostique long

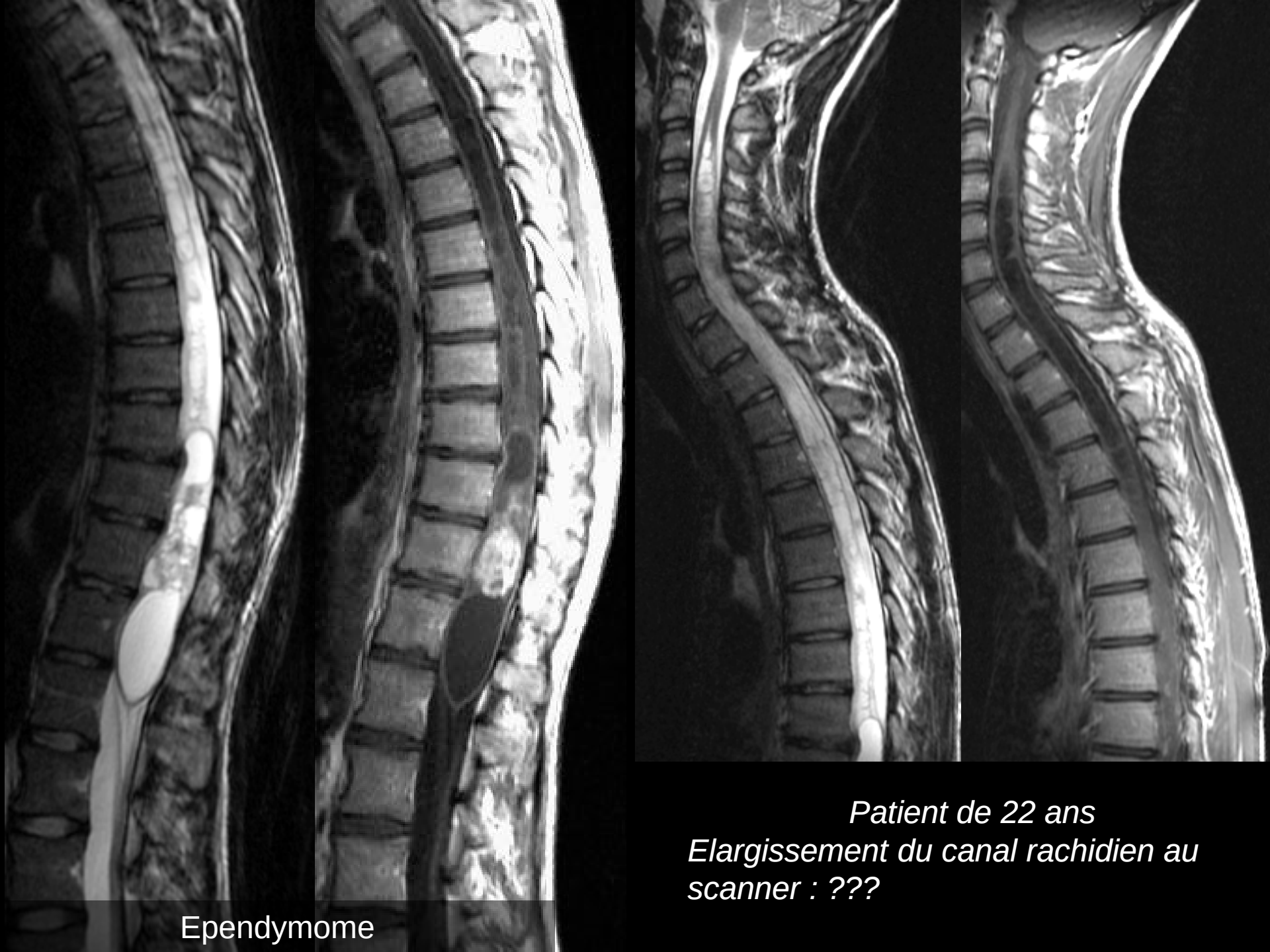




Encéphalomyélite aigue hémorragique



Une moelle élargie et rehaussée n’est pas toujours une moelle tumorale

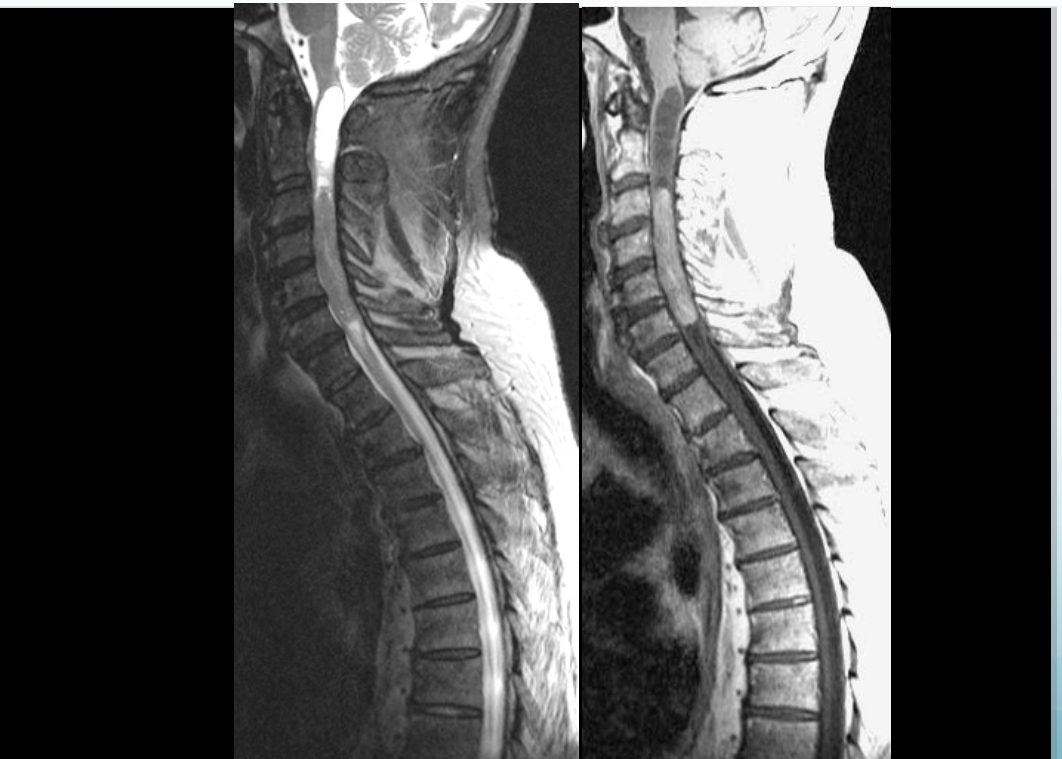


Patient de 22 ans
Elargissement du canal rachidien au scanner : ???

Ependymome

EPENDYMOME

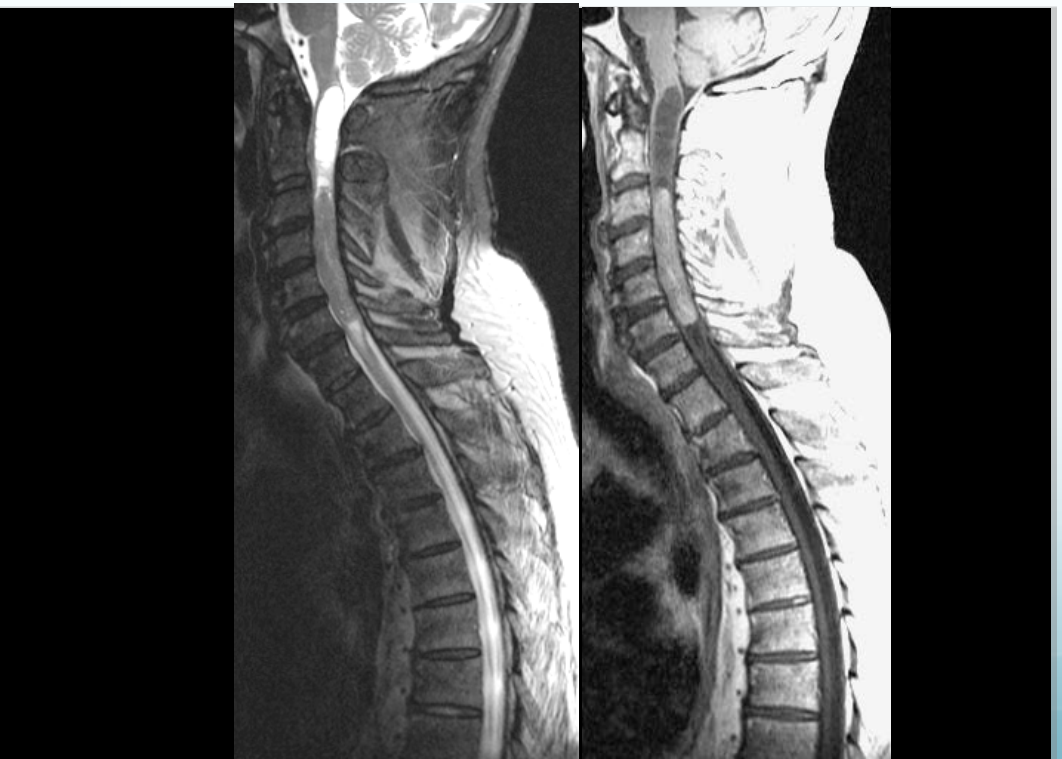
- 1° tumeur médullaire
- 2/3 des tumeurs gliales
- Adulte jeune (20-50 ans)
- Siège
  Cervical>lombaire(MP 10-15%)>thoracique
- Bas grade (WHO I ou II)



- Tumeur de contours nets
- Centro médullaire
- Iso ou modérément hyper intense en T1, hyper ou iso intense on T2, rehaussement intense
- *Kystes ++*
  Tumoraux : rehaussement pariétal
  Satellite
  Syringomyélie
- Signe de la coiffe

EPENDYMOME

- 1° tumeur médullaire
- 2/3 des tumeurs gliales
- Adulte jeune (20-50 ans)
- Siège
  Cervical>lombaire(MP 10-15%)>thoracique
- Bas grade (WHO I ou II)



