

非特異性腰痛の可視化治療

- 出沢明PEDセンター

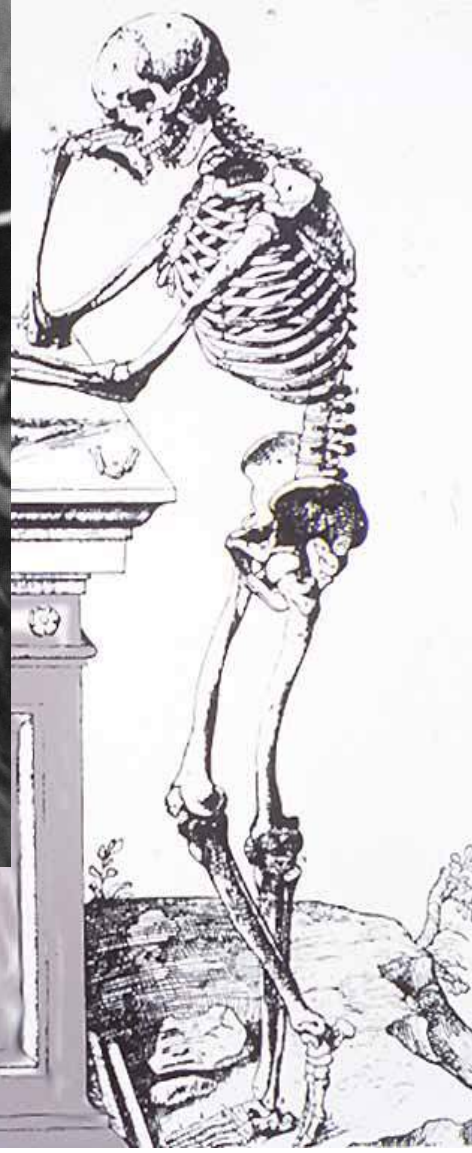
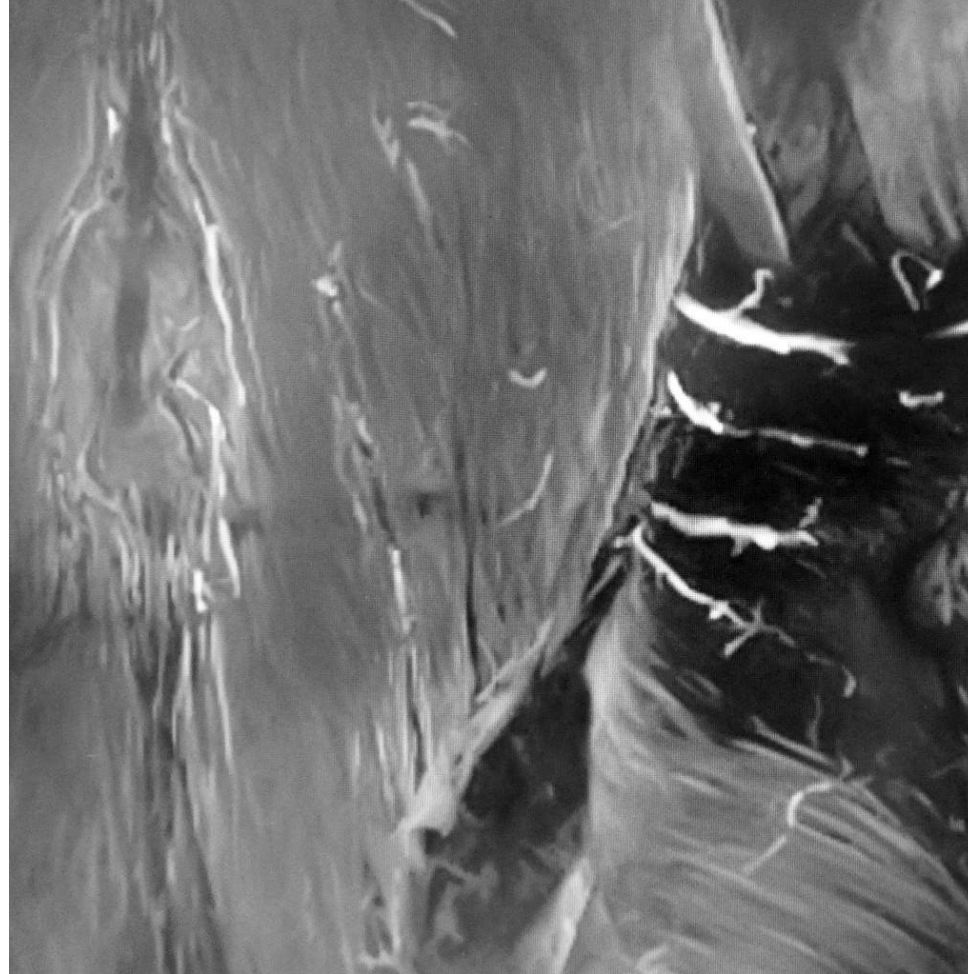
- 出沢明

Recommendations in the European clinical guidelines for diagnosis and treatment of chronic low back pain

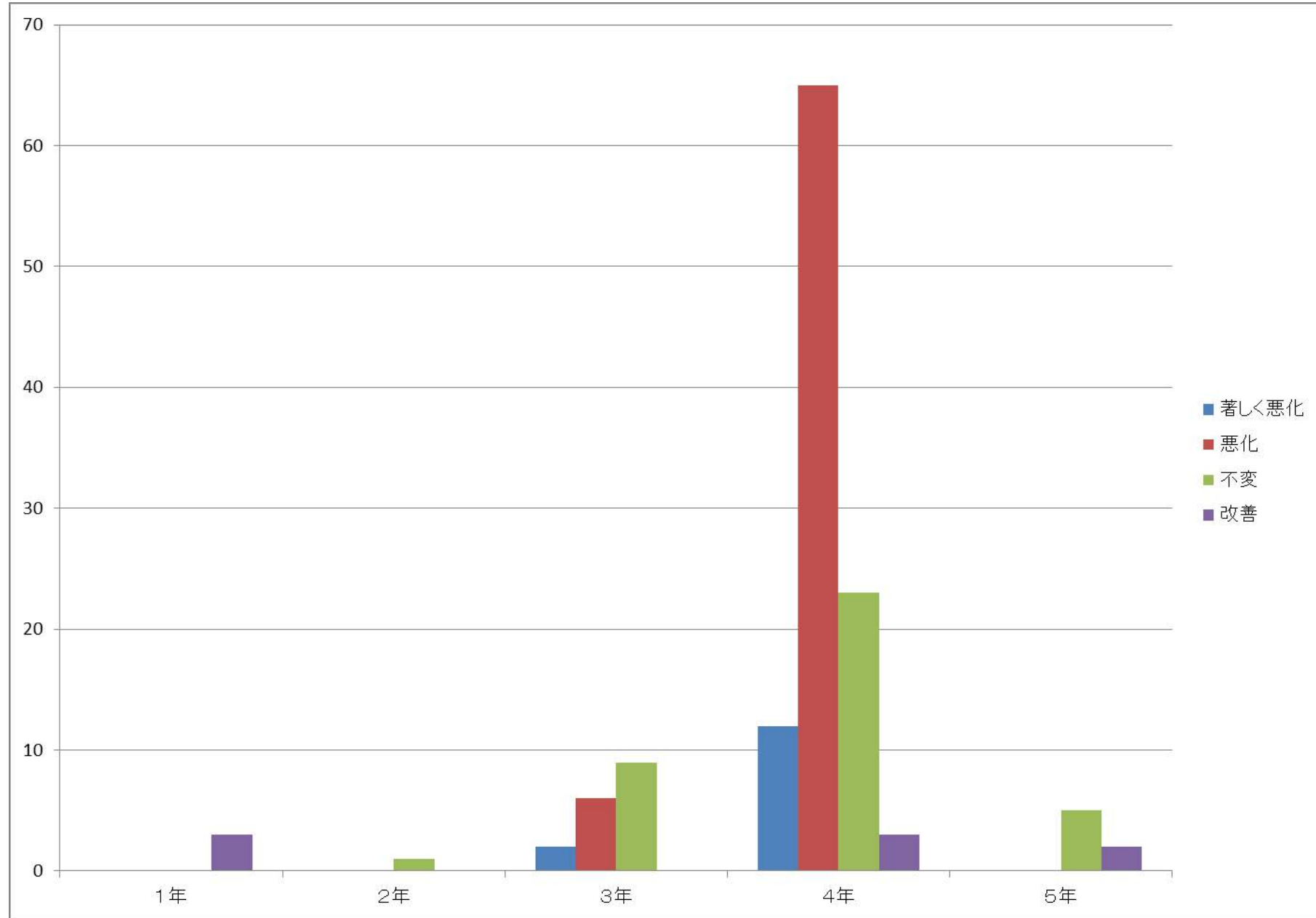
- **Diagnosis**
- Diagnostic triage to exclude specific pathology and nerve root pain
- Assessment of prognostic factors (yellow flags) such as work related factors, psychosocial distress, depressive mood, severity of pain and functional impact, prior episodes of low back pain, extreme symptom reporting, and patient's expectations
- Imaging is not recommended unless a specific cause is strongly suspected
- Magnetic resonance imaging is best option for radicular symptoms, discitis, or neoplasm
- Plain radiography is best option for structural deformities

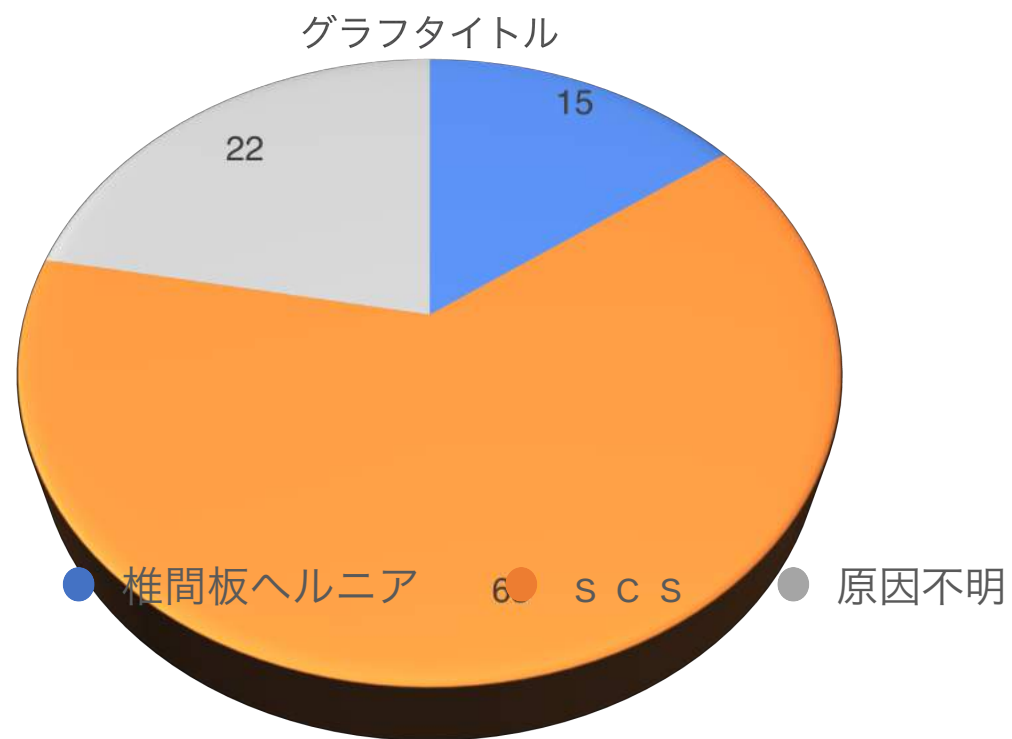
可視化治療

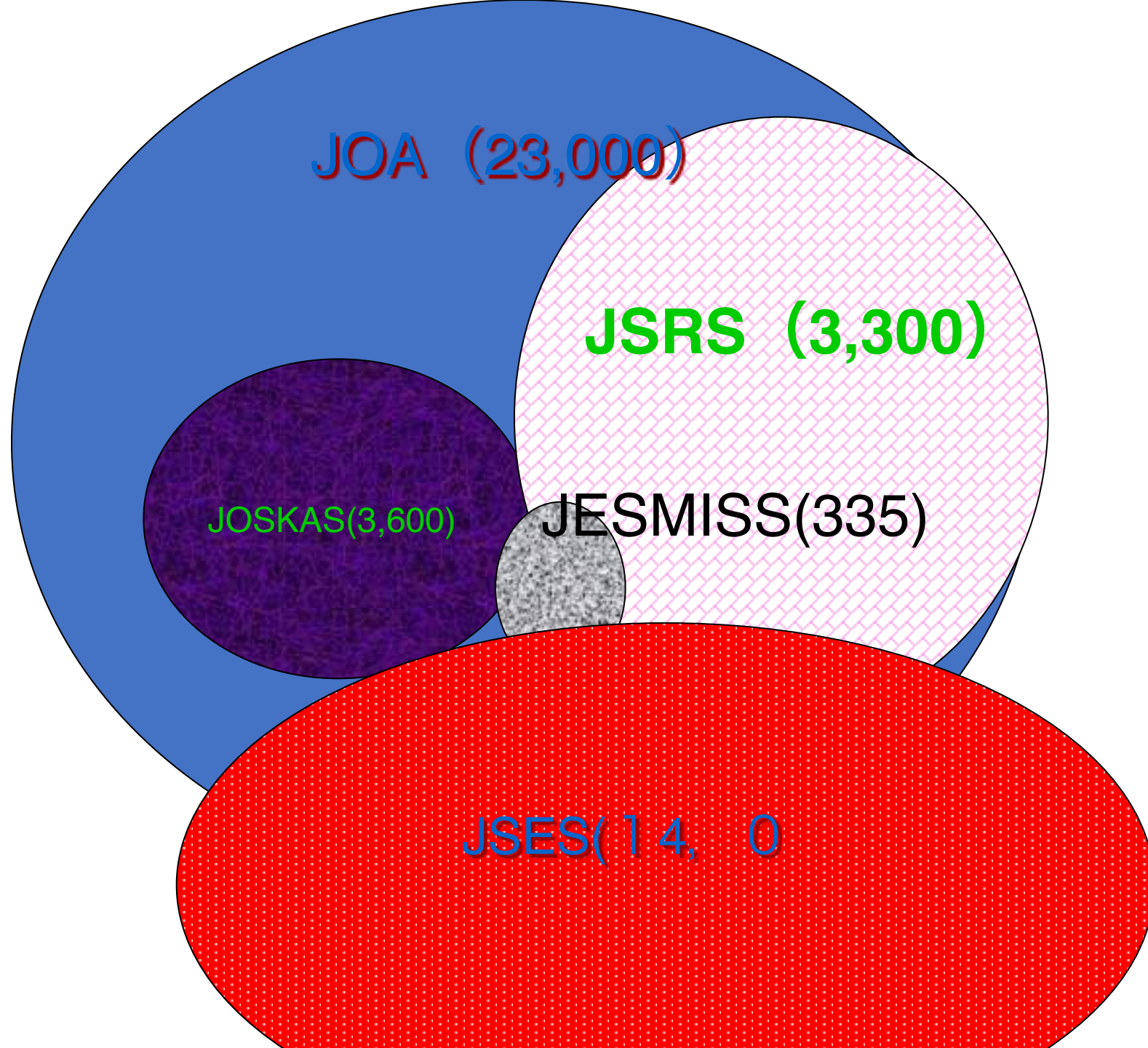
- 後枝内側枝
- 上殿皮神経
- Far out
- 梨状筋と坐骨神経の異常
- HIZ
- Furcal nerve
- 多裂筋の変性
- Adamkiewicz動脈