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  Tumoraux : rehaussement pariétal
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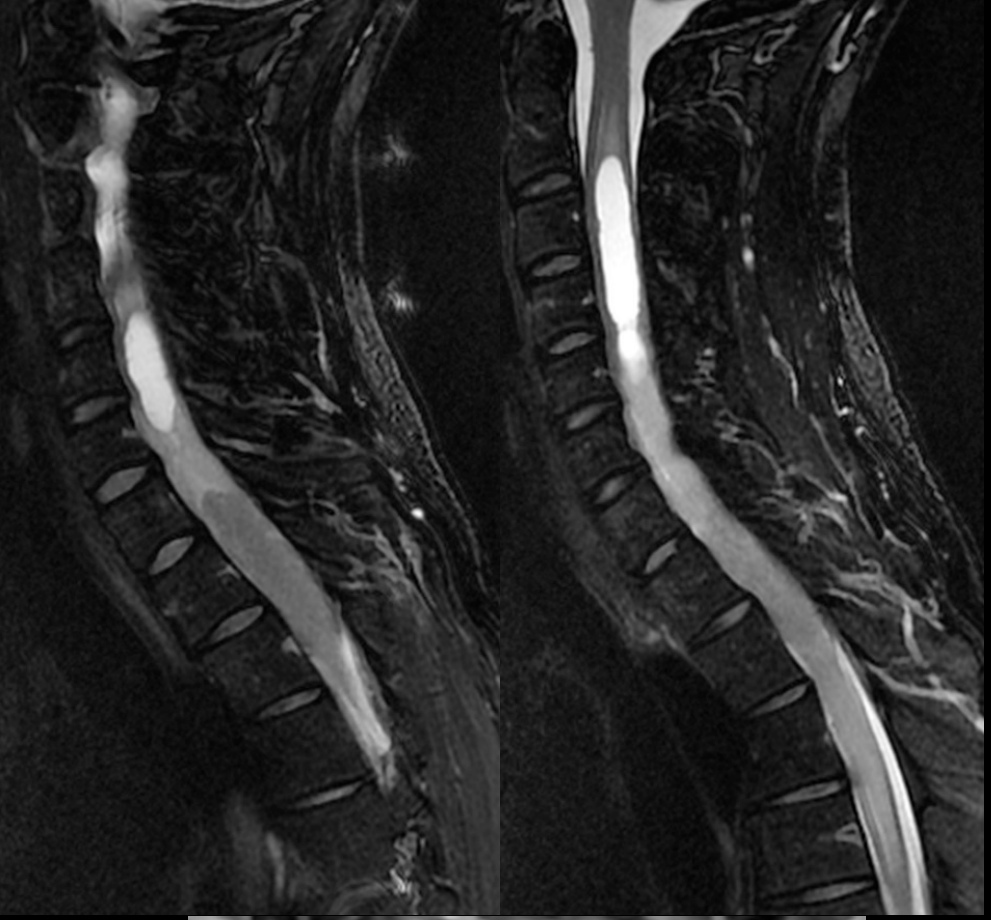
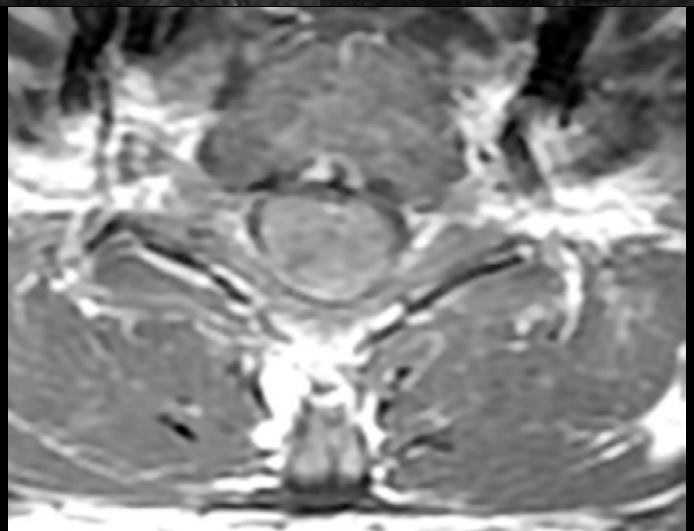
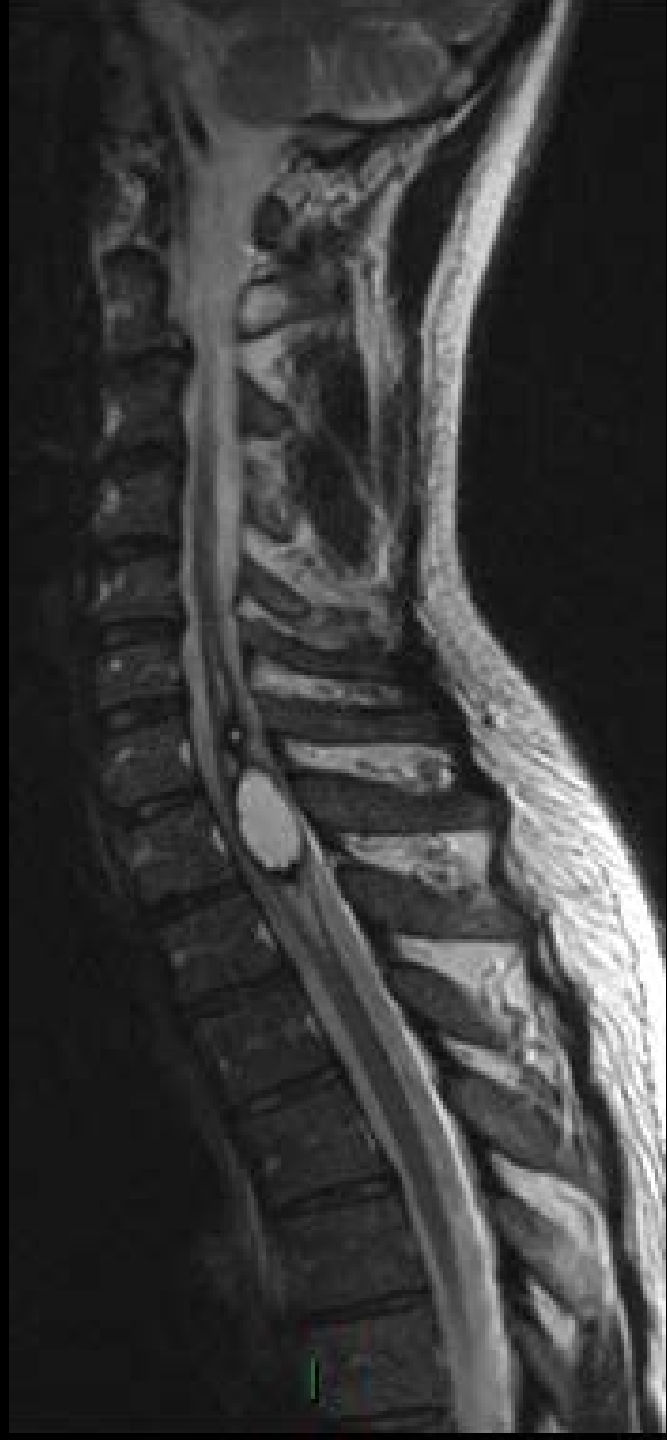
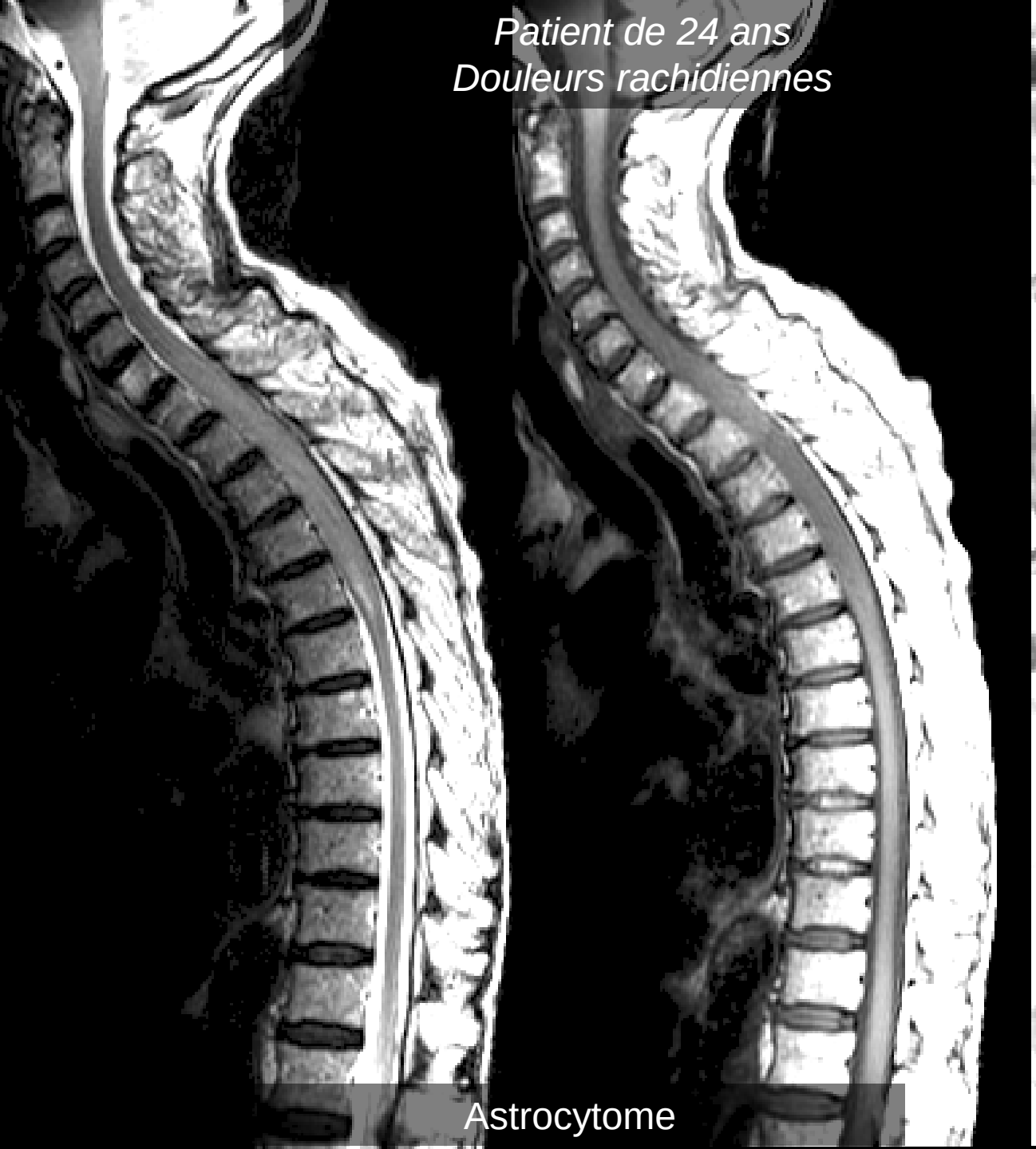
- Signe de la coiffe

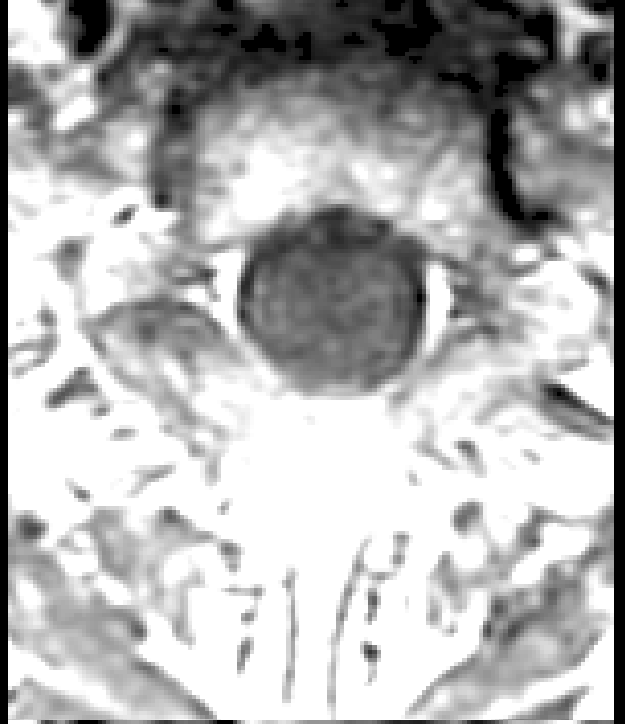


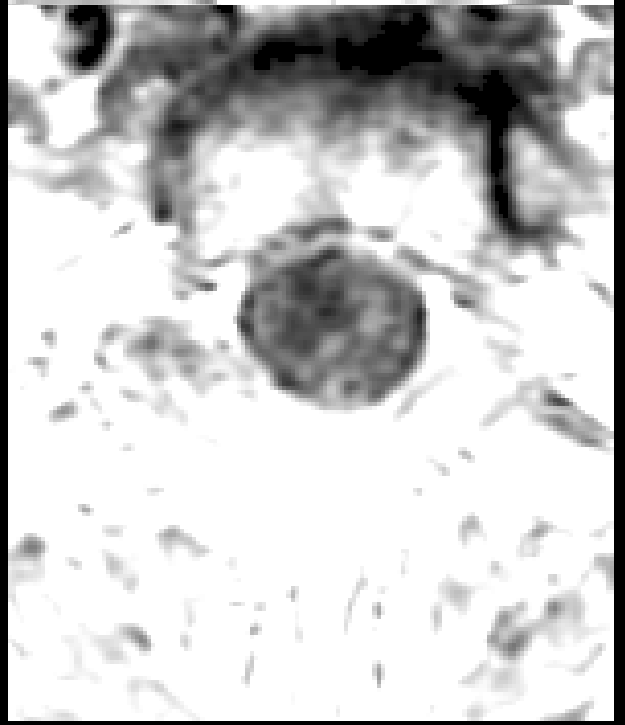




Patient de 24 ans
Douleurs rachidiennes





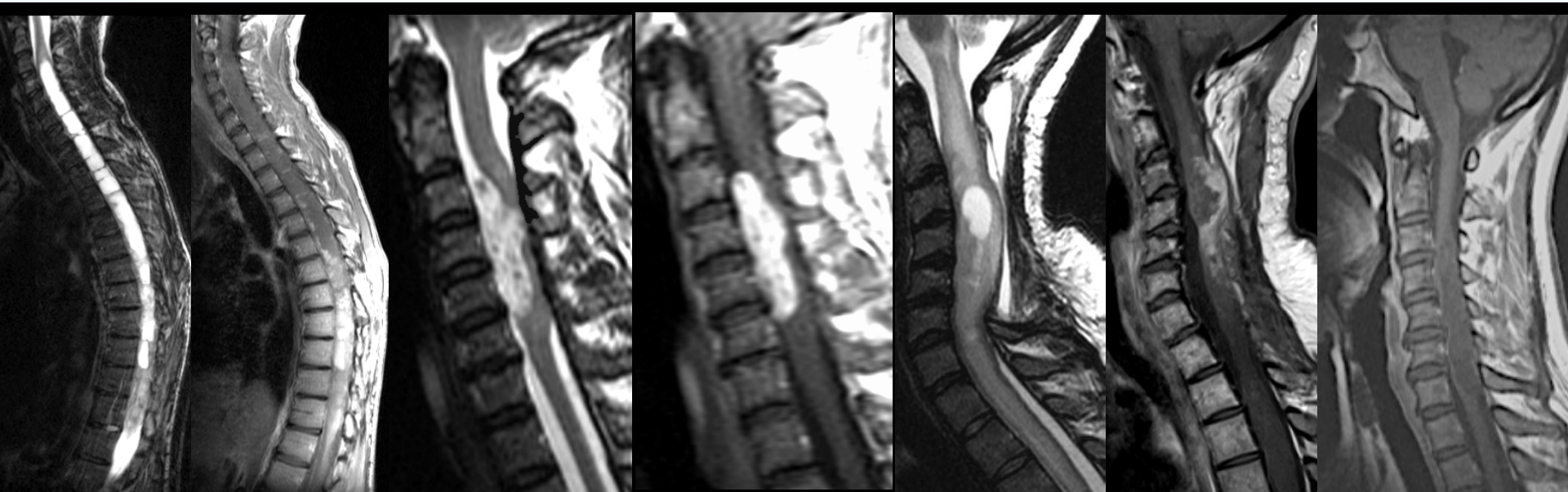


Astrocytome

ASTROCYTOME

- 1/3 des tumeurs gliales médullaire
- Enfant Adolescent et adulte jeune
- *Tumeur infiltrative*
- Siège : thoracique et cervico thoracique, panmédullaire
- Plutôt excentré voire exophytique
- WHO I et II le plus souvent
- 15% des cas WHO III ou IV

- Limites floues
- Iso ou hypointense T1, hyperintense T2
- Rehaussement : 1/3 non rehaussé
- Peu de kystes



ASTROCYTOME

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- *Tumeur infiltrative*
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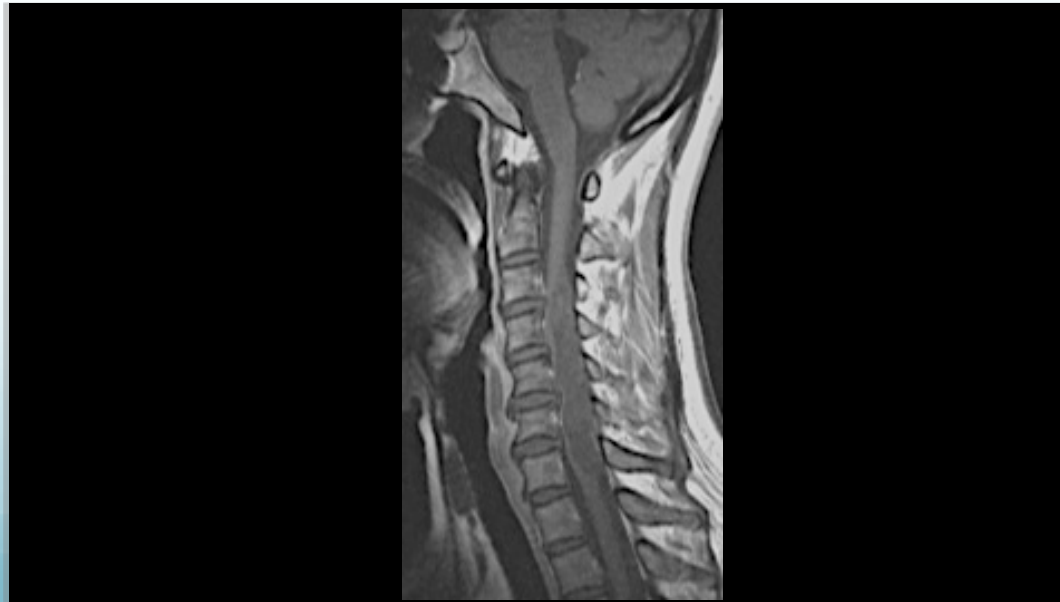
- Plutôt excentré voire exophytique
- WHO I et II le plus souvent
- 15% des cas WHO III