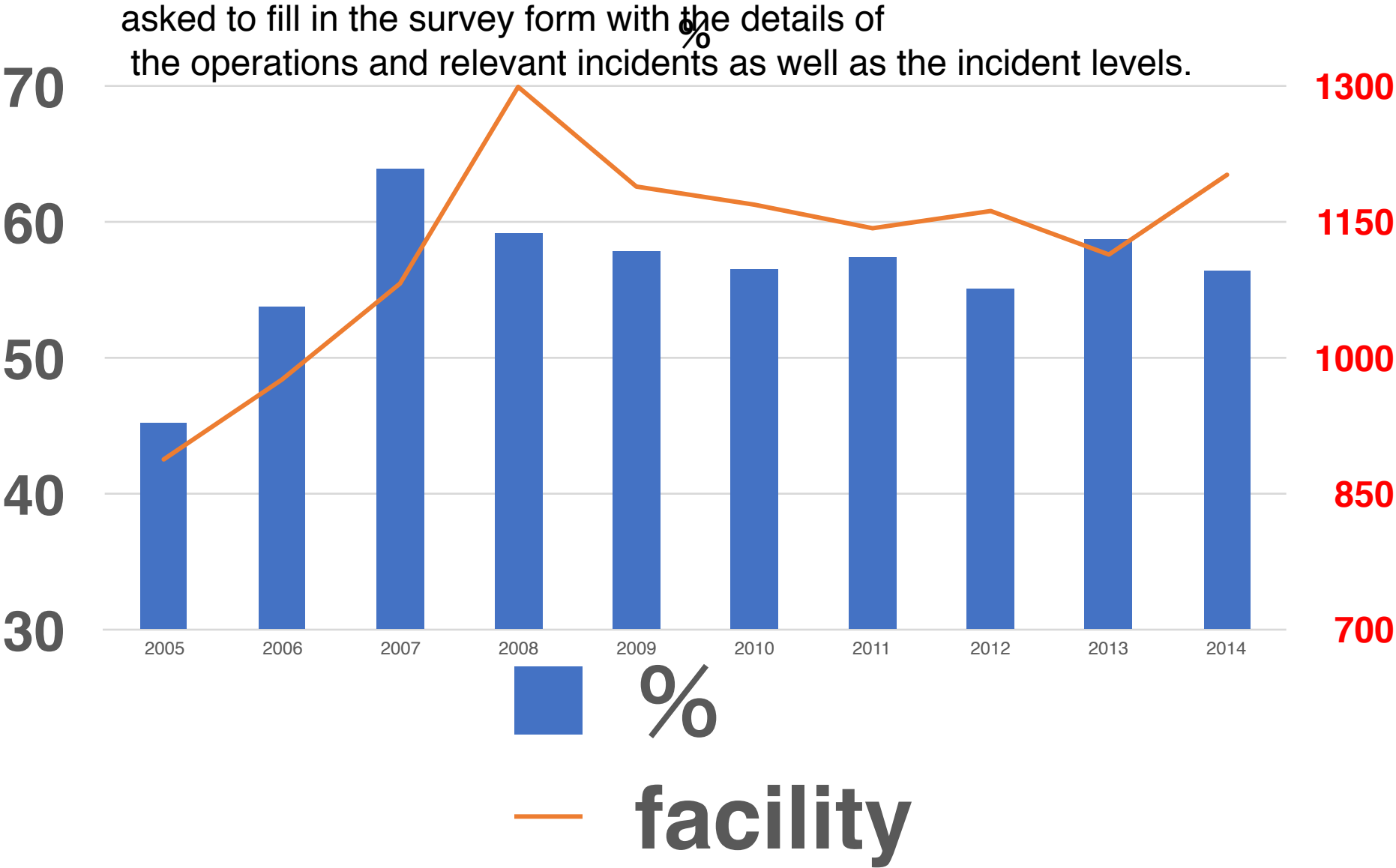
長期外来待患者の下肢痛の変化



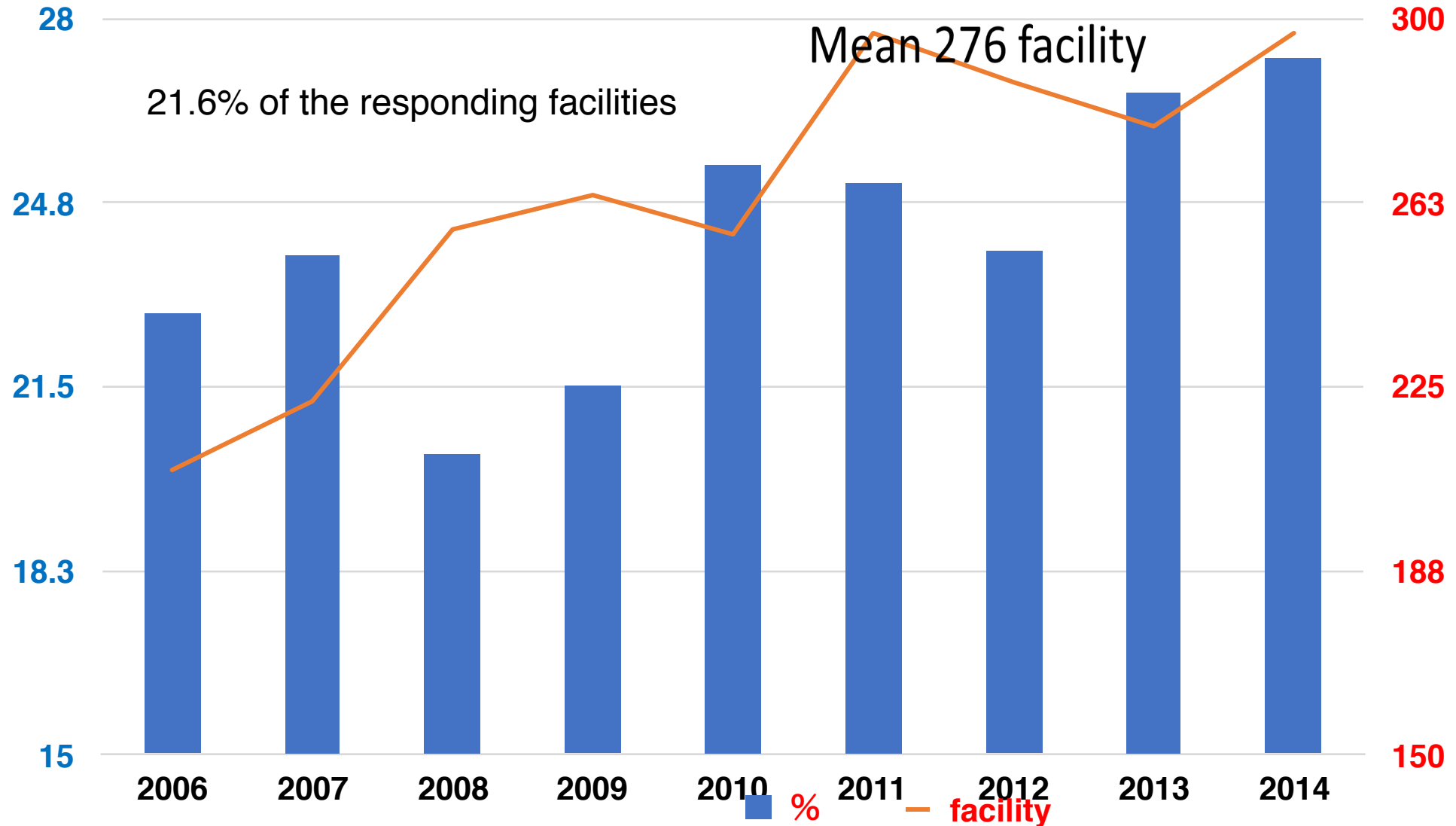




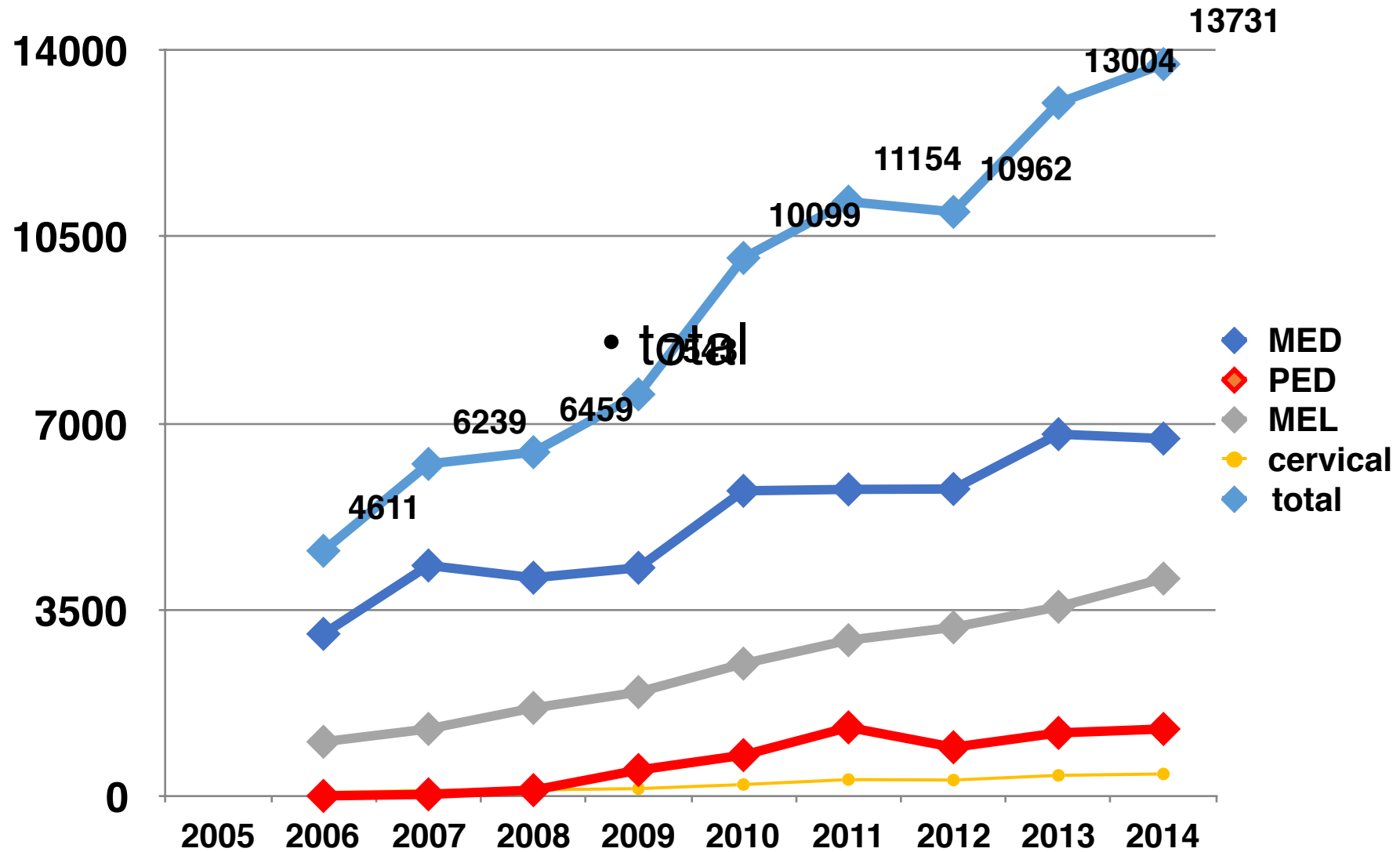
(response rate 56.4%) Mean 1148facility



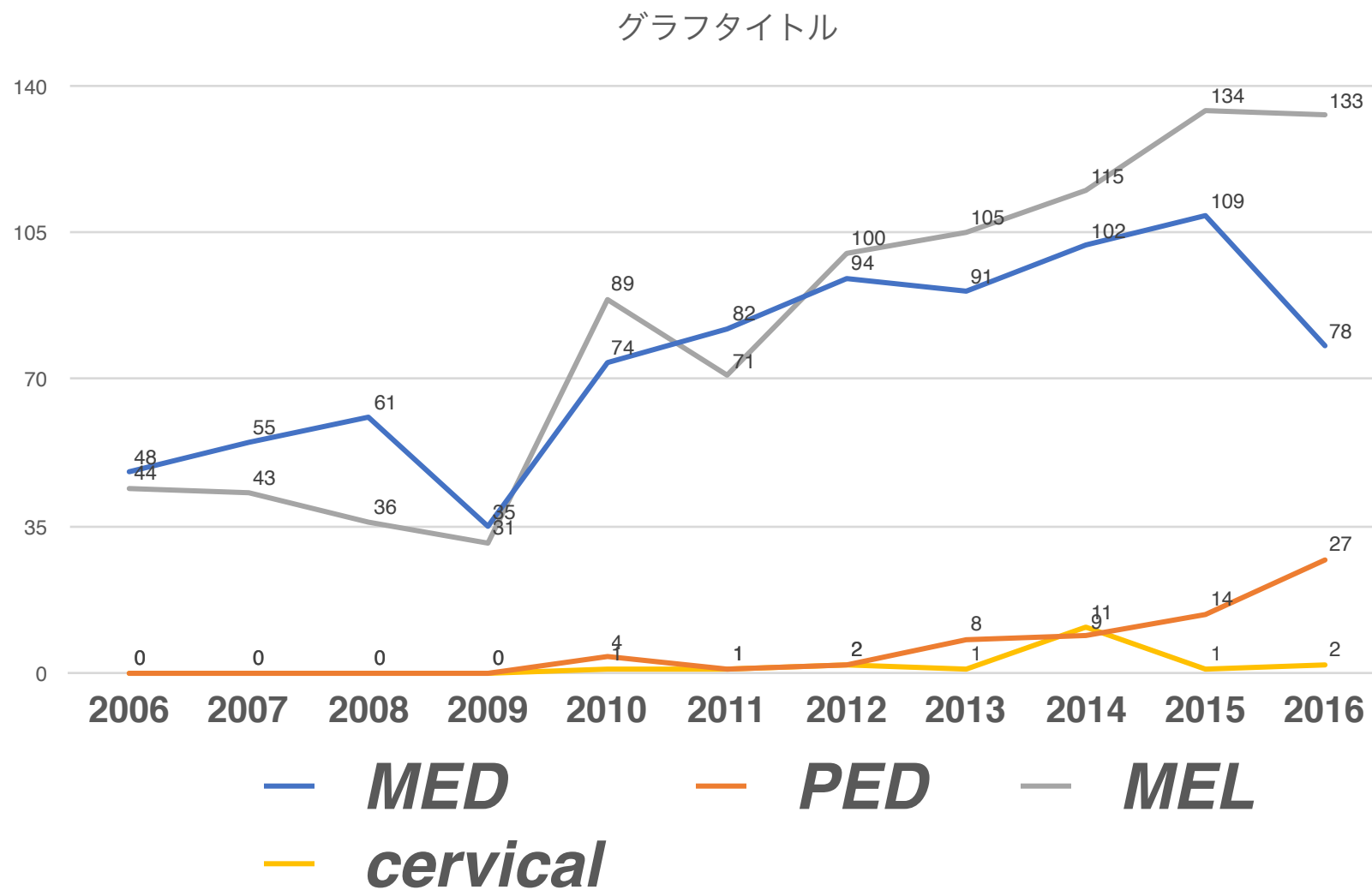
undertook spinal endoscopic surgery



Number of endoscopy (Japan)

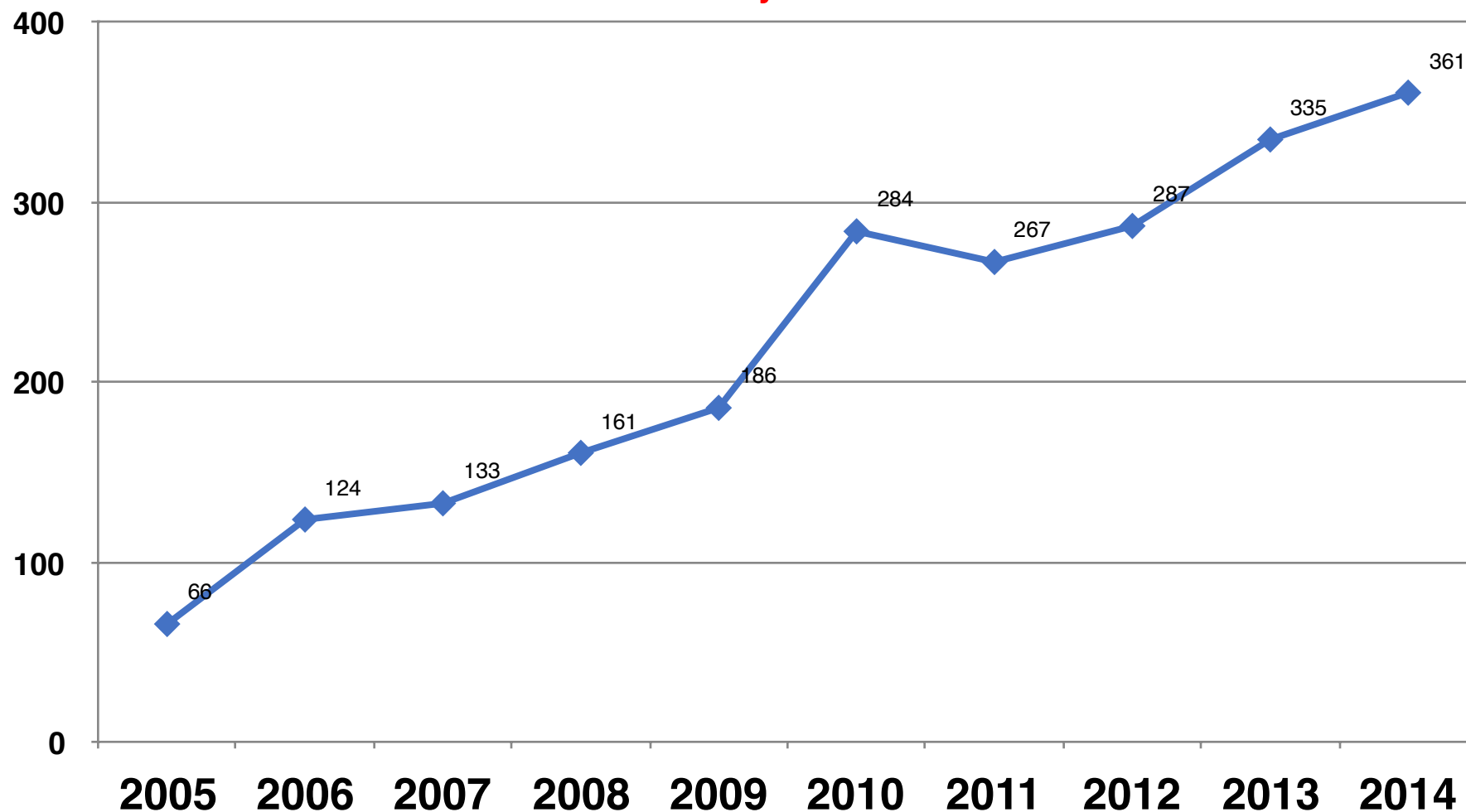


Each MIS procedure

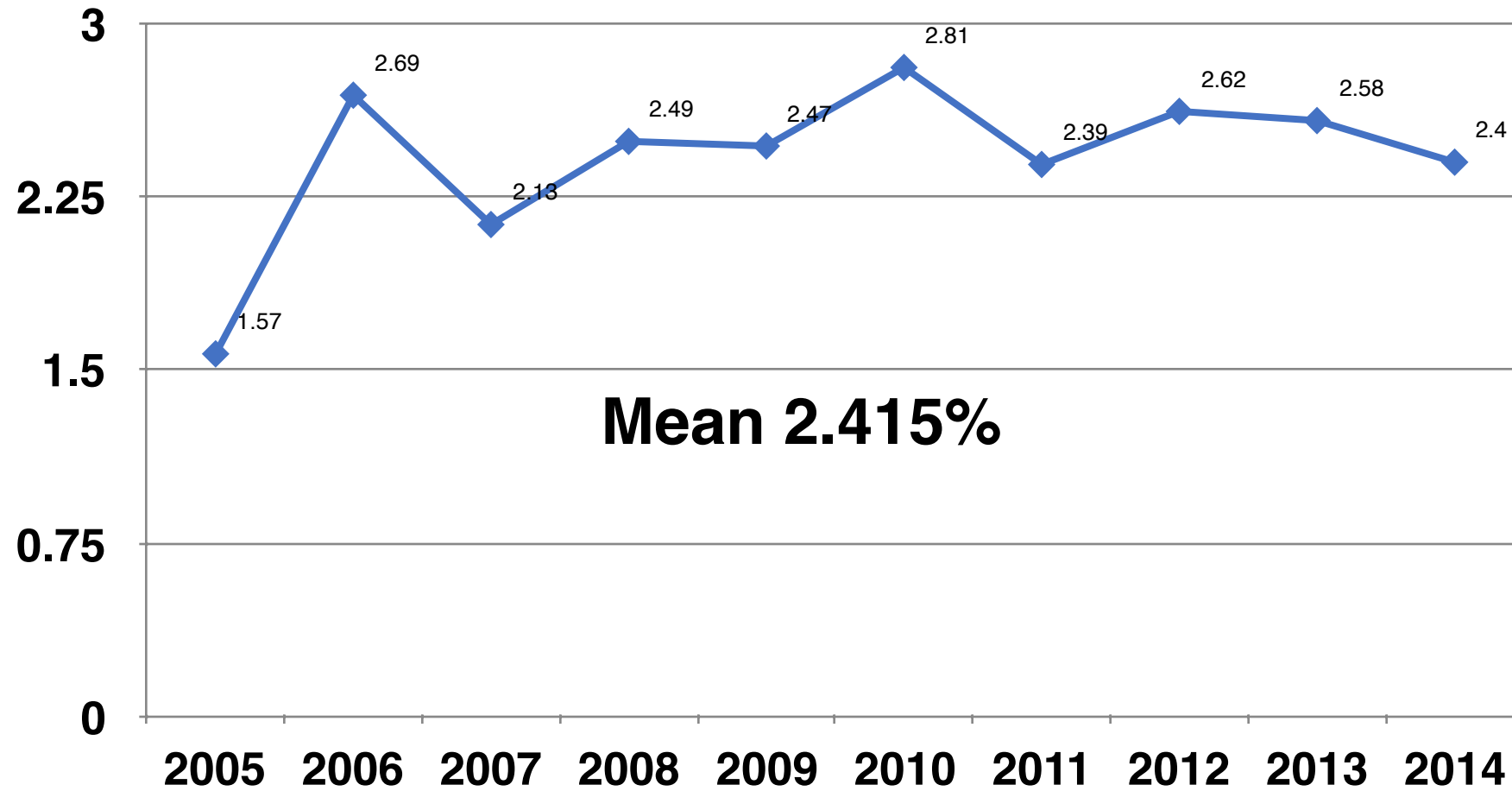


Number of incident

In a multicenter study of over 100.000 MISS cases for decade



Incident ratio



4complications

- **Dural tear**

MEL>MED>cervical>**PELD**
• 2.92 1.37 0.47 0.24

- **SEH**

MEL >cervical > MED >**PELD**
0.48 0.32 0.13 0.13

- **Infections**

cervical > MEL> MED>**PELD**
0.23 0.05 0.04 0.03

- **Nerve injury**

PELD >cervical > MEL> MED
0.47 0.23 0.14 0.13

Treatment

- *Recommended*—Cognitive behaviour therapy, supervised exercise therapy, brief educational interventions, and multidisciplinary (biopsychosocial) treatment, short term use of non-steroidal anti-inflammatory drugs and weak opioids.
- *To be considered*—Back schools and short courses of manipulation and mobilisation, noradrenergic or noradrenergic-serotonergic antidepressants, muscle relaxants, and capsicum plasters.
- *Not recommended*—Passive treatments (for example, ultrasound and short wave) and gabapentin. Invasive treatments are in general not recommended in chronic non-specific low back pain.

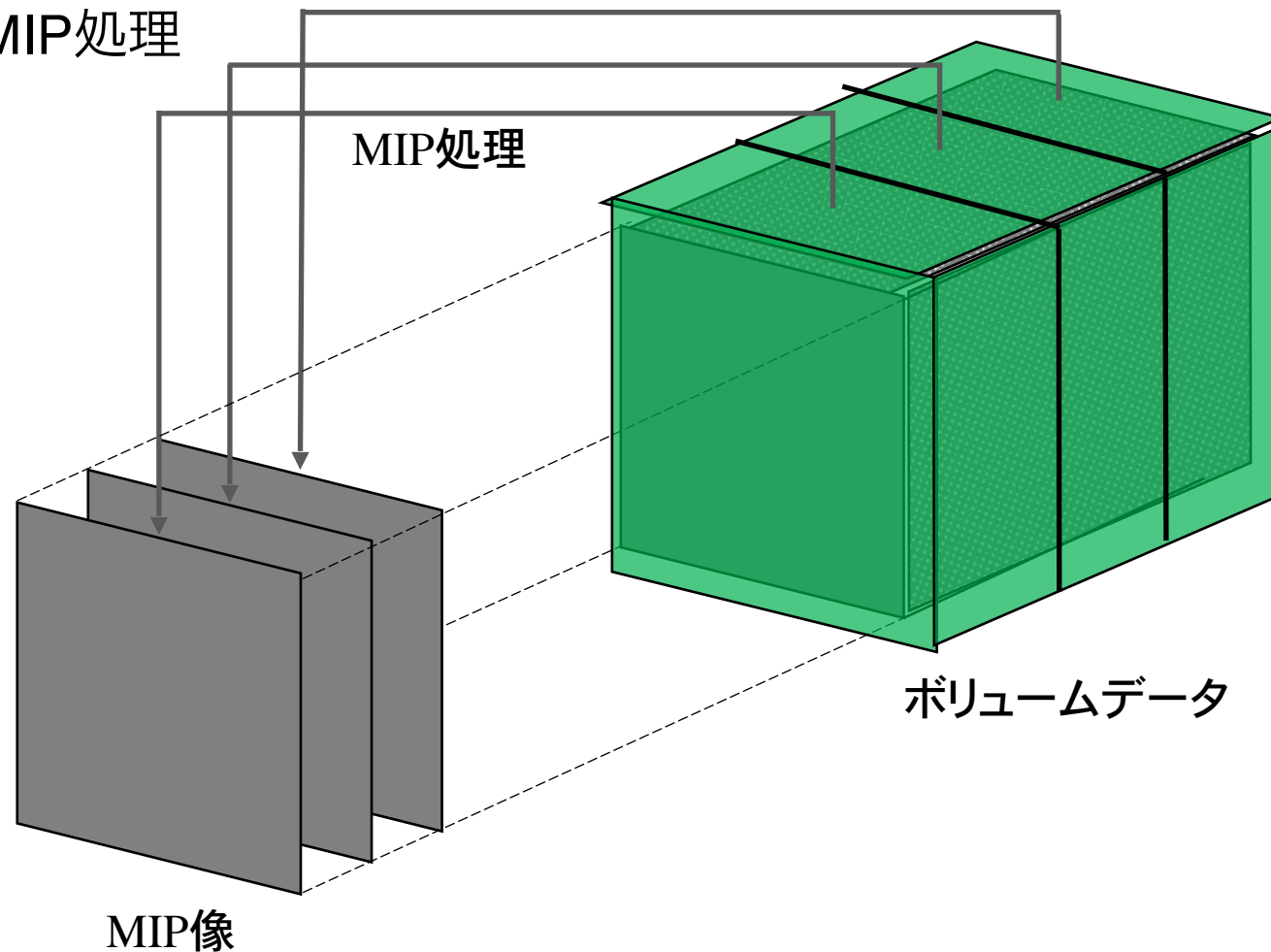
Structural sources of low back pain

- **1. Zygapophyseal joint**
 - Mooney V Clin Orthop RR1976.149-56
 - McCall IWSpine1979:4.441-6
 - Fukui S Clin J Pain 1997,303-7
- **2. S C N**
 - Bogduk N Med J Aust.1980.537-41
- **3. Transverse run of nerve root**
 - KellgrenJH Clin Sci.1939.35-46
 - Feinstein B JBJSAm1954.981-7
- **4. Piriformis synd**
- **5. Sinuvertebral nerve**
- **6. segmental vessel**
- **7. anomaly of nerve**
- **8. muscle of back**
 - KellgrenJH Clin Sci.1938. 3. 1 7 5 – 1 9 0
 - Bogduk N Med J Aust.1980.537-41

MRミエログラフィー撮影法 (BASG : Balanced Steady State Acquisition with Rewound Gradient Echo)

- **BASGあるいは3D-COSMICシーケンスは、全ての方向の傾斜磁場加量のバランスをとる方法である。撮像条件として短TR・短TEを用いることで、定常状態(縦磁化が一定の状態)で信号を取得する。**
- **Sliding MIPは、3次元的に収集したボリュームデータに対し、ある程度の薄いスラブ厚（5~10mm程度）のMIP像を平行移動させながら表示する。Sliding MIPでは薄いスラブ厚を複数表示させることができるため、詳細な情報を評価できるようになり有用性が高い。**

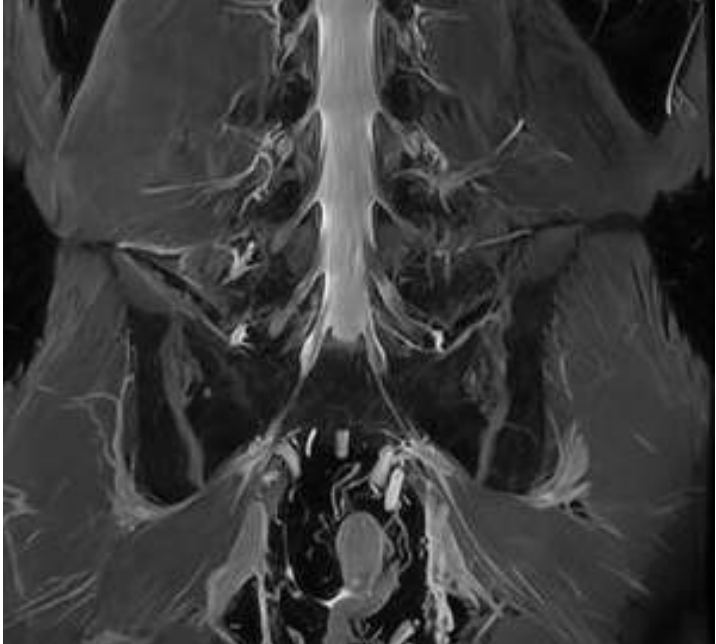
Sliding MIP処理



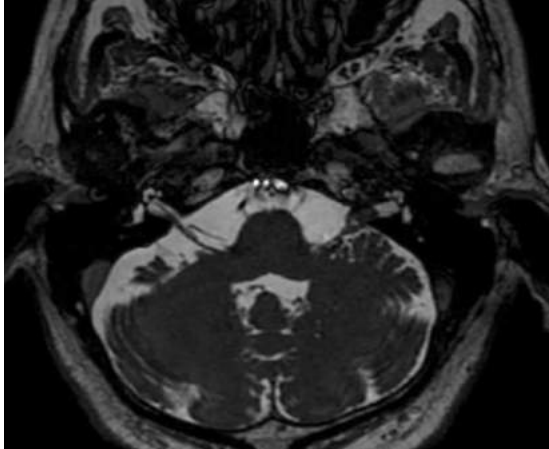
Sliding MIPは、3次元的に収集したボリュームデータに対し、ある程度の薄いスラブ厚（5~10mm程度）のMIP像を平行移動させながら表示する手法です。

従来のMIPでは厚いスラブ厚（全体を1枚の画像で表示するため）であるため、前後関係を評価し難い点がありましたが、Sliding MIPでは薄いスラブ厚を複数表示させることができるため、詳細な情報を評価できるよ