- Limites floues
- Iso ou hypointense T1, hyperintense T2
- **Rehaussement : 1/3 non rehaussé**
- Peu de kystes

Nonenhancing Intramedullary Astrocytomas and Other MR Imaging Features: A Retrospective Study and Systematic Review

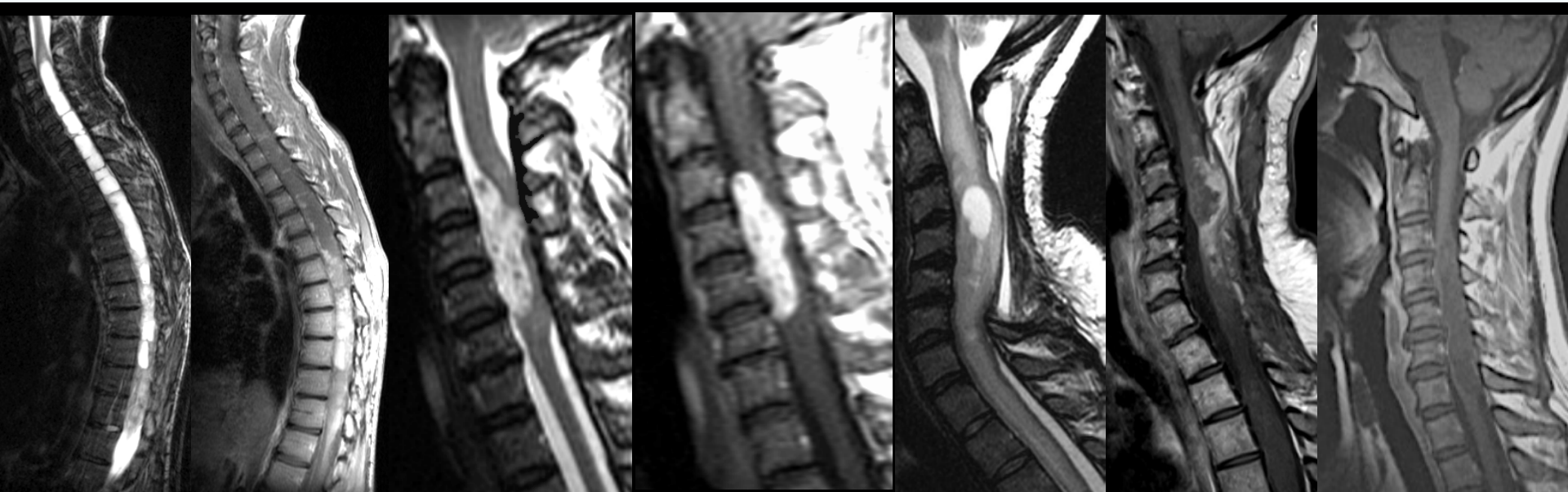
Seo | AJNR 31 | Mar 2010 | www.ajnr.org

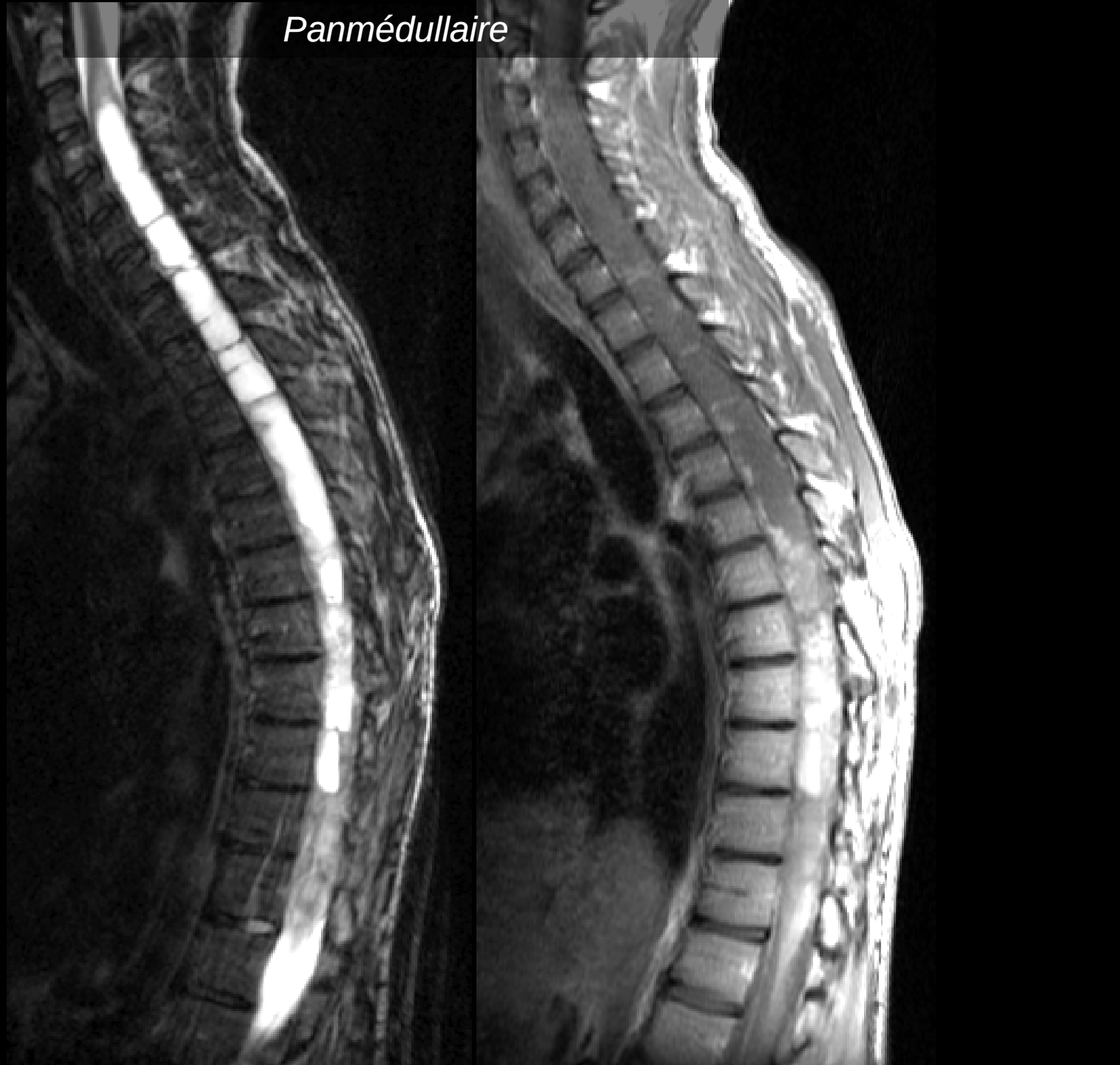


ASTROCYTOME

- 1/3 des tumeurs gliales médullaire
- Enfant Adolescent et adulte jeune
- *Tumeur infiltrative*
- Siège : thoracique et cervico thoracique, **panmédullaire**
- Plutôt excentré voire exophytique
- WHO I et II le plus souvent
- 15% des cas WHO III

- Limites floues
- Iso ou hypointense T1, hyperintense T2
- Rehaussement : 1/3 non rehaussé
- Peu de kystes

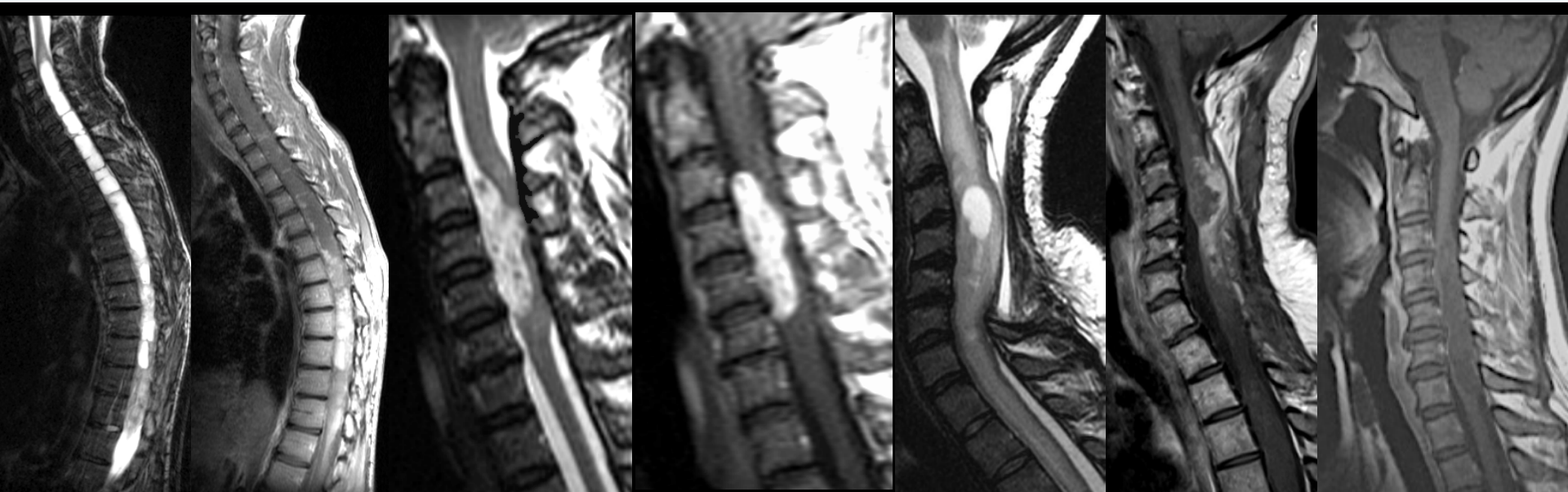


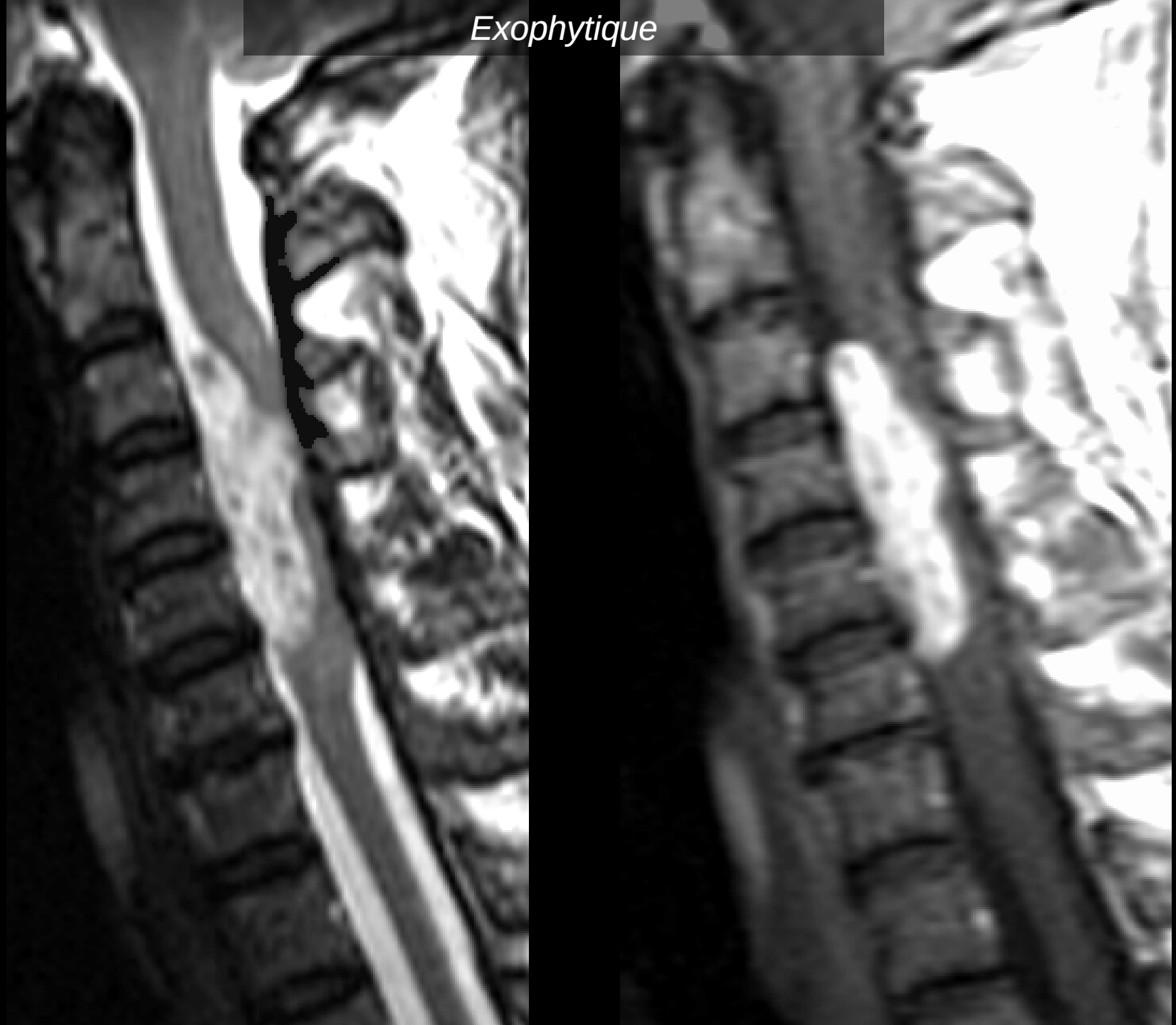

Panmédullaire

ASTROCYTOME

- 1/3 des tumeurs gliales médullaire
- Enfant Adolescent et adulte jeune
- *Tumeur infiltrative*
- Siège : thoracique et cervico thoracique, panmédullaire
- **Plutôt excentré voire exophytique**
- WHO I et II le plus souvent
- 15% des cas WHO III