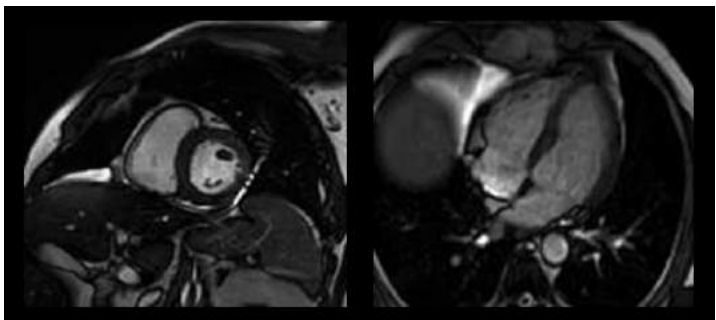
BASG 画像



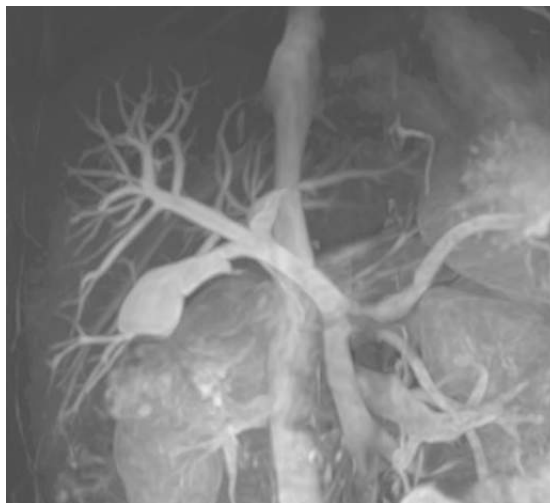
脊椎神経根



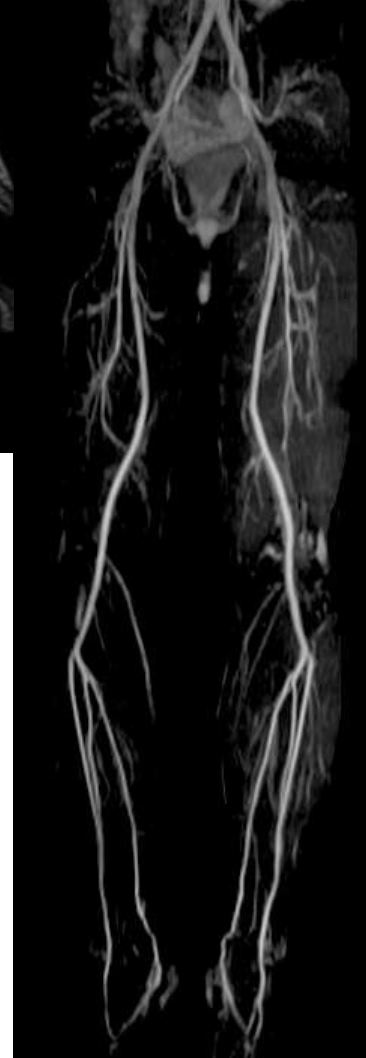
聴神経3D



心臓CINE

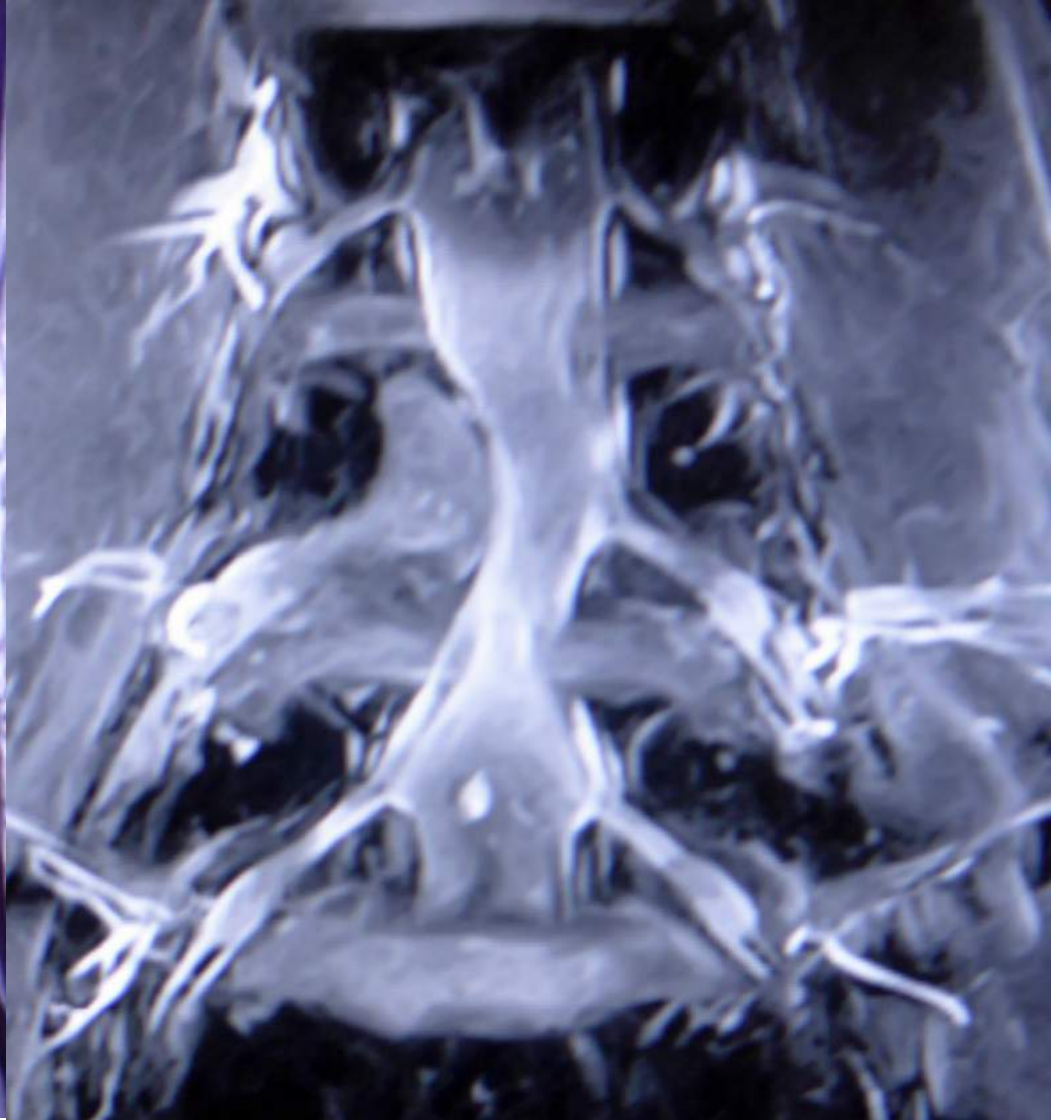


門脈MRA

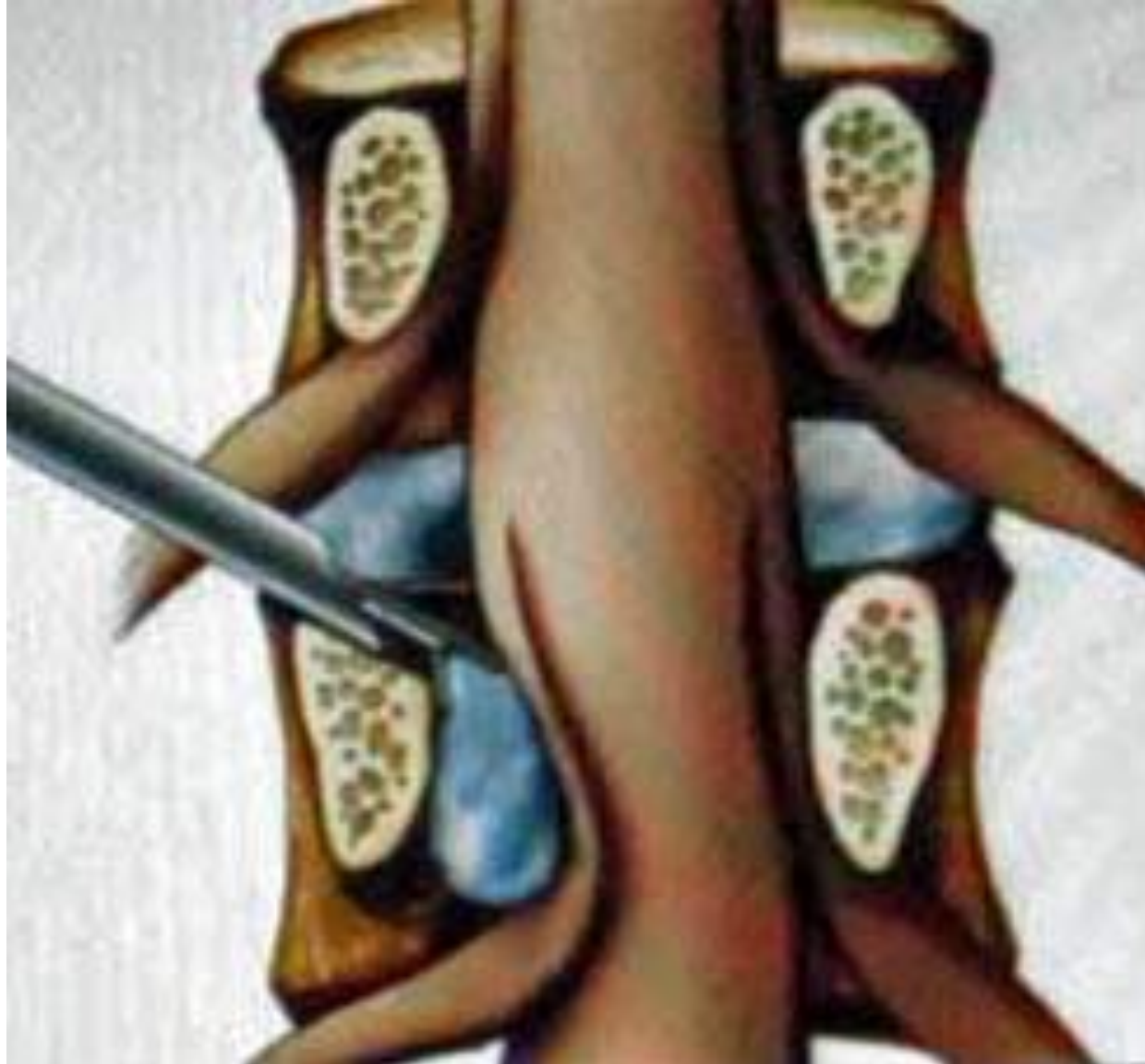


全下肢MRA

日立	Philips	SIEMENS	GE
BASG	Balanced FFE	True FISP	FIESTA