- Limites floues
- Iso ou hypointense T1, hyperintense T2
- Rehaussement : 1/3 non rehaussé
- Peu de kystes

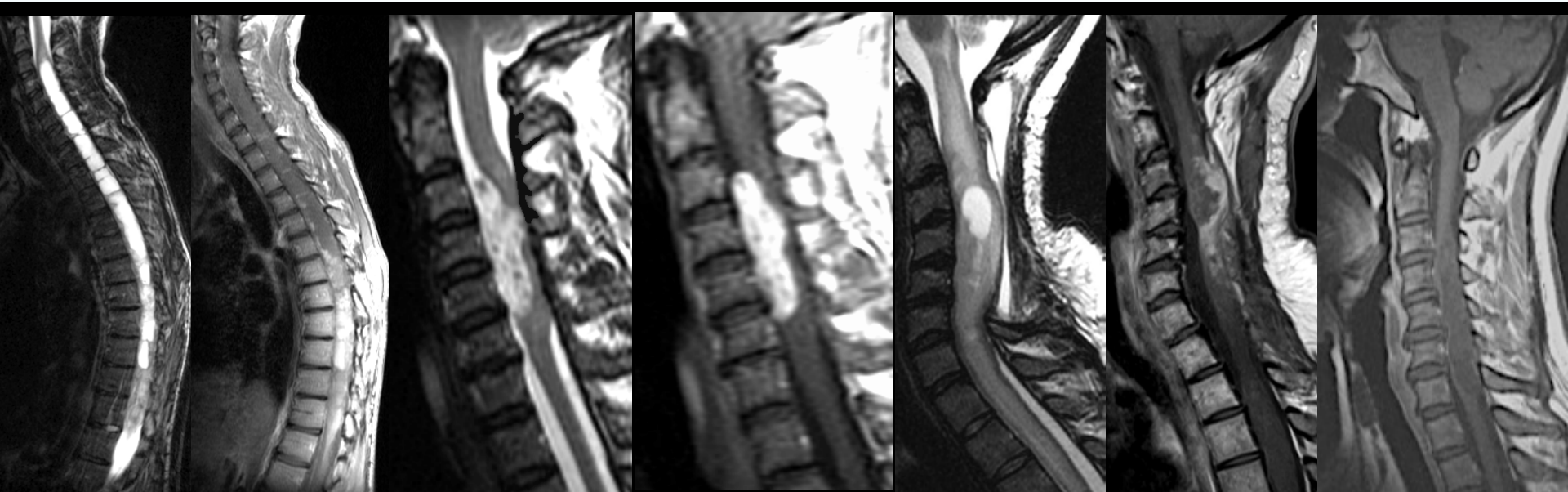



Exophytique

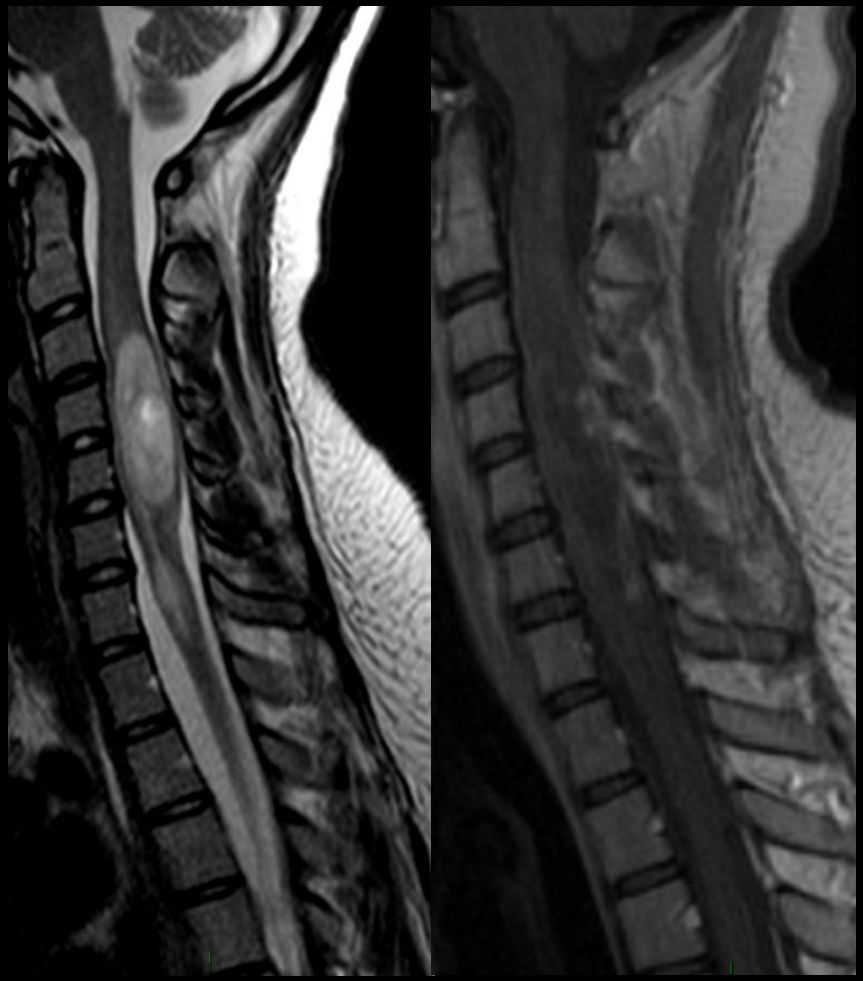
ASTROCYTOME

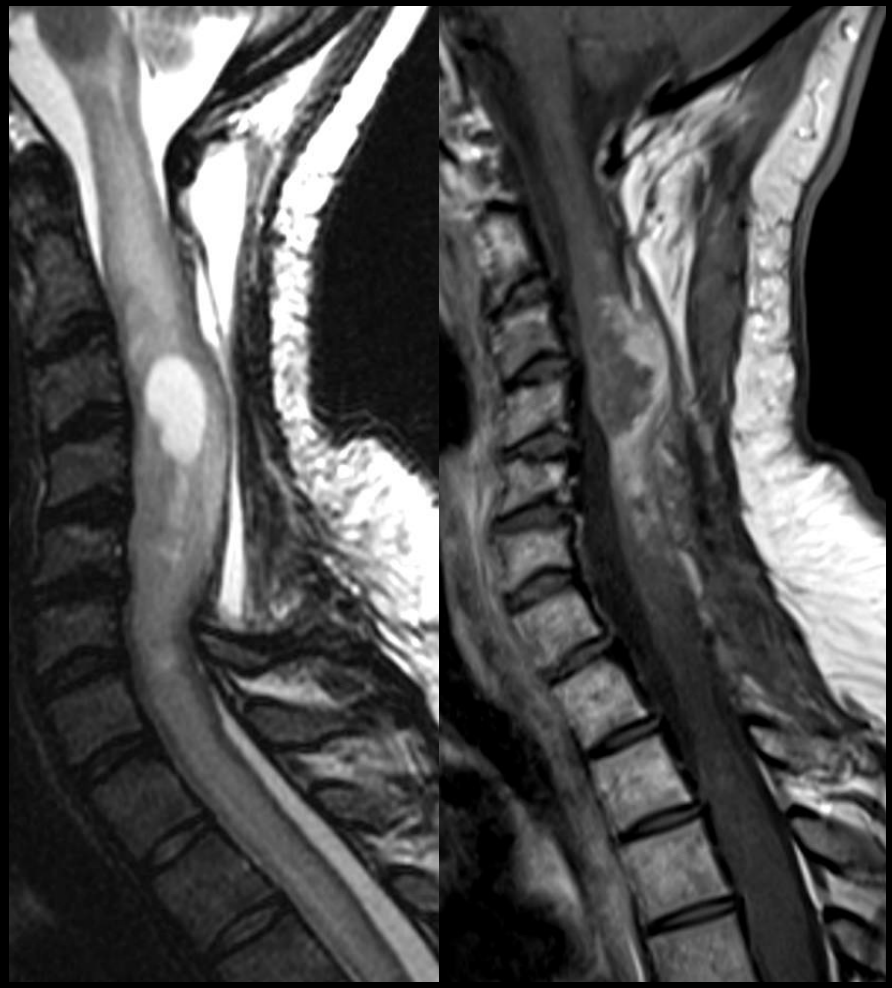
- 1/3 des tumeurs gliales médullaire
- Enfant Adolescent et adulte jeune
- *Tumeur infiltrative*
- Siège : thoracique et cervico thoracique, panmédullaire
- Plutôt excentré voire exophytique
- WHO I et II le plus souvent
- **15% des cas WHO III ou IV**

- Limites floues
- Iso ou hypointense T1, hyperintense T2
- Rehaussement : 1/3 non rehaussé
- Peu de kystes



Astrocytome grade IV



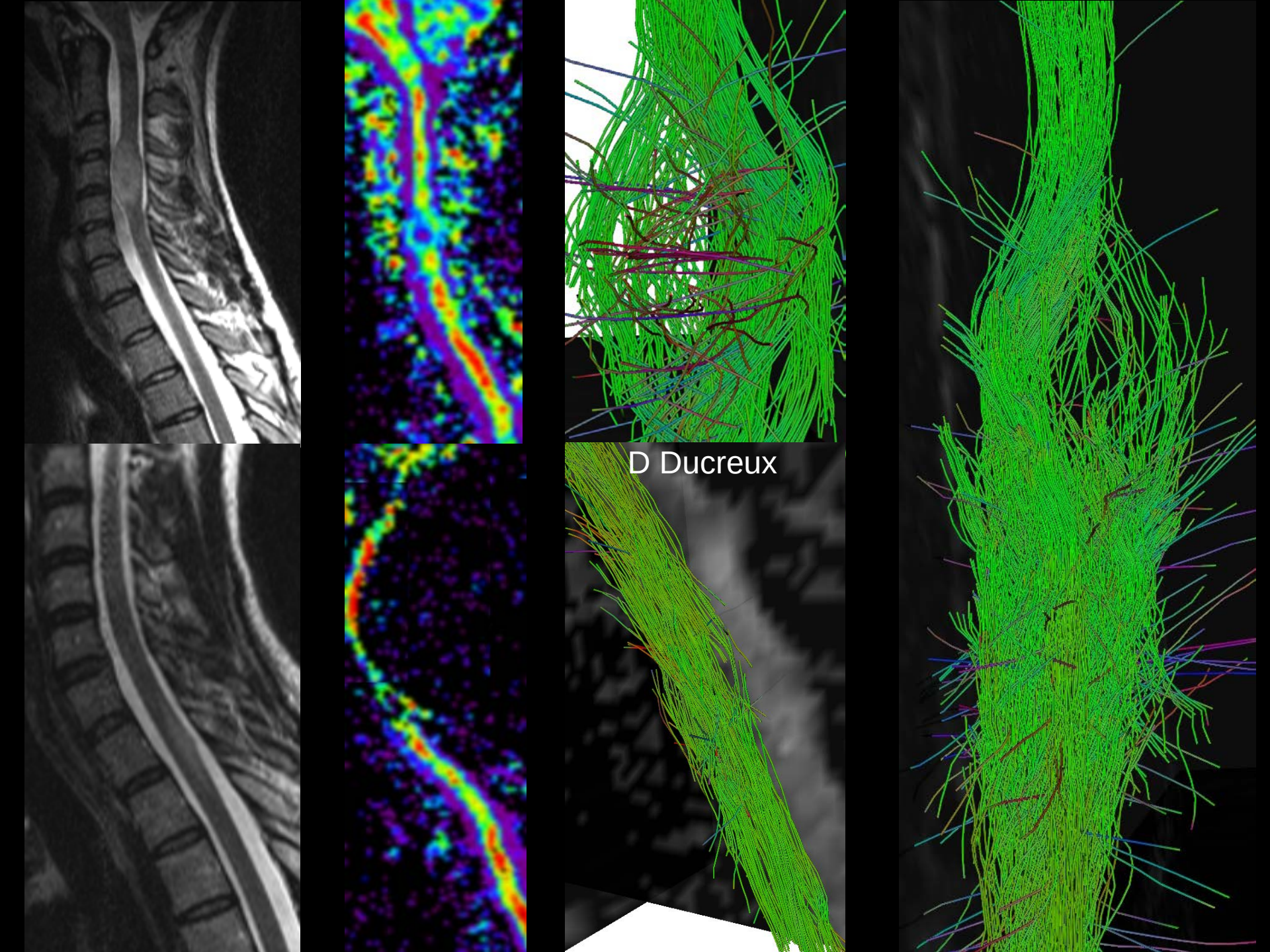


Patiente de 18 ans
Tétraparésie évolutive en 15j

Ependymome vs Astrocytome

		es

Oedème


D Ducreux

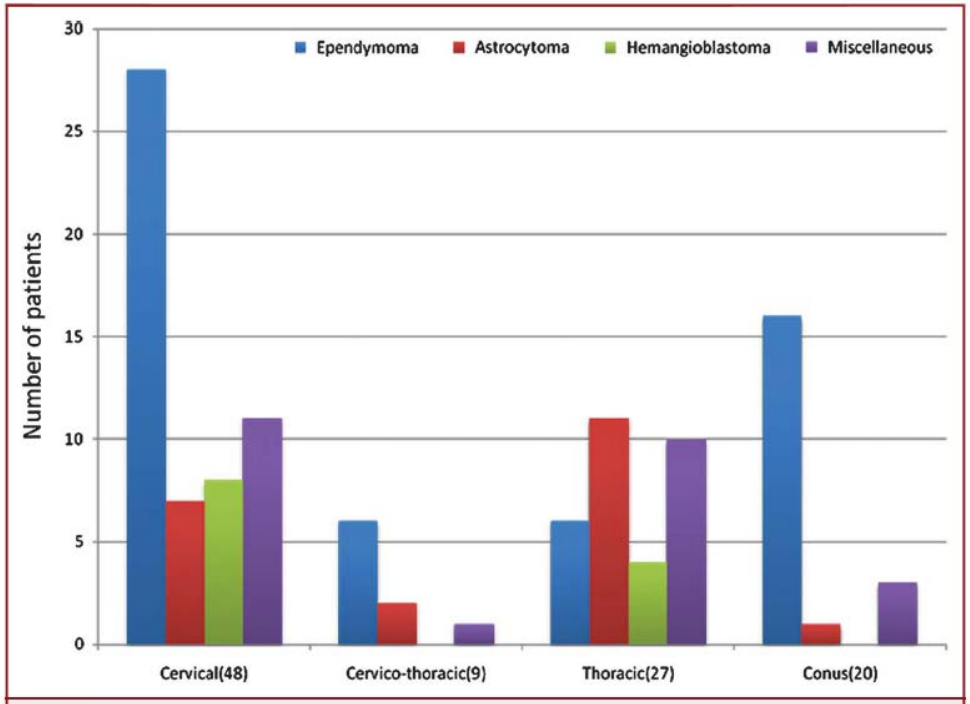


FIGURE 3. *Tumor location based on histology.*

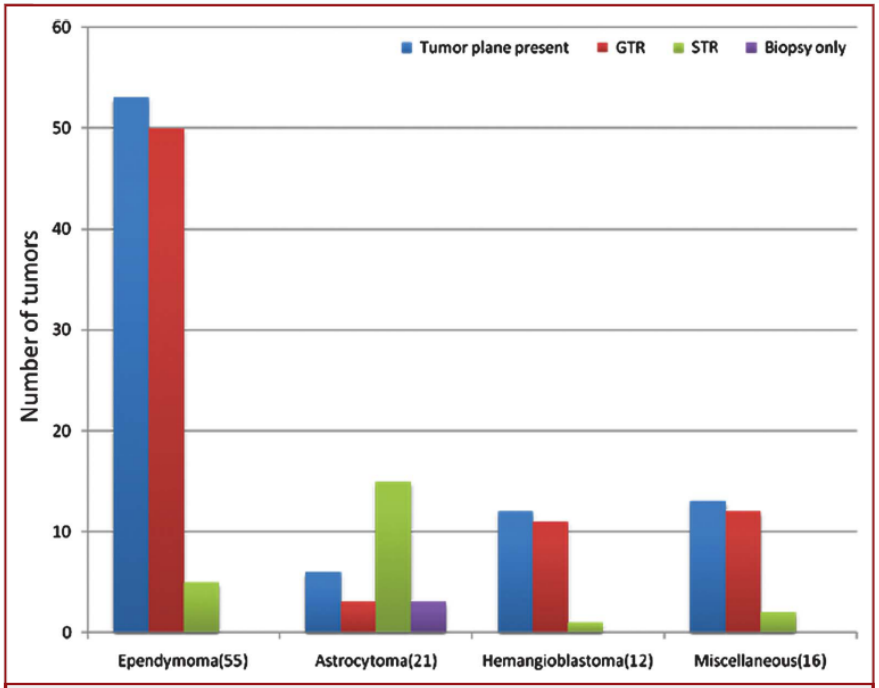


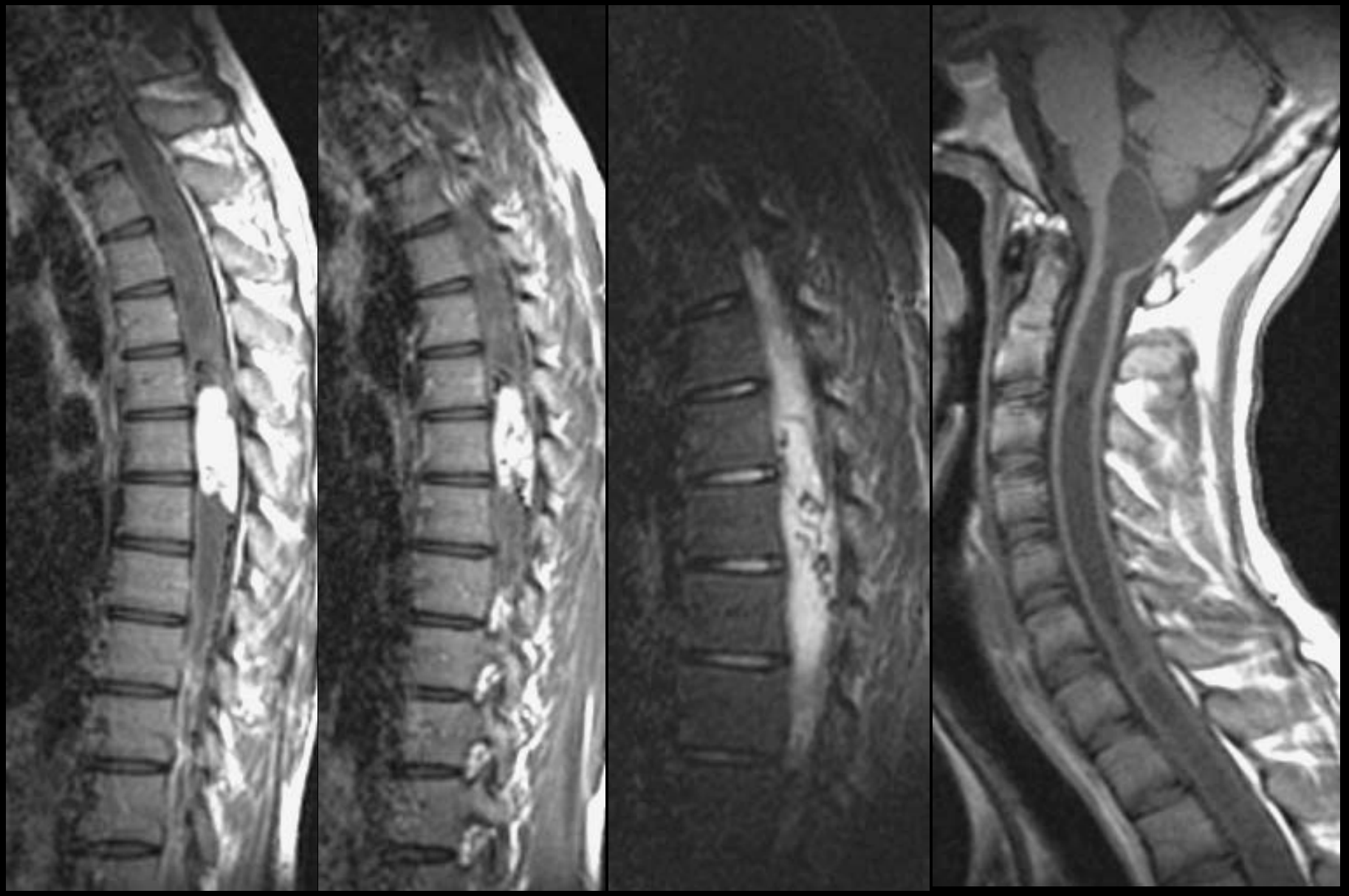
FIGURE 4. *Extent of resection by plane of dissection and tumor histology ($P < .0001$). GTR, gross total resection; STR, subtotal resection.*

Impact of Tumor Histology on Resectability and Neurological Outcome in Primary Intramedullary Spinal Cord Tumors: A Single-Center Experience With 102 Patients

Neurosurgery 68:188–197, 2011

Isaac O. Karikari, MD*

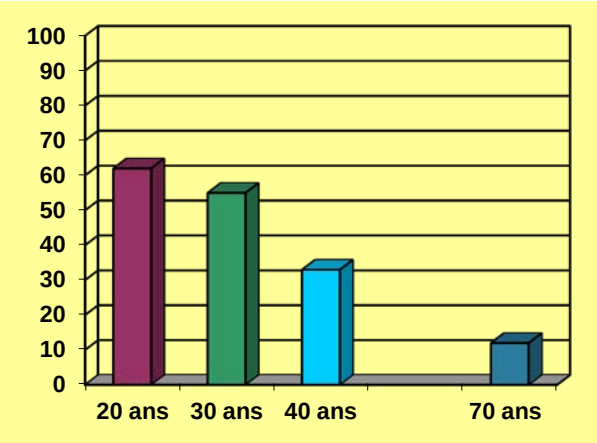
Patient de 18 ans
Syndrome de Brown Sequard