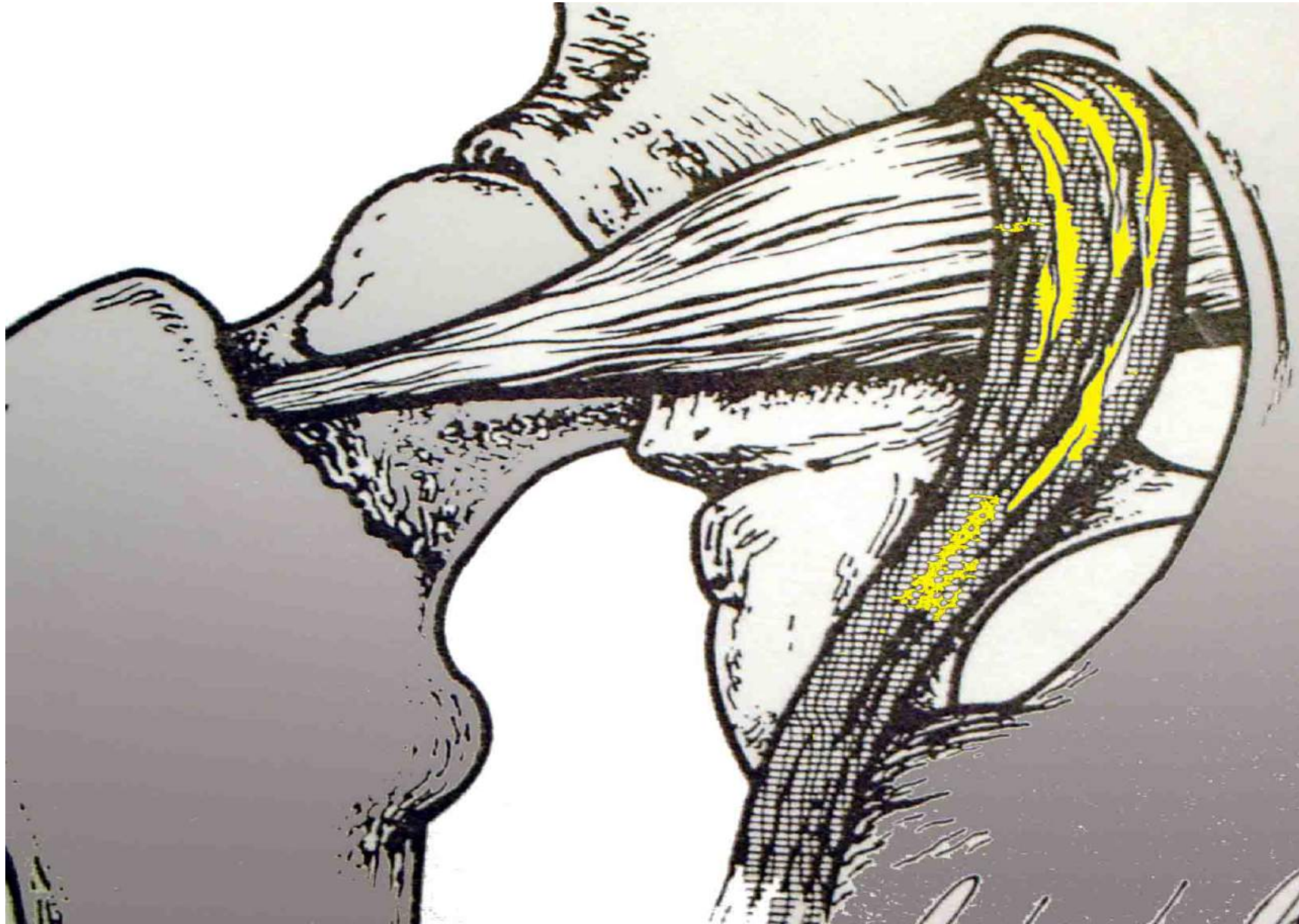


Oblique pediclectomy to caudal migration



07:14:13

20



Beaton;JBJS,1938(Pecina;acta anat1979)

Tibial N.

Common Pero. N.

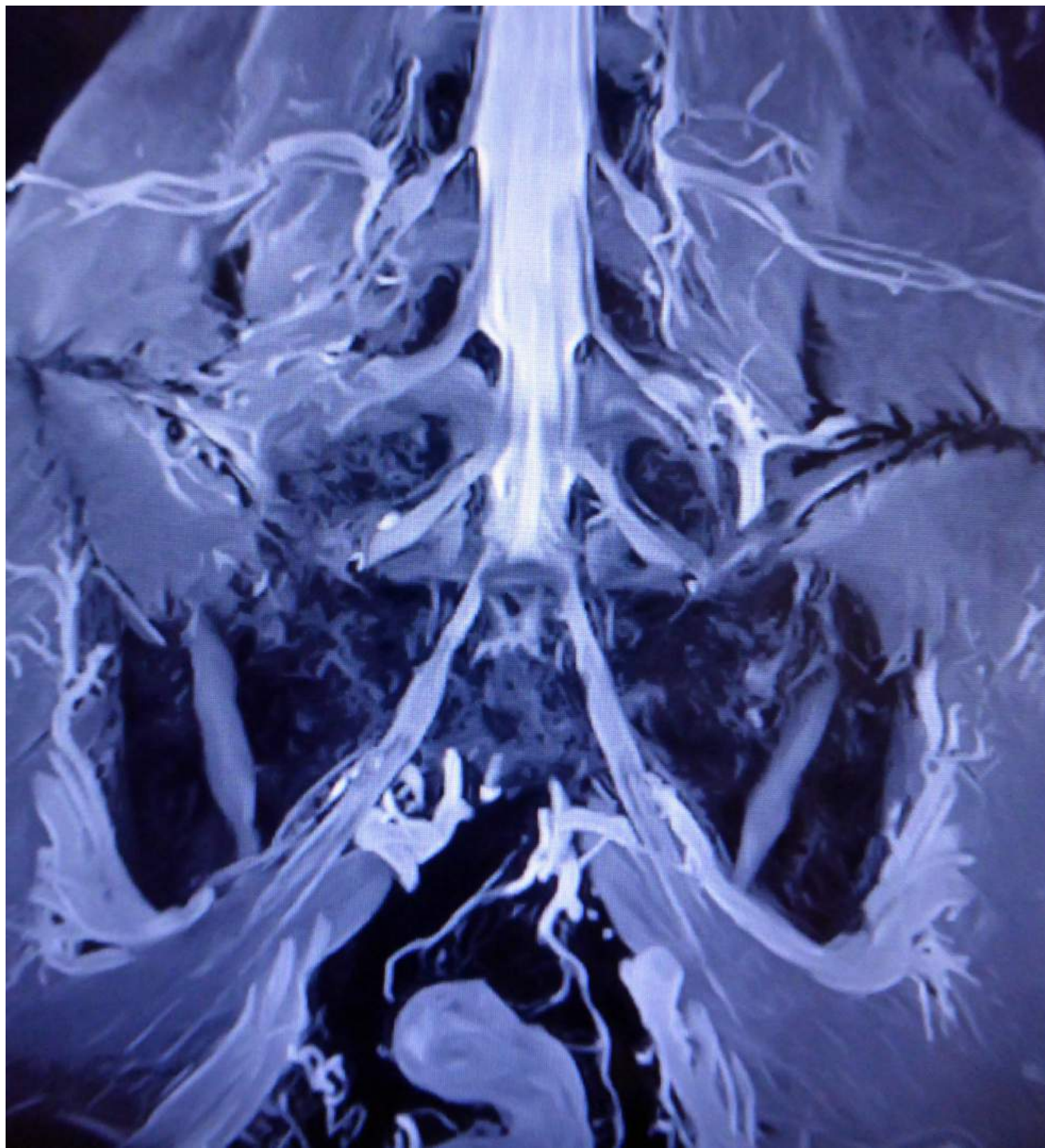
2.1(0.8)%

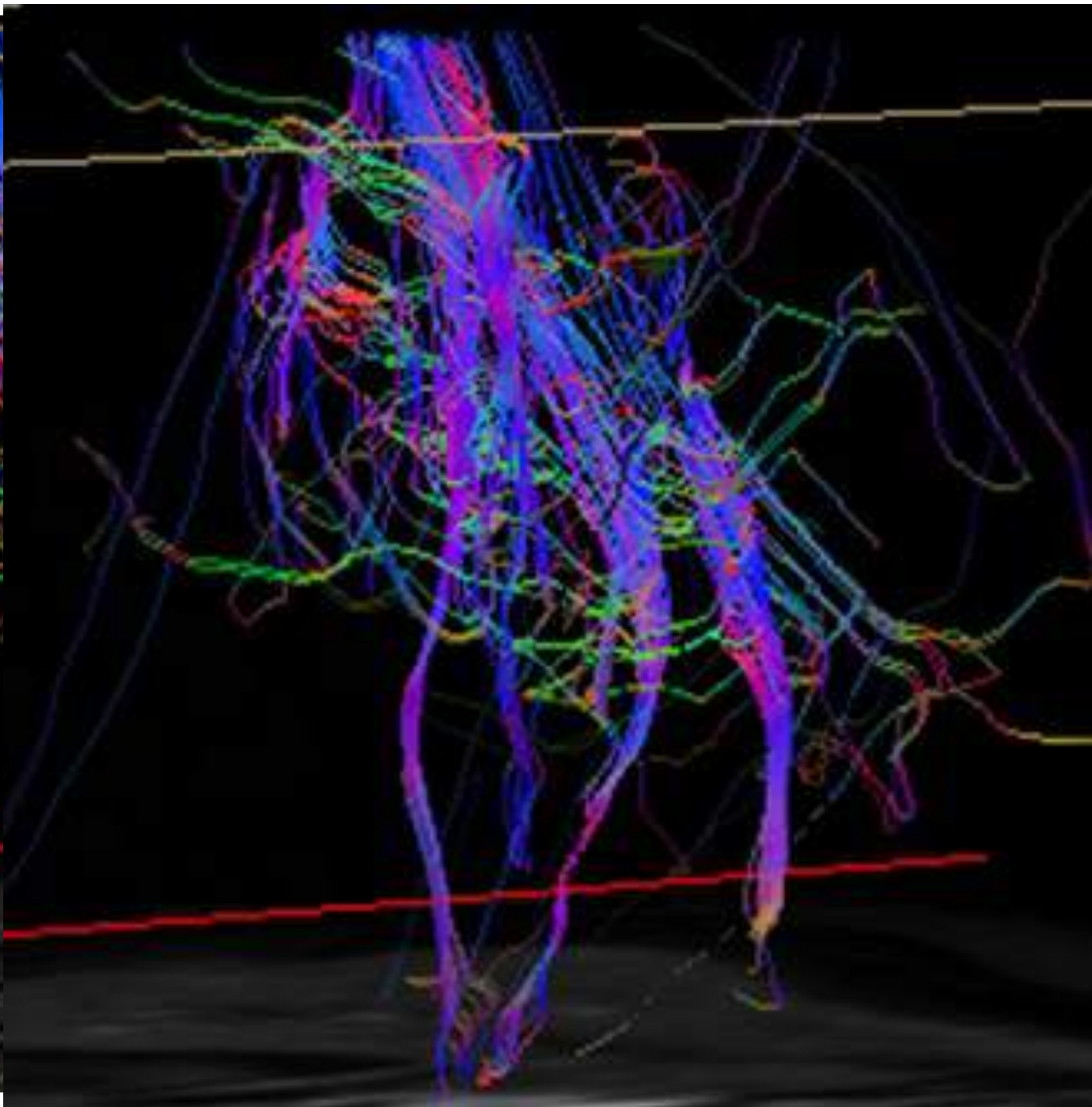
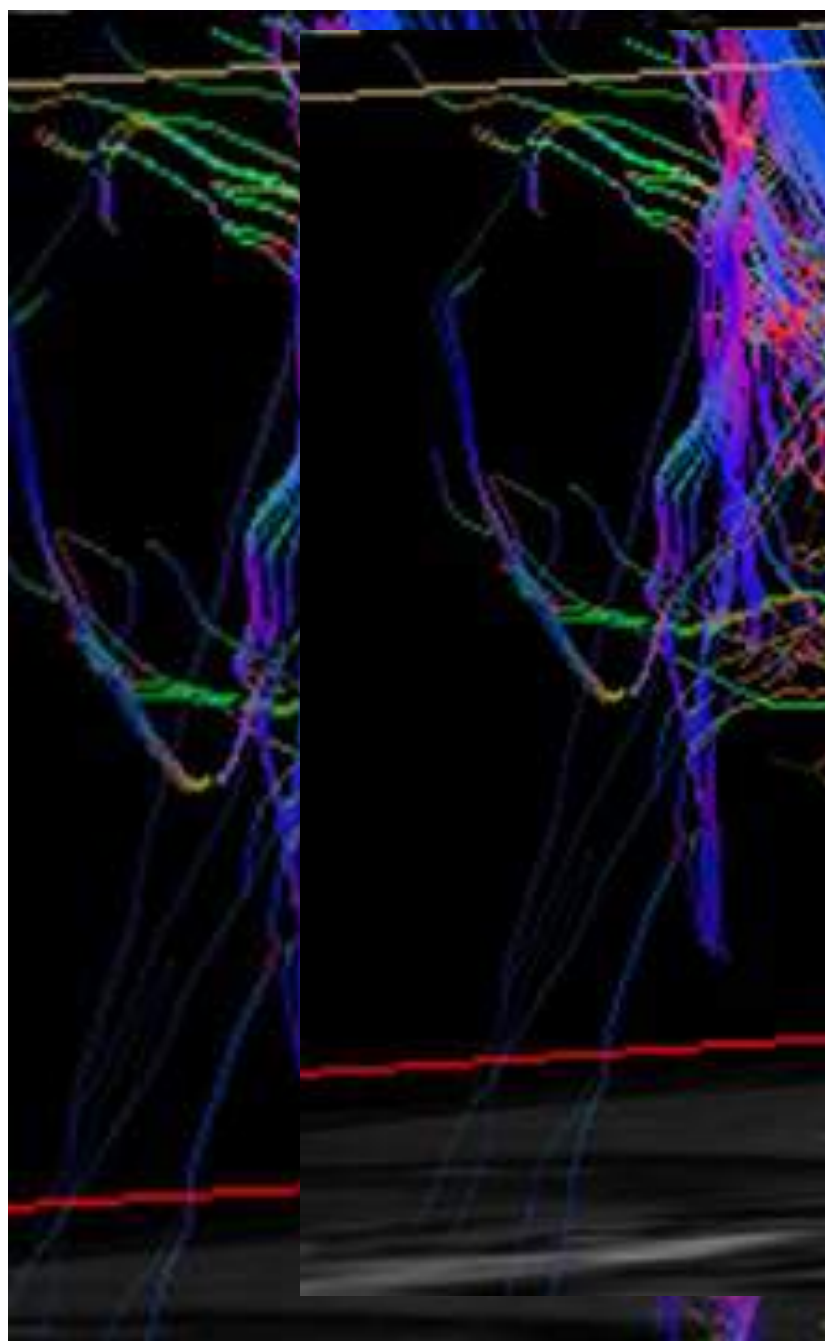
7.1(20.8)%