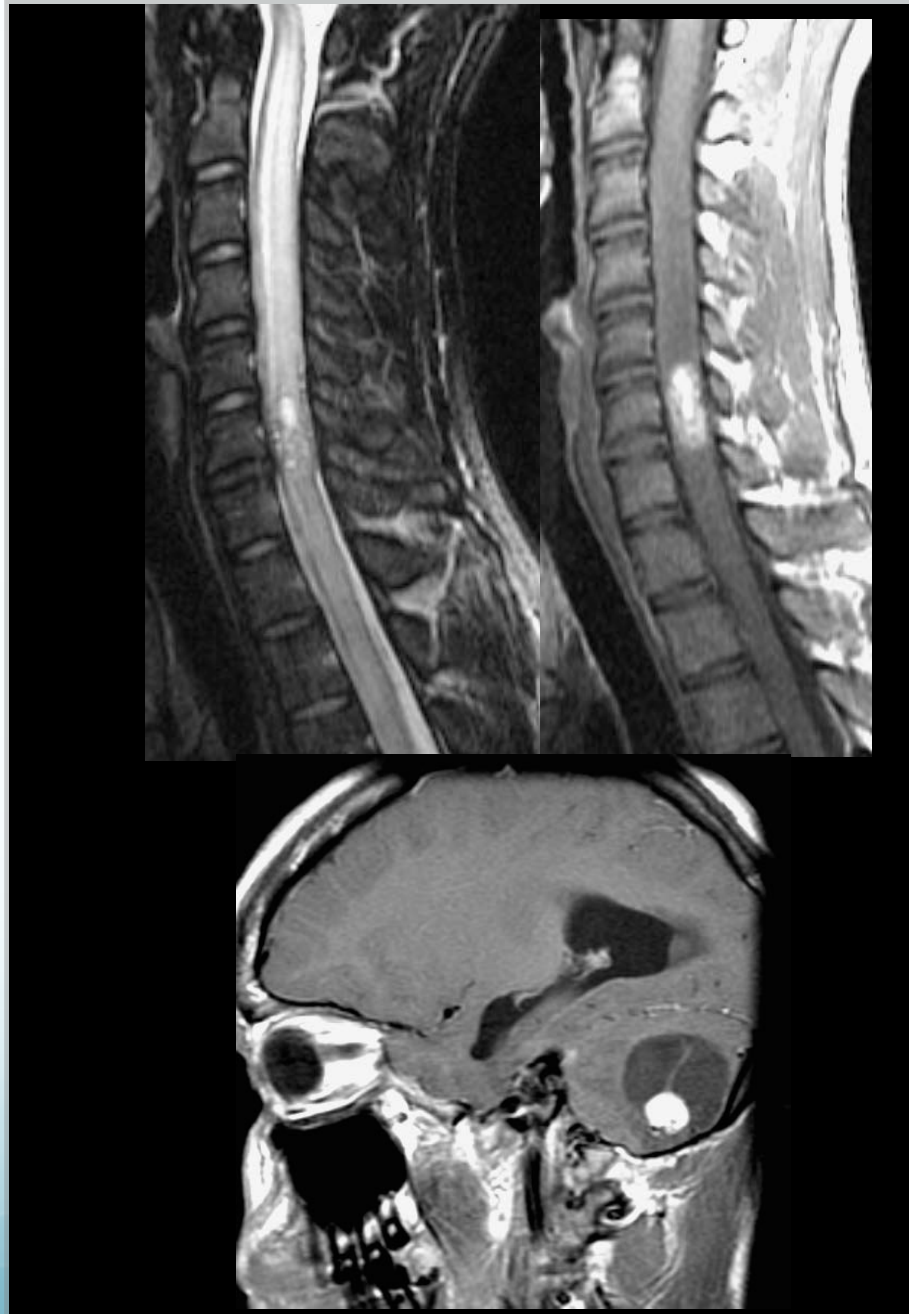


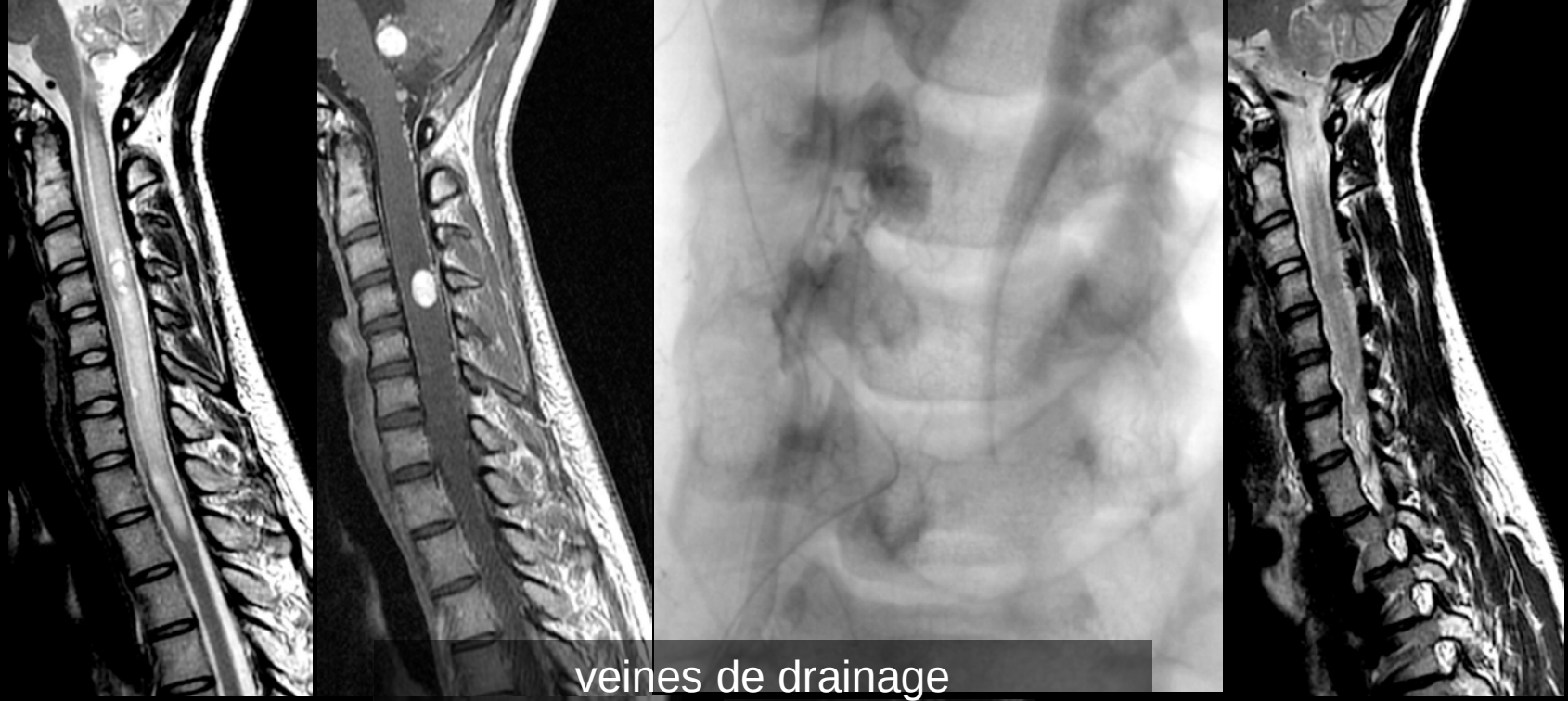
Hémangioblastome

Hémangioblastome

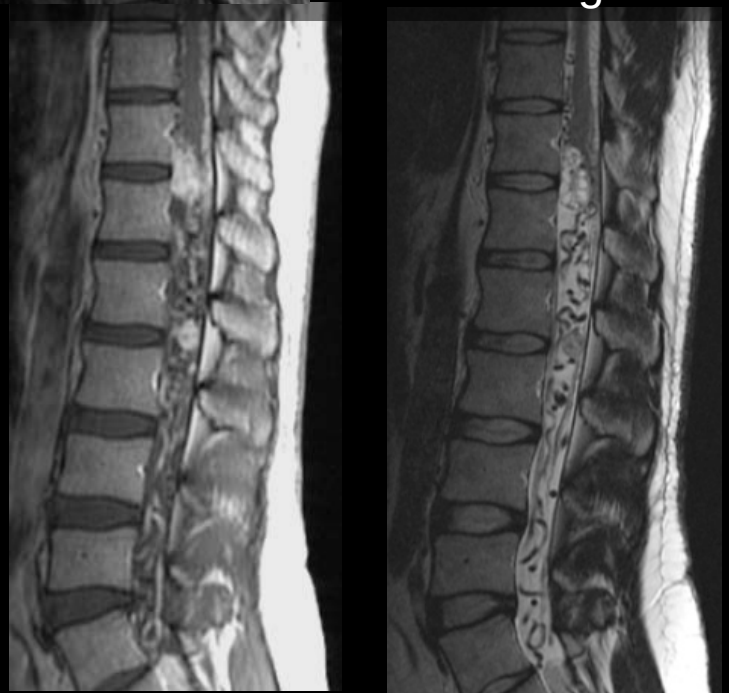
- 10% des tumeurs médullaires
- Adulte jeune
- Sporadique ou Van Hippel Lindau
- Intra médullaire ou intra dural
- Rehaussement intense, vaisseau adjacent, kyste, syrinx
- Chirurgie, bon pronostic





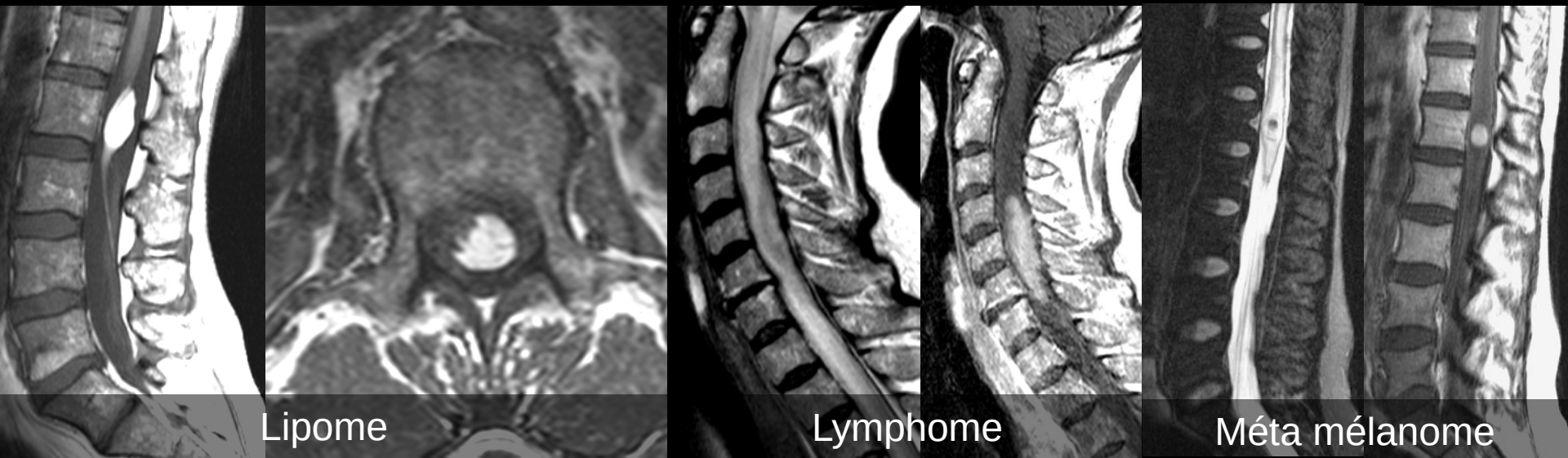


veines de drainage

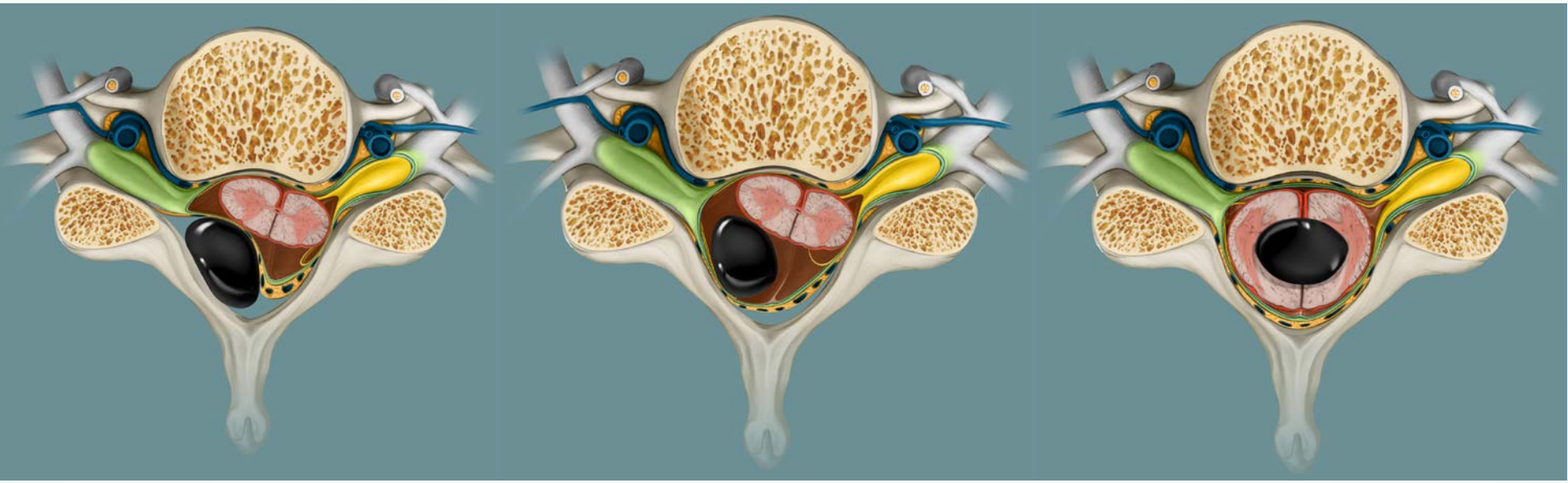


Tumeurs gliales

tases SNC



Conclusion



Epidural	Intradural	Sac dural	Moelle
Tumeurs osseuses	*Schwannome*	*Ependymome mp*	*Ependymome*
Hémangiome	*Méningiome*	*Schwannome*	*Astrocytome*
		Paragangliome	*Hémangioblastome*
Métastases		*Métastases*	*Métastases*

TUMEURS RARES

Spinal ganglioglioma accounts for 1.1% of all intramed· ullary tumors.[20]

J Neurosurg Spine 18:184–188, 2013

Intramedullary spinal cord ganglioglioma presenting as hyperhidrosis: unique symptoms and magnetic resonance imaging findings

Case report

HIRO MURAKAMI, M.D.,[1] IZUMI KOYANAGI, M.D.,[1] TAKAHISA KANEKO, M.D.,[1]
RO YONETA, M.D.,[2] YOSHIKO KEIRA, M.D.,[3] MASAHIKO WANIBUCHI, M.D.,[1]
HI HASEGAWA, M.D.,[3] AND NOBUHIRO MIKUNI, M.D.[1]

ments of [1]Neurosurgery, [2]Dermatology, and [3]Surgical Pathology, Sapporo Medical University School icine, Sapporo, Japan

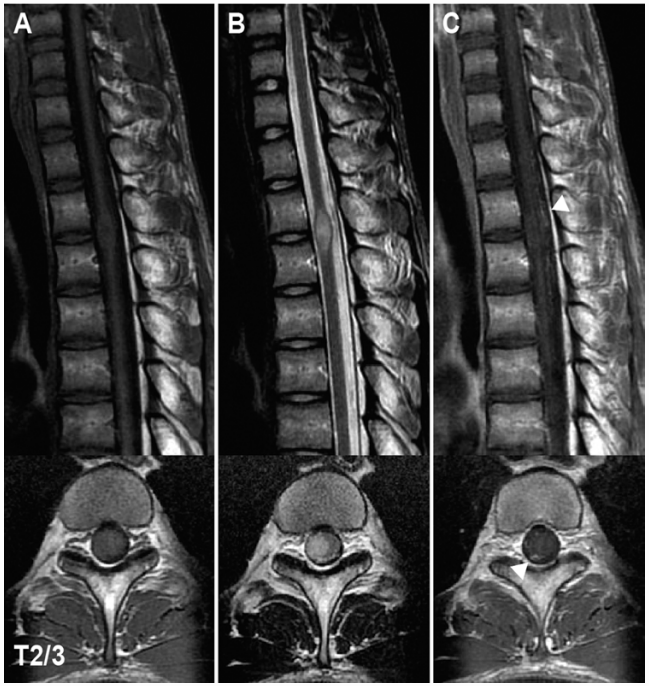


FIG. 1. Sagittal *(upper panels)* and axial *(lower panels)* MRI studies demonstrating an intramedullary tumor at the level of T2–3. The tumor is isointense on T1-weighted images **(A)** and hyperintense on T2-weighted images **(B)**. The Gd-enhanced T1-weighted MR images **(C)** demonstrate a partially enhanced area on the right dorsal spinal cord *(arrowheads)*.

17. Lotfinia I, Vahedi P: 'Intramedullary cervical spinal cord ganglioglioma, review of the literature and therapeutic controversies.' **Spinal Cord 47:**87–90, 2009

21. Patel U, Pinto RS, Miller DC, Handler MS, Rorke LB, Epstein FJ, et al: MR of spinal cord ganglioglioma. **AJNR Am J Neuroradiol 19:**879–887, 1998

TUMEURS MALIGNES

J Neurosurg Spine 14:742–747, 2011

Incidence patterns for primary malignant spinal cord gliomas: a Surveillance, Epidemiology, and End Results study

Clinical article

***Steven Hsu, M.D.,[1] Marisa Quattrone, M.D.,[1] Quinn Ostrom, M.A.,[4] Timothy C. Ryken, M.D.,[3] Andrew E. Sloan, M.D.,[1,2,4] and Jill S. Barnholtz-Sloan, Ph.D.[1,4]**

[1]Case Western Reserve University School of Medicine; [2]Neurological Institute, University Hospitals Case Medical Center, Cleveland, Ohio; [3]Department of Neurosurgery, Iowa Spine and Brain Institute, Waterloo, Iowa; and [4]Case Comprehensive Cancer Center, Cleveland, Ohio

70% bénignes
30% malignes

J Neurosurg (Spine 2) 97:231–234, 2002

Thoracic diastematomyelia with concurrent intradural epidermoid spinal cord tumor and cervical syrinx in an adult

Case report

JASON P. SHEEHAN, M.D., PH.D., JONAS M. SHEEHAN, M.D., M. BEATRIZ LOPES, M.D., AND JOHN A. JANE, SR., M.D., PH.D.

Departments of Neurological Surgery and Neuropathology, University of Virginia Health Sciences Center, Charlottesville, Virginia

Diastematomyelia is a rare entity in which some portion of the spinal cord is split into two by a midline septum. Most cases occur in childhood, but some develop in adulthood. A variety of concurrent spinal anomalies may be found in patients with diastematomyelia.

The authors describe a 38-year-old right-handed woman who presented with a 7-month history of lower-extremity pain and weakness on the right side. She denied recent trauma or illness. Sensorimotor deficits, hyperreflexia, and a positive Babinski reflex in the right lower extremity were demonstrated on examination.

Neuroimaging revealed diastematomyelia extending from T-1 to T-3, an expanded right hemicord from T-2 to T-4, and a C6–7 syrinx. The patient underwent T1–3 total laminectomies, resection of the septum, untethering of the cord, and excision of the hemicord lesion. The hemicord mass was determined to be an intramedullary epidermoid cyst; on microscopic evaluation the diastematomyelia cleft was shown to contain fibroadipose connective tissue with nerve twigs and ganglion cells. Postoperatively, the right lower-extremity pain, weakness, and sensory deficits improved.