0.8(0)%

90(78.5)%

右臀部痛





Not for diagnostic use H

R

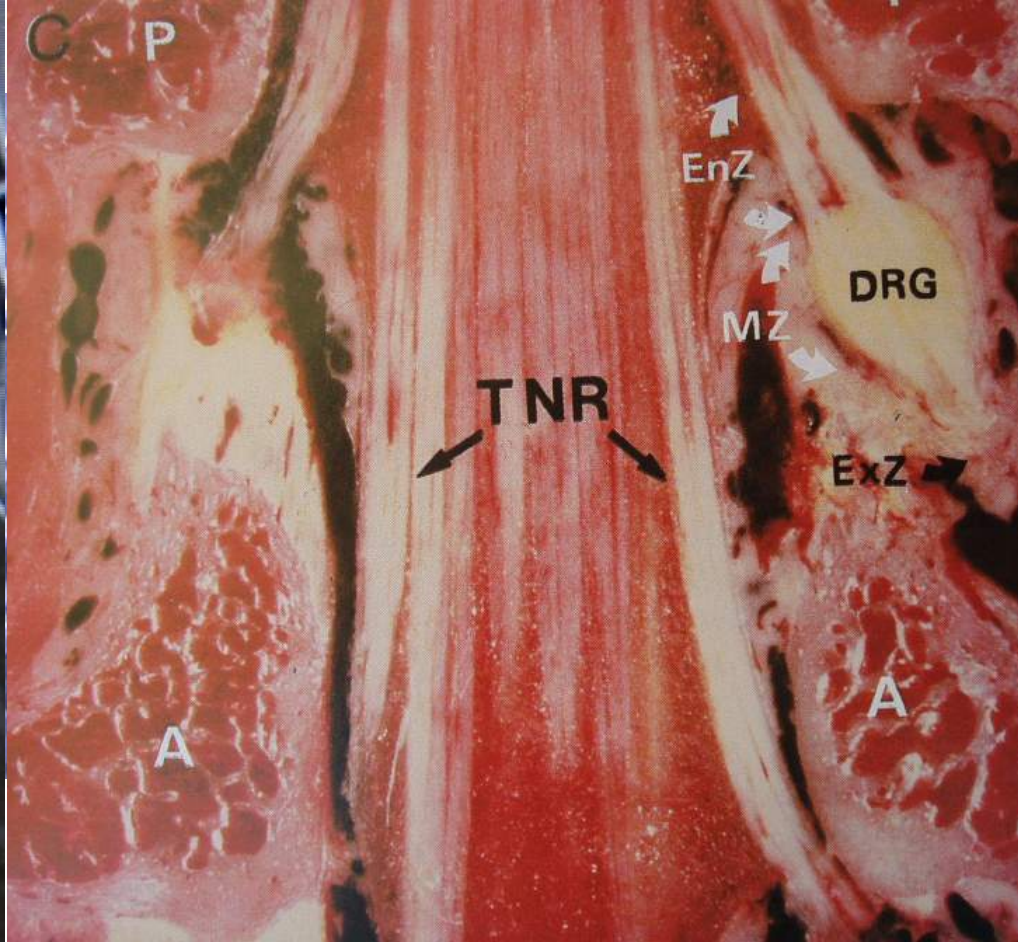
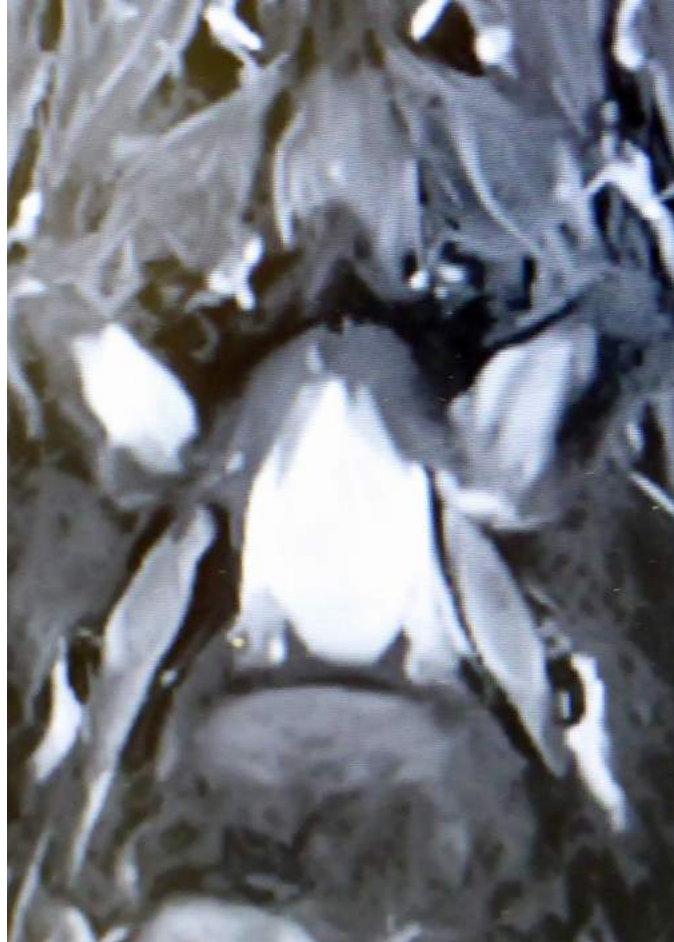
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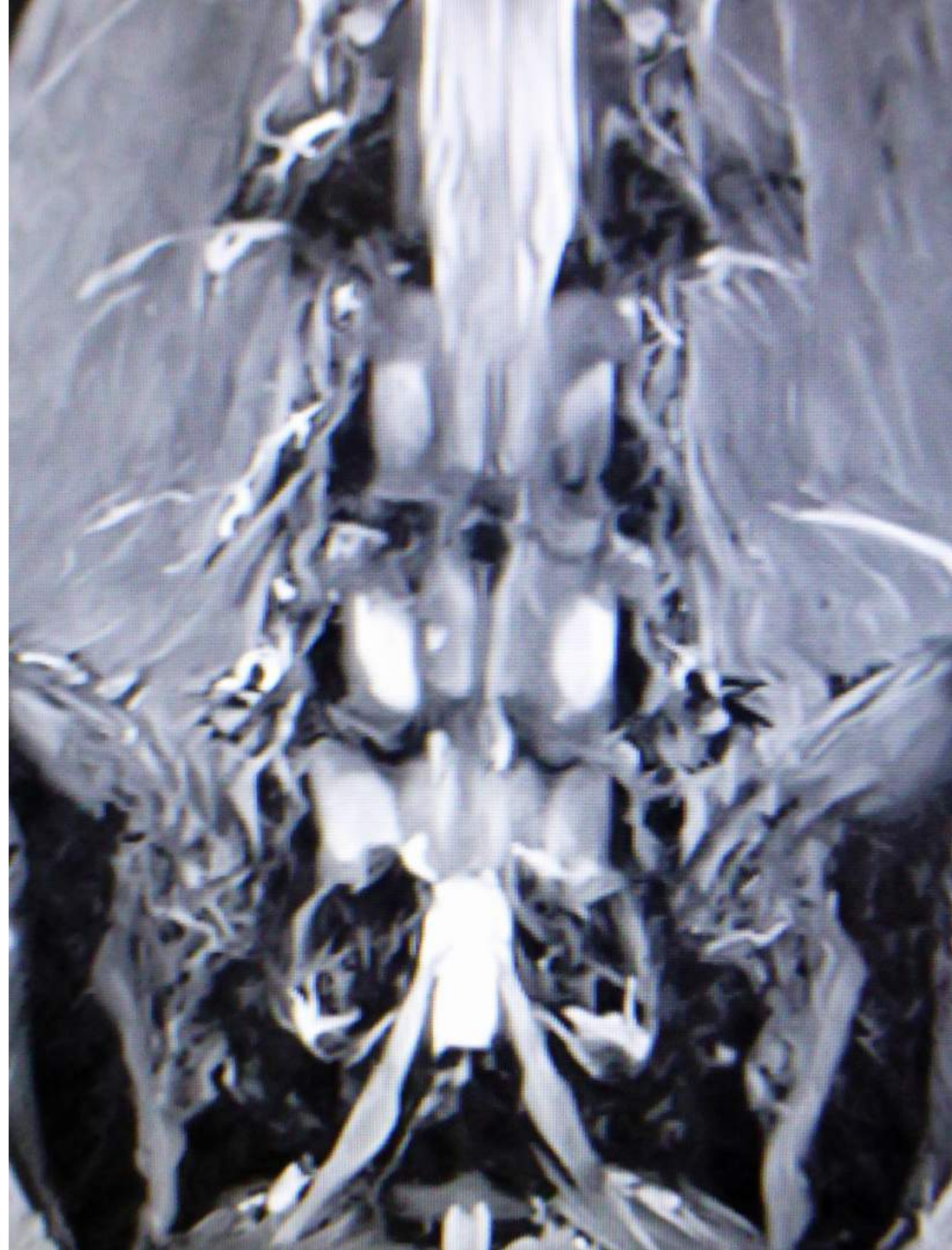
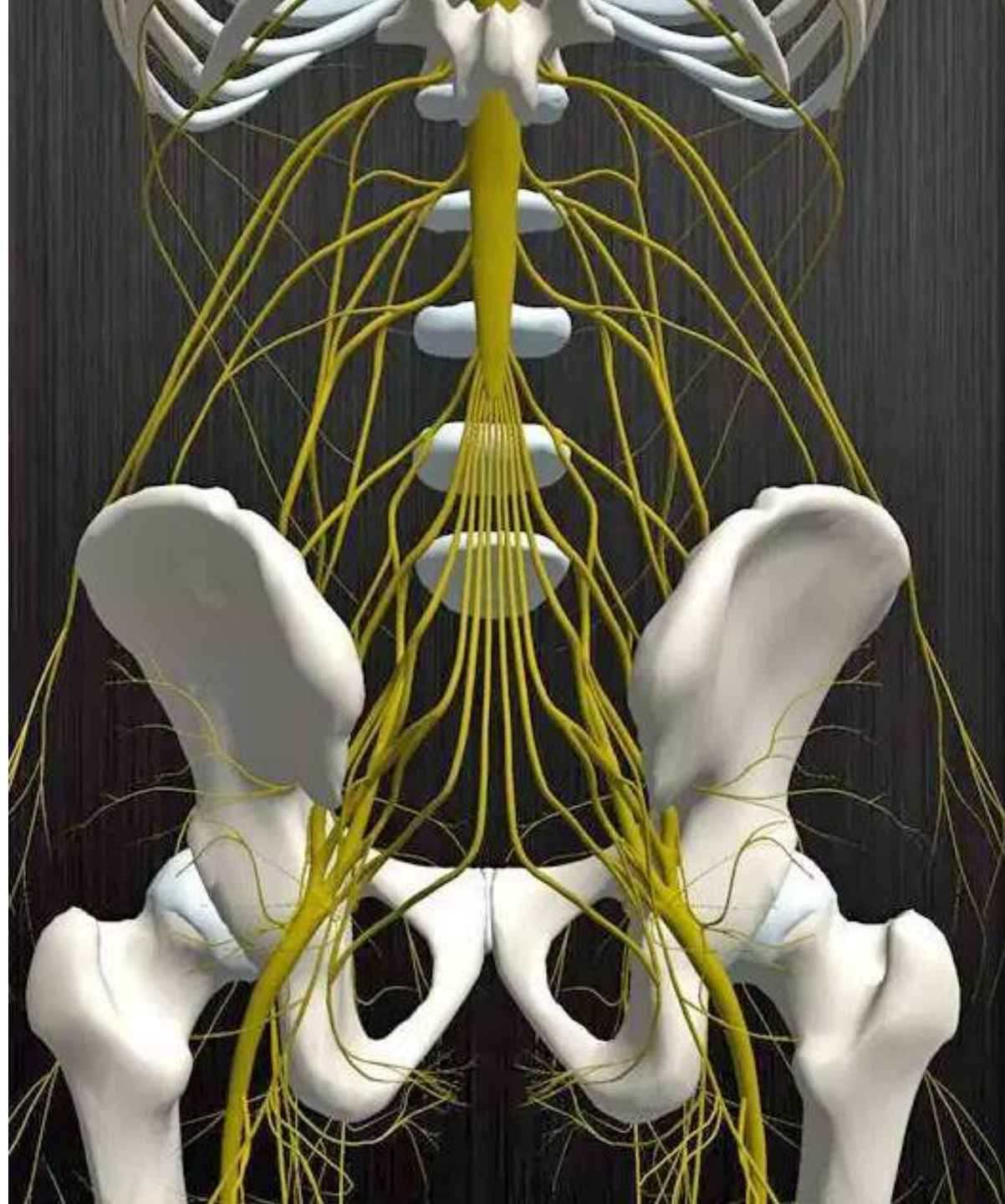