Diastematomyelia can present after a long, relatively asymptomatic period and should be kept in the differential diagnosis for radiculopathy, myelopathy, tethered cord syndrome, or cauda equina syndrome. Numerous spinal lesions can be found in conjunction with diastematomyelia. To the authors' knowledge, this is the first case in which a thoracic epidermoid cyst and cervical syrinx occurred concurrently with an upper thoracic diastematomyelia. Thorough neuraxis radiographic evaluation and surgical treatment are usually indicated.

Neurosurg Focus 18 (2):ECP1, 2005

Nondysraphic intramedullary spinal cord lipomas: a review

Harjinder Singh Bhatoe, M.Ch., Prakash Singh, M.Ch., Aarti Chaturvedi, M.D., Kavita Sahai, M.D., Vibha Dutta, M.D., and P. K. Sahoo, M.Ch.

Departments of Neurosurgery, Imaging, and Pathology, Army Hospital (Research & Referral), Delhi Cantt, India

Object. Lipomas of the spinal cord are often a component of spinal dysraphic states. Nondysraphic intramedullary spinal cord lipomas are rare, and their presentation, in the form of gradually worsening myelopathy, is nonspecific. The authors report on the methods used for diagnosis and treatment in patients presenting with these lesions at their institution, and they review the relevant literature.

Methods. The authors treated 14 patients who presented with intramedullary lipomas over a period of 12 years. None of these patients had segmentation anomaly or dysraphism of the spine, or any hindbrain anomaly. Admission magnetic resonance images were diagnostic in all patients. All tumors were located dorsally in the spinal cord, the majority of them in the cervicodorsal cord. The lipomas were partially excised with the help of a carbon dioxide laser in all patients in an attempt to preserve neurological function. All patients attained improvement in their sensory and motor symptoms.

Conclusions. Because these lesions do not have a clear-cut margin, it is vital to preserve neurological function at the time of surgery, even if it entails incomplete resection.

demonstrating fat suppression. All lipomas were located dorsally and spanned three or four vertebral levels (Figs 1–4). The involved spinal cord was expanded and pushed anteriorly. The anatomical level at which the lipoma was located is given in Table 1. The cervicodorsal spinal cord was the most common region of involvement, followed by the cervical, dorsal, lumbar, and cervicomedullary cord, in that order. Although the lumbar spinal cord ended at L-2 in one patient with a lumbar lipoma, there was no other feature of dysraphic anomaly. There was no evidence of syrinx formation or hindbrain anomaly.

ELSEVIER MASSON

neurochirurgie

Neurochirurgie 53 (2007) 375–378

Cas clinique

Lymphome primitif intramédullaire. À propos d'un cas

Primary intramedullary lymphoma. Case report

J. Peltier*, I. Cretu, A. Fichten, P. Toussaint, C. Desenclos, D. Le Gars

Service de neurochirurgie, CHU d'Amiens-Nord, place Victor-Pauchet, 80054 Amiens cedex 01, France

Reçu le 22 novembre 2006 ; accepté le 6 juin 2007

Abstract

A 66-year-old female presented primary intramedullary spinal cord lymphoma. This patient was referred for lower limbs weakness, which had developed six weeks earlier and right C5 radiculalgia. Physical examination revealed a medullary syndrome with Claude-Bernard-Horner syndrome. The diagnosis was established after MRI and biopsy (dorsal myelotomy). The patient was given chemotherapy and craniospinal adjuvant radiotherapy (30 Grays). The clinical, radiological and therapeutic features are discussed.

Résumé

Nous rapportons le cas d'un lymphome primitif intramédullaire. Il s'agit d'une femme de 66 ans, droitière homogène aux antécédents d'adénocarcinome mammaire gauche (grade II de Scarff Bloom et Richardson) adressée pour fatigabilité des membres inférieurs depuis six semaines et radiculalgie C5 droite. L'examen physique retrouve un syndrome médullaire de niveau C5 avec syndrome de Claude-Bernard-Horner droit. Le diagnostic était posé après IRM médullaire par une biopsie par myélotomie dorsale (lymphome primitif centroblastique polymorphe de type B) après laminectomie cervicale. La patiente était traitée par chimiothérapie d'intensification, puis par radiothérapie craniospinale adjuvante (30 Grays). Les caractéristiques clinicopathologiques et thérapeutiques sont discutées.

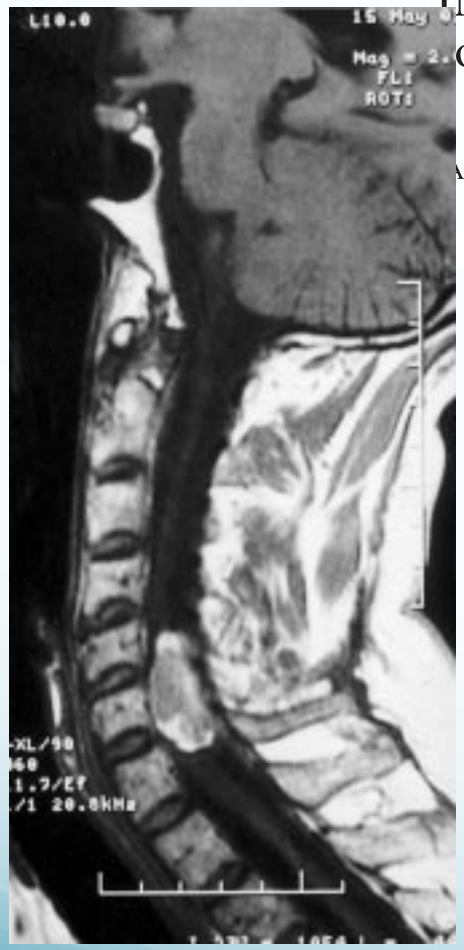
Keywords: Chemotherapy; Lymphoma; Magnetic resonance imaging (MRI); Spinal cord neoplasms; Radiotherapy

Neurochirurgie, 2004, *50*, n° 1, 42-46

Cas clinique

LE MÉLANOME MALIN PRIMITIF INTRA-DURAL ET CERVICAL
opos d'un cas et revue de la littérature

A. MLAIKI, I. KSIRA, M. LADIB, H. GUESMI, H. KRIFA



Deux théories ont été avancées pour expliquer la survenue de ces tumeurs rares au niveau du système nerveux central : la première est que la tumeur se développe à partir des mélanocytes habituellement présents dans les leptoméninges ; la seconde est qu'elle se développe à partir de résidus neuro-ectodermiques congénitaux [3, 4, 6, 7].

J Neurosurg Spine 4:497–502, 2006

Primary intramedullary primitive neuroectodermal tumor of the cervical spinal cord

Case report

AMIT JAIN, M.D., RAKESH JALALI, M.D., TRIMURTI D. NADKARNI, M.S., M.CH., AND SUASH SHARMA, M.D.

Departments of Radiation Oncology and Pathology, Tata Memorial Hospital; and Department of Neurosurgery, King Edward Memorial Hospital, Mumbai, India

✓ Primary intramedullary primitive neuroectodermal tumors (PNETs) of the spinal cord are rare. Only six cases have previously been reported, all involving tumors in the thoracic or lumbar spine. The authors report the case of a 54-year-old woman who presented with quadriplegia and bladder and bowel dysfunction. The patient had suffered symptoms of neck pain for 1 month and left shoulder weakness for 10 days. Magnetic resonance imaging of the cervical spine revealed an intramedullary mass extending from C-2 to C-5 with an exophytic component in the adjacent left subarachnoid space. Multiple biopsy specimens were obtained, and a partial excision was performed. Histological examination revealed nodular growth and neuronal differentiation, with a striking resemblance to desmoplastic medulloblastoma. A positron emission tomography scan did not reveal uptake at any site. These findings confirmed the diagnosis of a primary intramedullary PNET. Postoperatively, the patient was given craniospinal radiotherapy with a radiation boost to the tumor bed.

KEY WORDS • intramedullary tumor • spinal cord neoplasm • primitive neuroectodermal tumor

J Neurosurg (Spine 1) 99:114–117, 2003

Magnetic resonance imaging of intramedullary spinal cord schwannomas

Report of two cases and review of the literature

Cesare Colosimo, M.D., Alfonso Cerase, M.D., Luca Denaro, M.D., Giulio Maira, M.D., and Romano Greco, M.D.

Department of Clinical Sciences and Bioimaging, Neuroradiology Section, and Institute of Advanced Biomedical Technology, "Gabriele d'Annunzio" University, Chieti; Institute of Radiology and Neurosurgery, Catholic University, Policlinico Universitario "Agostino Gemelli," Rome; Unit of Diagnostic and Therapeutic Neuroradiology, Department of Neurosciences, Azienda Ospedaliera Universitaria Senese; InterDepartmental Center of Nuclear Magnetic Resonance, Policlinico "Le Scotte," Siena; and Department of Neurosurgery, European Hospital, Rome, Italy

Intramedullary spinal cord schwannomas are rare benign tumors for which resection is possible and safe. The purpose of this paper is to present the magnetic resonance (MR) imaging features in two cases of intramedullary spinal cord schwannoma to assist both neurosurgeons and pathologists in preventing misdiagnosis and resultant partial resection. The MR imaging evidence of a small- or medium-sized well-marginated intramedullary spinal cord tumor in a patient in whom no syringomyelia is present but in whom moderate edema with marked Gd enhancement can be seen should be considered in the differential diagnosis of intramedullary spinal cord schwannoma. In cases in which an associated thickened Gd-enhancing spinal nerve root is seen the diagnosis of schwannoma should be assumed.

Key words • **intramedullary spinal cord tumor** • **schwannoma** • **magnetic resonance imaging** • **differential diagnosis**

J Neurosurg Spine 13:371–380, 2010

Diffusion tensor imaging tractography in patients with intramedullary tumors: comparison with intraoperative findings and value for prediction of tumor resectability

Presented at the 2009 Joint Spine Section Meeting

Clinical article

Matthias Setzer, M.D.,[1,3] Ryan D. Murtagh, M.D., M.B.A.,[2] F. Reed Murtagh, M.D.,[1,2] Mohammed Eleraky, M.D.,[1] Surbhi Jain, M.D.,[1] Gerhard Marquardt, M.D.,[3] Volker Seifert, M.D.,[3] and Frank D. Vrionis, M.D., Ph.D., M.P.H.[1,4]

[1]H. Lee Moffitt Cancer Center and Research Institute, Neurooncology Program, and Departments of [2]Neuroradiology and [4]Neurosurgery, University of South Florida College of Medicine, Tampa, Florida; and [3]Clinic of Neurosurgery, J. W. Goethe University, Frankfurt am Main, Germany

Object. The aim of this retrospective study was to evaluate the predictive value of diffusion tensor (DT) imaging with respect to resectability of intramedullary spinal cord tumors and to determine the concordance of this method with intraoperative surgical findings.

Methods. Diffusion tensor imaging was performed in 14 patients with intramedullary lesions of the spinal cord at different levels using a 3-T magnet. Routine MR imaging scans were also obtained, including unenhanced and enhanced T1-weighted images and T2-weighted images. Patients were classified according to the fiber course with respect to the lesion and their lesions were rated as resectable or nonresectable. These results were compared with the surgical findings (existence vs absence of cleavage plane). The interrater reliability was calculated using the κ coefficient of Cohen.

Results. Of the 14 patients (7 male, 7 female; mean age 49.2 ± 15.5 years), 13 had tumors (8 ependymomas, 2 lymphomas, and 3 astrocytoma). One lesion was proven to be a multiple sclerosis plaque during further diagnostic workup. The lesions could be classified into 3 types according to the fiber course. In Type 1 (5 cases) fibers did not pass through the solid lesion. In Type 2 (3 cases) some fibers crossed the lesion, but most of the lesion volume did not contain fibers. In Type 3 (6 cases) the fibers were completely encased by tumor. Based on these results, 6 tumors were considered resectable, 7 were not. During surgery, 7 tumors showed a good cleavage plane, 6 did not. The interrater reliability (Cohen κ) was calculated as 0.83 ($p < 0.003$), which is considered to represent substantial agreement. The mean duration of follow-up was 12.0 ± 2.9. The median McCormick grade at the end of follow-up was II.

Conclusions. These preliminary data suggest that DT imaging in patients with spinal cord tumors is capable of predicting the resectability of the lesion. A further prospective study is needed to confirm these results and any effect on patient outcome. *(DOI: 10.3171/2010.3.SPINE09399)*

Key Words • **diffusion tensor imaging** • **intramedullary spinal cord tumors** • **resectability**

J Neurosurg (Spine 4) 100:358–363, 2004

Intramedullary and extramedullary solitary fibrous tumor of the cervical spine

Case report and review of the literature

Robert J. Bohinski, M.D., Ph.D., Ehud Mendel, M.D., Kenneth D. Aldape, M.D., and Laurence D. Rhines, M.D.

Departments of Neurosurgery and Pathology, The University of Texas M. D. Anderson Cancer Center, Houston, Texas

Solitary fibrous tumor is a spindle cell tumor deriving from mesenchymal cells that arises most commonly in the pleura. Only very recently has this tumor been reported in the spine. A solitary fibrous tumor strongly resembles other spindle cell neoplasms of the spine and may be an unrecognized entity if not routinely considered in the differential diagnosis of spinal neoplasms. The authors report an unusual intra- and extramedullary location for a solitary fibrous tumor of the cervical spine. Findings in this case and a comprehensive review of the literature indicate that solitary fibrous tumors can originate from various spinal anatomical substrates and mimic both intra- and extramedullary tumor types.

Key Words • **solitary fibrous tumor** • **cervical spine** • **CD34**

J Neurosurg Spine 18:226–235, 2013

Prognosis by tumor location in adults with spinal ependymomas

Clinical article

Michael C. Oh, M.D., Ph.D.,[1] Joseph M. Kim, B.A.,[1] Gurvinder Kaur, B.S.,[1] Michael Safaee, B.S.,[1] Matthew Z. Sun, B.S.,[1] Anahat Singh, B.A.,[1] Derick Aranda, M.D.,[1] Annette M. Molinaro, Ph.D.,[1,2] and Andrew T. Parsa, M.D., Ph.D.[1]

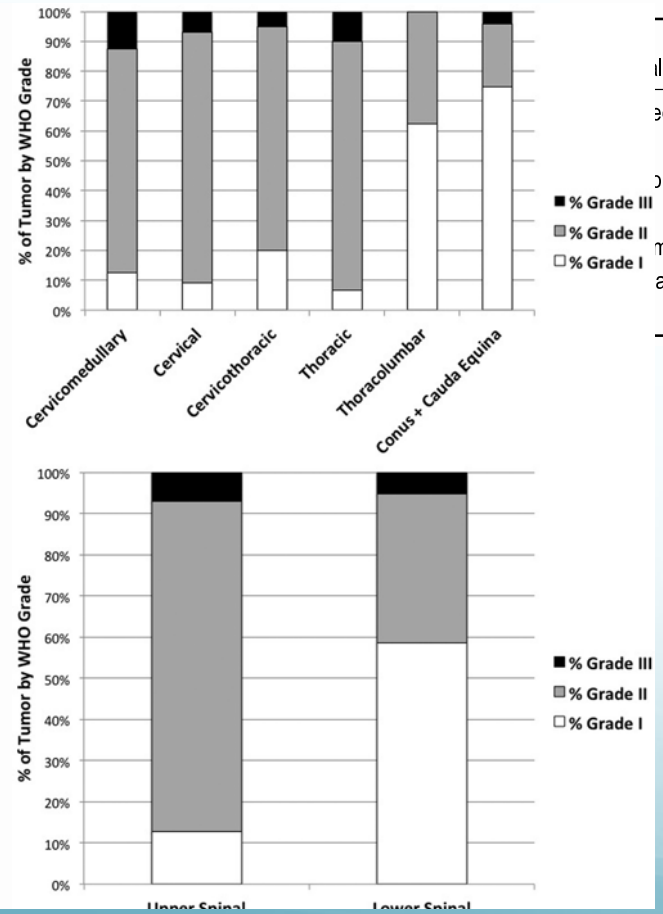
Departments of [1]Neurological Surgery and [2]Epidemiology and Biostatistics, University of California, San Francisco, California

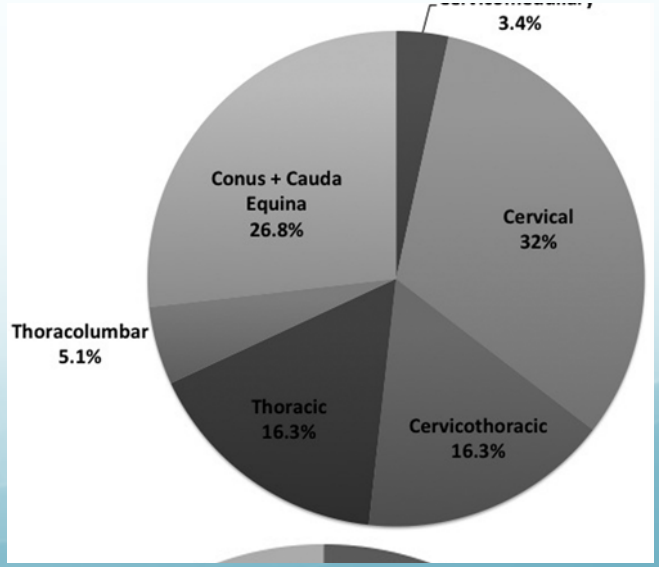
TABLE 1: Sex distribution by tumor location*

Location	Mean Age	No. of Patients (%)	
		Male	Female
cervicomedullary	37.2 ± 3.5	7/13 (53.8)	6/13 (46.2)
cervical	43.0 ± 1.2	77/131 (58.8)	54/131 (41.2)
cervicothoracic	38.3 ± 1.4	25/61 (41.0)	36/61 (59.0)
thoracic	43.3 ± 1.6	35/64 (54.7)	29/64 (45.3)
thoracolumbar	35.3 ± 2.1	9/20 (45.0)	11/20 (55.0)
conus + cauda equina	37.7 ± 1.4	72/114 (63.2)	42/114 (36.8)
overall	40.3 ± 0.7	225/403 (55.8)	178/403 (44.2)
upper spinal levels	41.2 ± 0.9	109/205 (53.2)	96/205 (46.8)
lower spinal levels	39.4 ± 1.0	116/198 (58.6)	82/198 (41.4)

TABLE 2: Presenting symptoms by tumor location*

l Region	Limb Weakness	Sensory Impairment	Radiculopathy	Back Pain	Neck Pain	Bowel & Bladder Dysfunction	Abnormal Gait
edullary	3/7 (42.9)	3/7 (42.9)	0/7 (0)	0/7 (0)	1/7 (14.3)	2/7 (28.6)	2/7 (28.6)
	43/95 (45.3)	29/95 (30.5)	18/95 (18.9)	8/95 (8.4)	14/95 (14.7)	7/95 (7.4)	4/95 (4.2)
oracic	18/43 (41.9)	16/43 (37.2)	11/43 (25.6)	8/43 (18.6)	9/43 (20.9)	7/43 (16.3)	5/43 (11.6)
	32/47 (68.1)	17/47 (36.2)	7/47 (14.9)	16/47 (34.0)	0/47 (0)	10/47 (21.3)	3/47 (6.4)
mbar	8/16 (50.0)	7/16 (43.8)	6/16 (37.5)	9/16 (56.3)	0/16 (0)	4/16 (25.0)	1/16 (6.3)
auda equina	18/78 (23.1)	14/78 (17.9)	30/78 (38.5)	57/78 (73.1)	2/78 (2.6)	17/78 (21.8)	3/78 (3.8)
	122/286 (42.7)	86/286 (30.1)	72/286 (25.2)	98/286 (34.3)	26/286 (9.1)	47/286 (16.4)	18/286 (6.3)





J Neurosurg Spine 7:587–593, 2007

Spinal dumbbell tumors: an analysis of a series of 118 cases

Hiroshi Ozawa, M.D., Ph.D., Shoichi Kokubun, M.D., Ph.D., Toshimi Aizawa, M.D., Ph.D., Takeshi Hoshikawa, M.D., Ph.D., and Chikashi Kawahara, M.D., Ph.D.

Department of Orthopaedic Surgery, Tohoku University School of Medicine, Sendai, Japan

Object. The authors analyzed a series of 118 cases of spinal mors.

Methods. Of 674 cases of spinal cord tumors, the incidence analyzed, and the authors focus on the distribution of age and s classification, and the surgical methods used.

Results. The incidence of dumbbell tumors was 18%. The r than that for all spinal cord tumors (mean 50 years). There wer of dumbbell tumors in the cervical spine was significantly high of the 81 schwannomas were observed in the C-2 nerve root, th nerve roots. In 99 cases (84%), the tumors were removed throu my and posterior fusion. Of 118 cases, 69% of the tumors were 10 cases (8.5%). Seven (64%) of 11 patients younger than 10 older than 10 years of age had malignant tumors, thus accounti

Conclusions. The incidence of dumbbell tumors was 18%, tumors were more common in children younger than 10 years *(DOI: 10.3171/SPI-07/12/587)*

Key Words • **dumbbell tumor** • **incidence** •

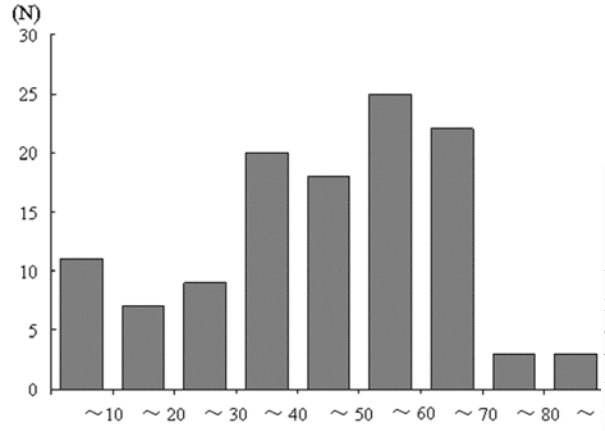


Fig. 1. Bar graph showing the age distribution of the patients with dumbbell tumors, indicating that the largest number of tumors occurred in patients between 51 and 60 years of age. Quite a few N = num-

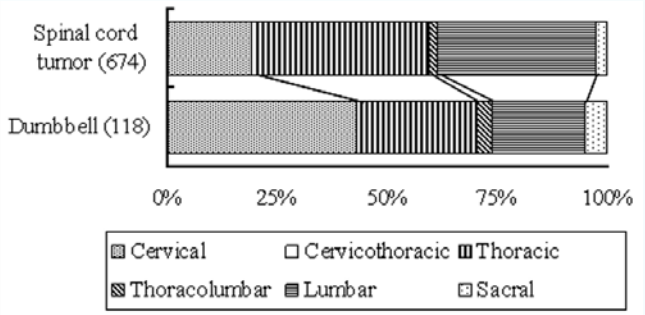


Fig. 2. Bar graph. The spinal cord tumors appeared more commonly in the thoracic and lumbar spine. In contrast, the dumbbell tumors occurred most commonly on the cervical spine.

Conclusions

The incidence of dumbbell tumors was 18% of 674 spinal cord tumors. The rate of dumbbell tumors in the cervical spine was significantly higher than that of the 674 spinal cord tumors. Fifteen (18%) of 81 schwannomas were observed in the C-2 nerve root, thus having a higher rate than those in the other nerve roots. Of the tumors, 69% were schwannomas, and malignant tumors were found in 10 cases (8.5%). The malignant dumbbell tumors accounted for 64% of cases in pediatric patients and 2.8% in adult patients.

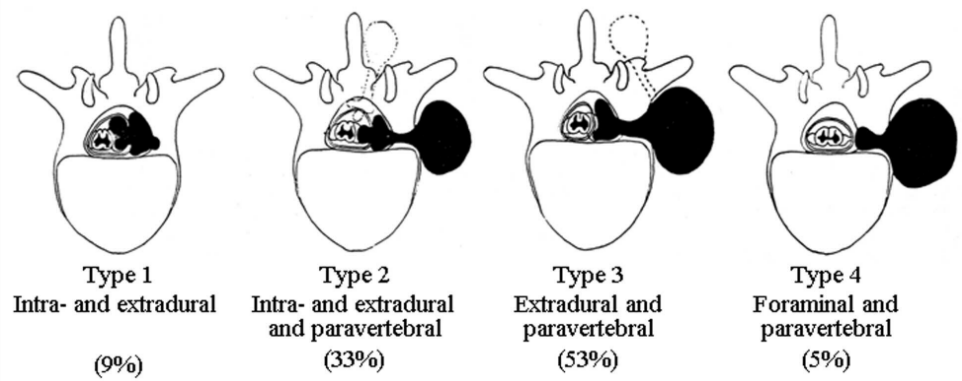
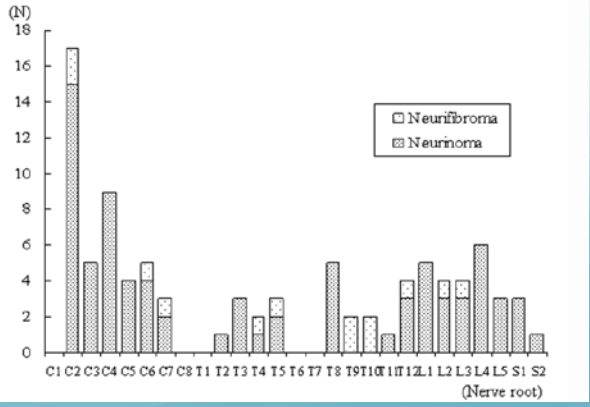


Fig. 3. Diagrams of Eden classification. The Type 3 tumors were the most frequent.



Clinical presentation, histology, and treatment in 430 patients with primary tumors of the spinal cord, spinal meninges, or cauda equina

Clinical article

Herbert H. Engelhard, M.D., Ph.D.,[1] J. Lee Villano, M.D., Ph.D.,[2] Kimberly R. Porter, M.P.H.,[3] Andrew K. Stewart, M.A.,[3] Manali Barua, M.D.,[1] Fred G. Barker II, M.D.,[4] and Herbert B. Newton, M.D.[5]

Departments of [1]Neurosurgery and [2]Medicine, University of Illinois at Chicago Medical Center, Chicago, Illinois; [3]Commission on Cancer, American College of Surgeons, Chicago, Illinois; [4]Neurosurgical Service, Massachusetts General Hospital, Boston, Massachusetts; and [5]Dardinger Neuro-Oncology Center and Department of Neurology, The Ohio State University Medical Center & James Cancer Hospital, Columbus, Ohio

Object. Patients having a primary tumor of the spinal cord, spinal meninges or cauda equina, are relatively rare. Neurosurgeons encounter and treat such patients, and need to be aware of their clinical presentation, tumor types, treatment options, and potential complications. The purpose of this paper is to report results from a series of 430 patients with primary intraspinal tumors, taken from a larger cohort of 9661 patients with primary tumors of the CNS.

Methods. Extensive information on individuals diagnosed (in the year 2000) as having a primary CNS neoplasm was prospectively collected in a Patient Care Evaluation Study conducted by the Commission on Cancer of the American College of Surgeons. Data from US hospital cancer registries were submitted directly to the National Cancer Database. Intraspinal tumor cases were identified based on ICD-O-2 topography codes C70.1, C72.0, and C72.1. Analyses were performed using SPSS.

Results. Patients with primary intraspinal tumors represented 4.5% of the CNS tumor group, and had a mean age of 49.3 years. Pain was the most common presenting symptom, while the most common tumor types were meningioma (24.4%), ependymoma (23.7%), and schwannoma (21.2%). Resection, surgical biopsy, or both were performed in 89.3% of cases. Complications were low, but included neurological worsening (2.2%) and infection (1.6%). Radiation therapy and chemotherapy were administered to 20.3% and 5.6% of patients, respectively.

Conclusions. Data from this study are suitable for benchmarking, describing prevailing patterns of care, and generating additional hypotheses for future studies. *(DOI: 10.3171/2010.3.SPINE09430)*

Key Words • **cancer registry** • **cauda equina** • **epidemiology** • **Karnofsky Performance Scale** • **spinal cord tumor** • **spinal neoplasm**