Structural sources of low back pain

- 1. **Zygapophyseal joint**
- 2. **S C N**
- 3. **Transverse run of nerve root**
- 4. **Piriformis synd**
- 5. **Sinuvertebral nerve**
- 6. **segmental vessel**
- 7. **anomaly of nerve**
- 8. **muscle of back (M. Multifidus)**

椎間関節症



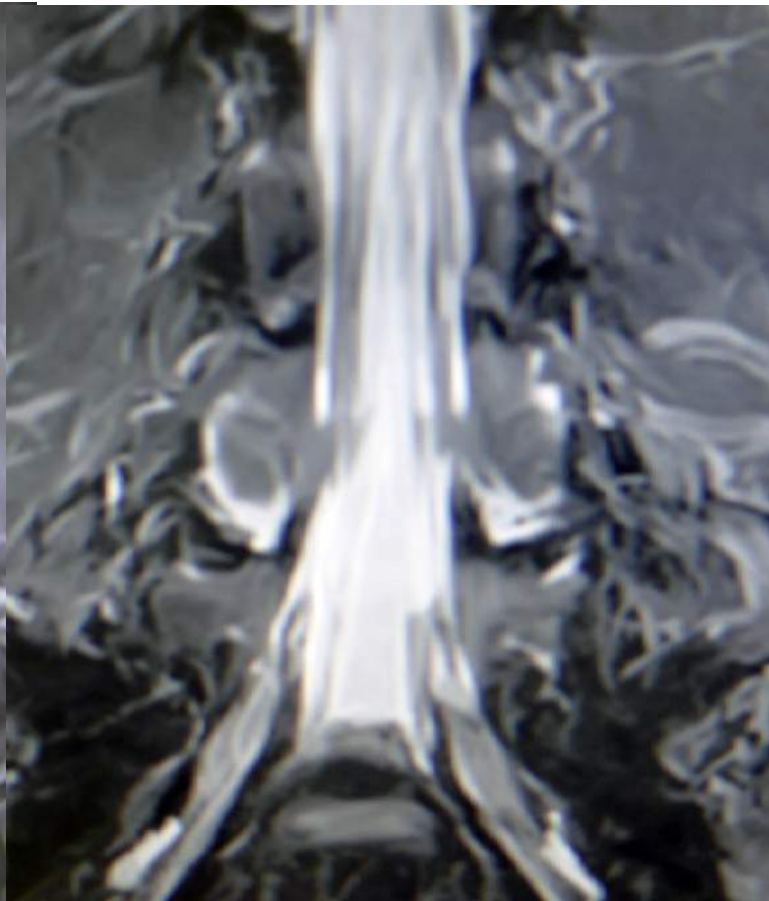
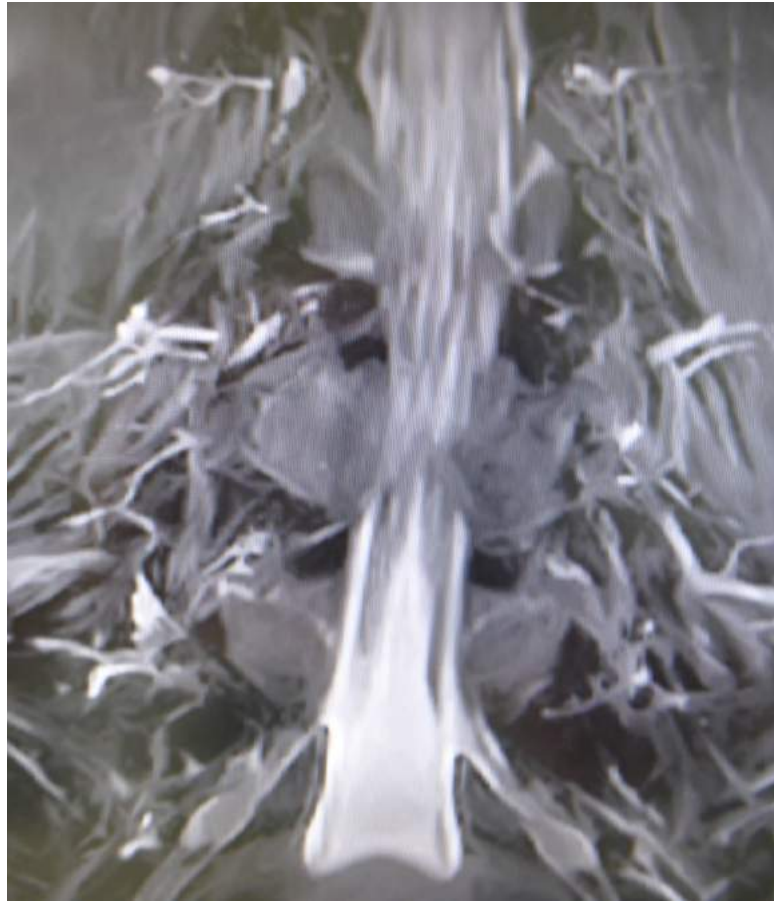


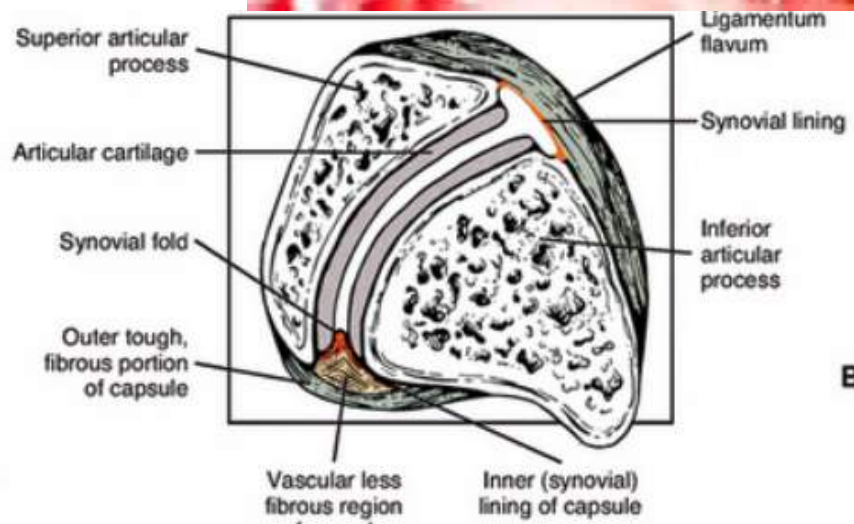
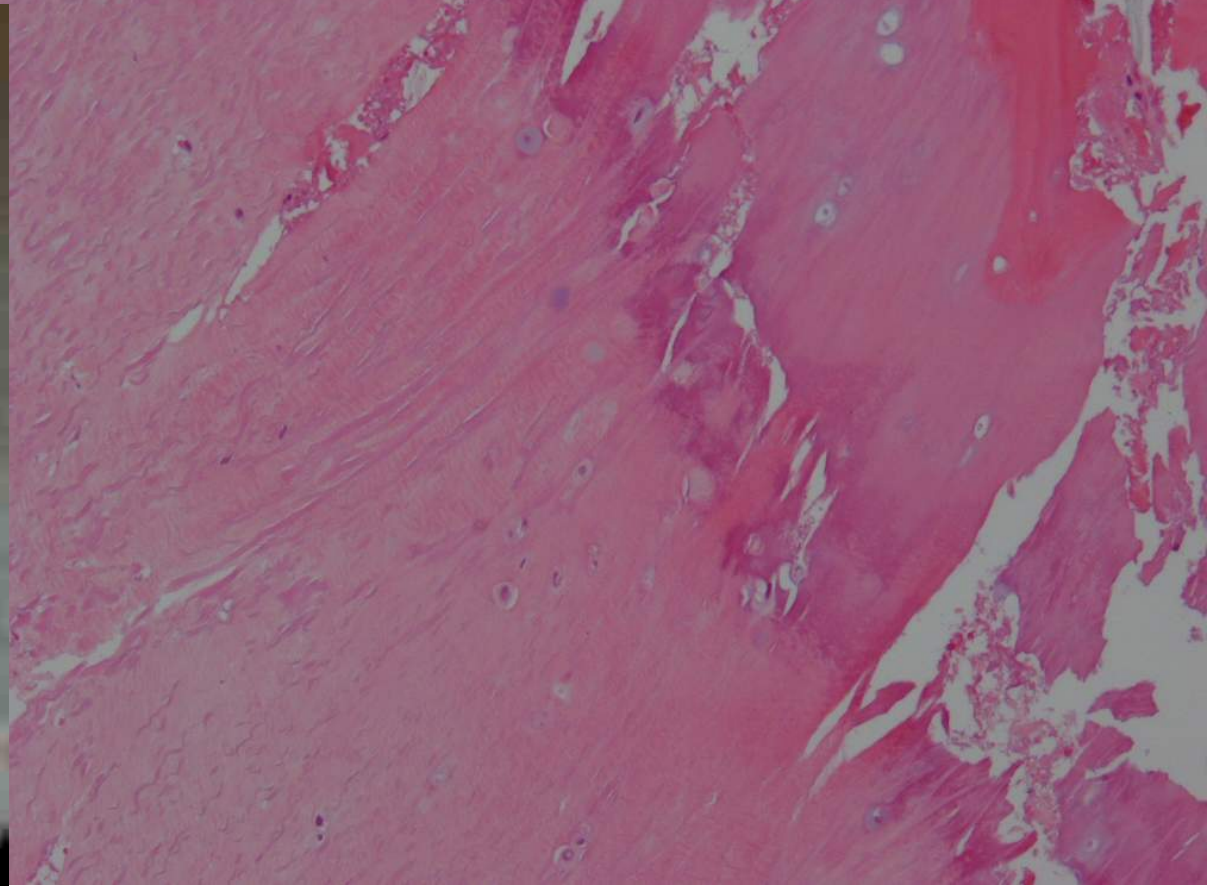
椎間関節症

• Stage1 98/196

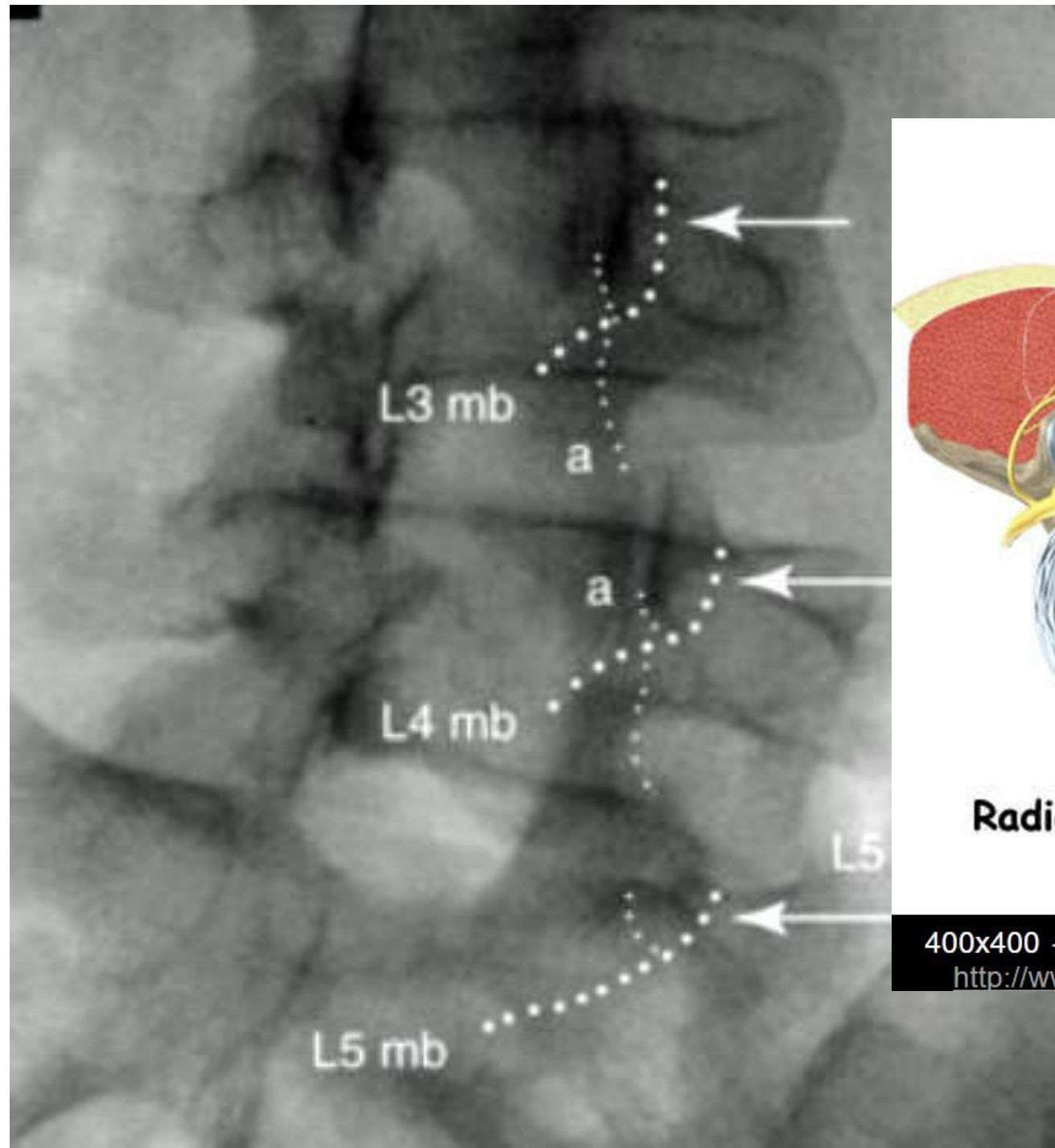
2 64/196

3 33/196



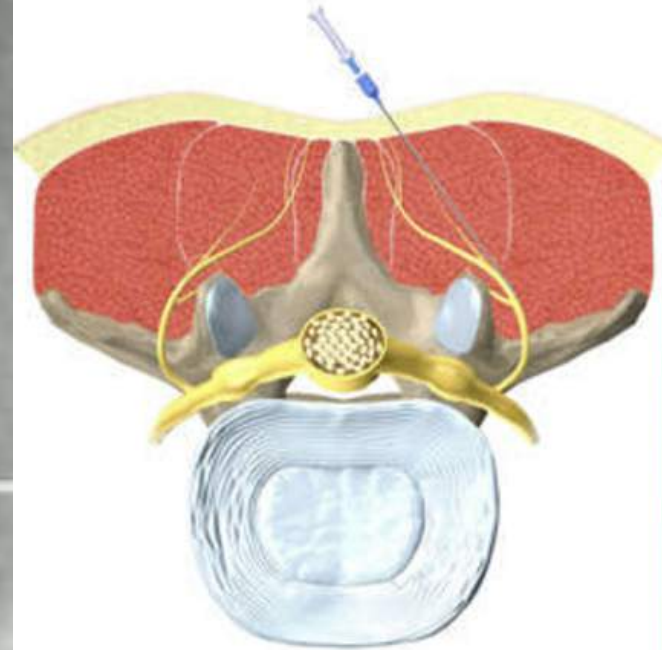


E

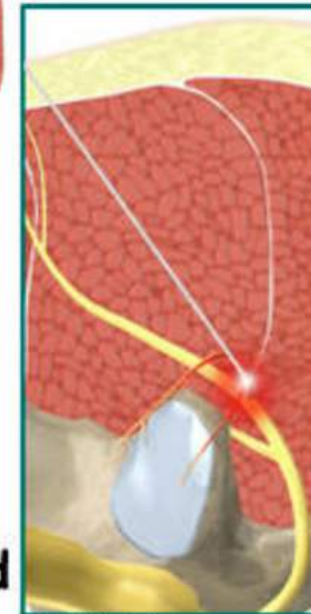


Microelectrode inserted

— NR2



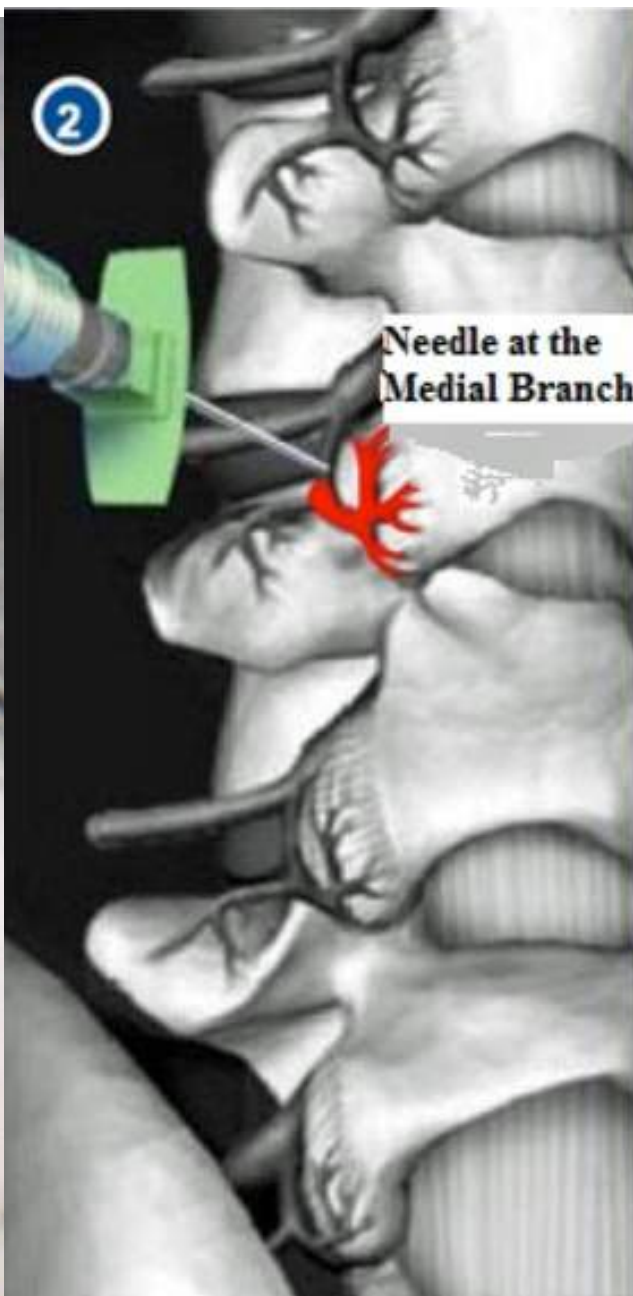
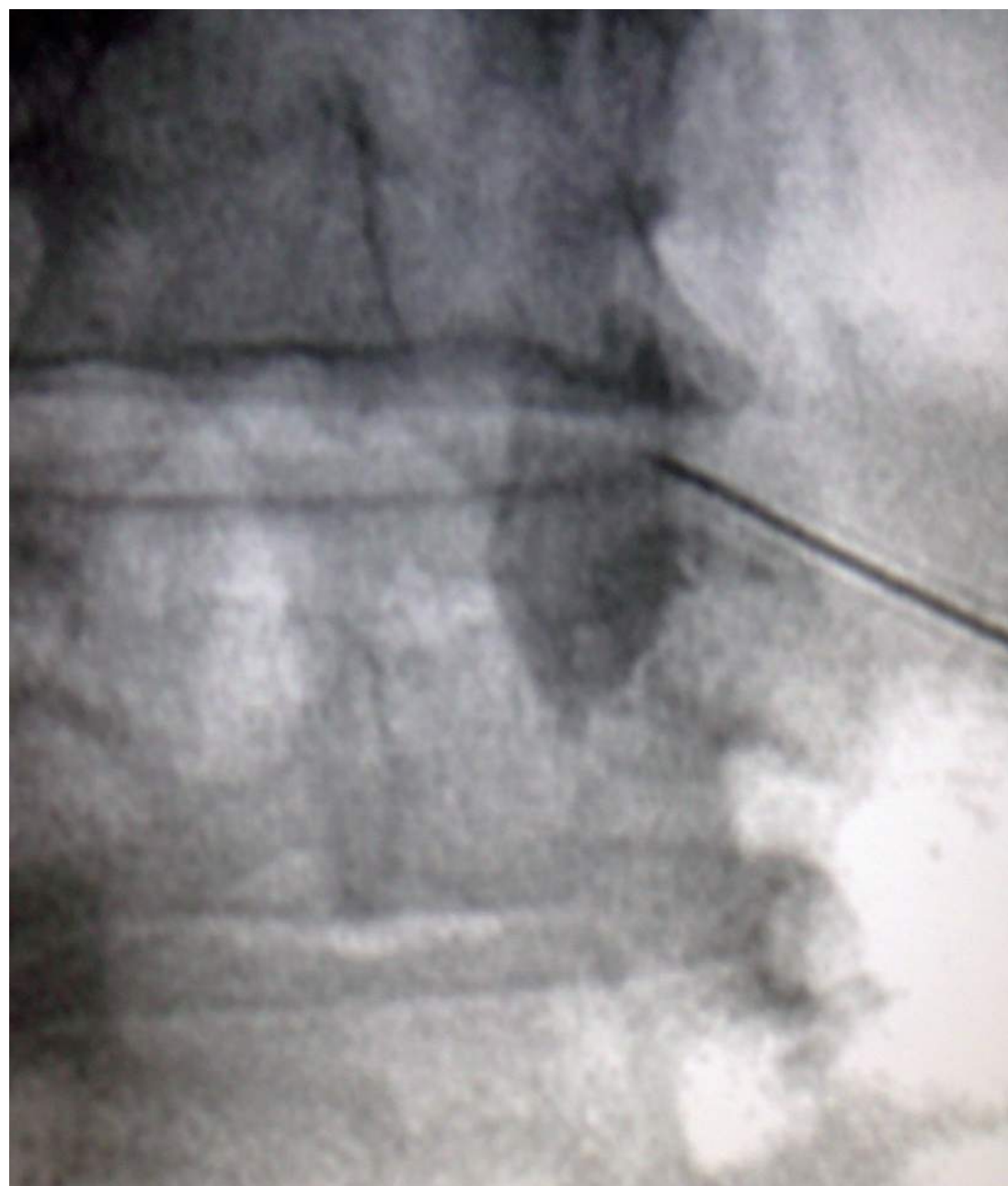
Radiofrequency applied

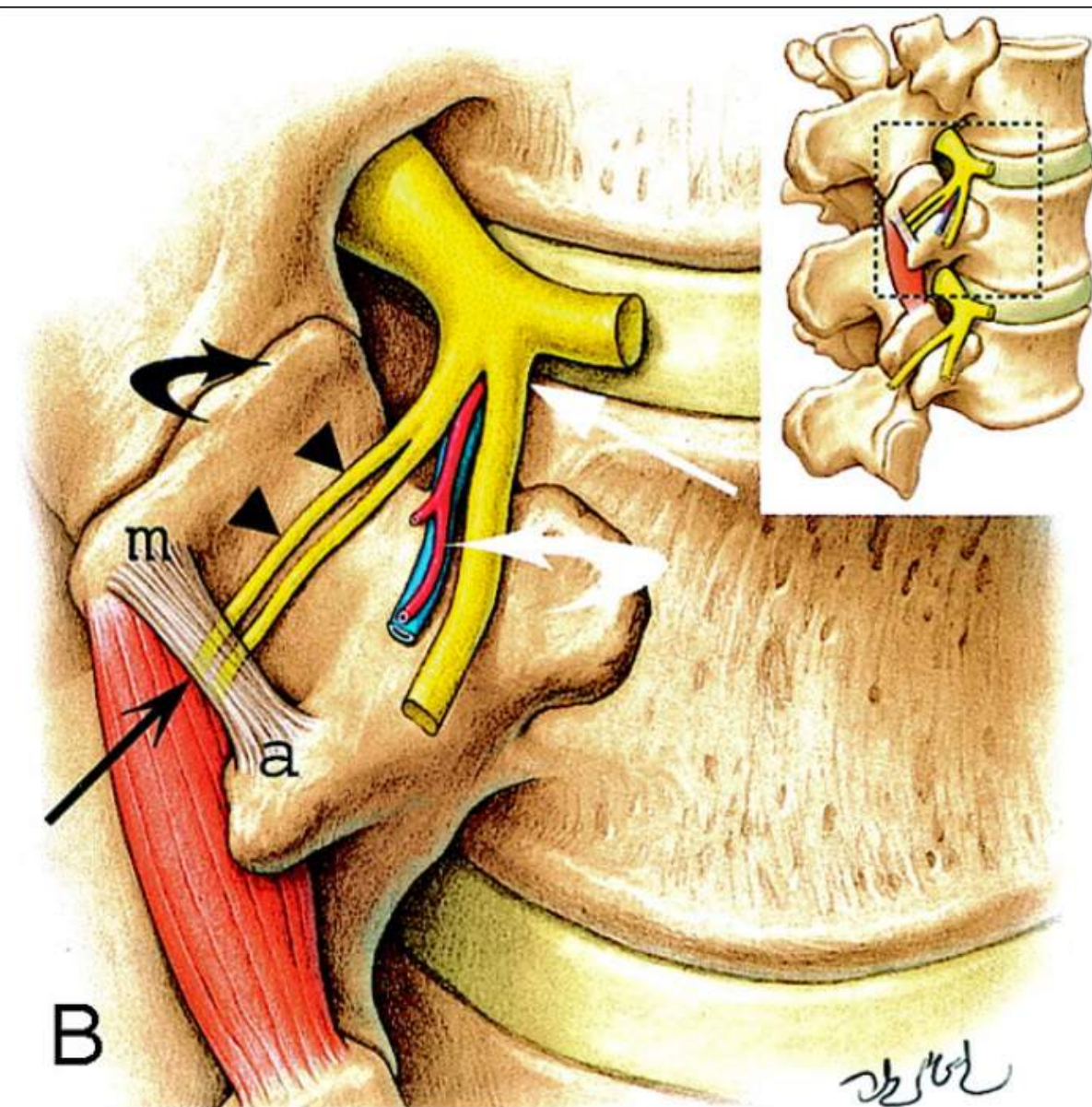
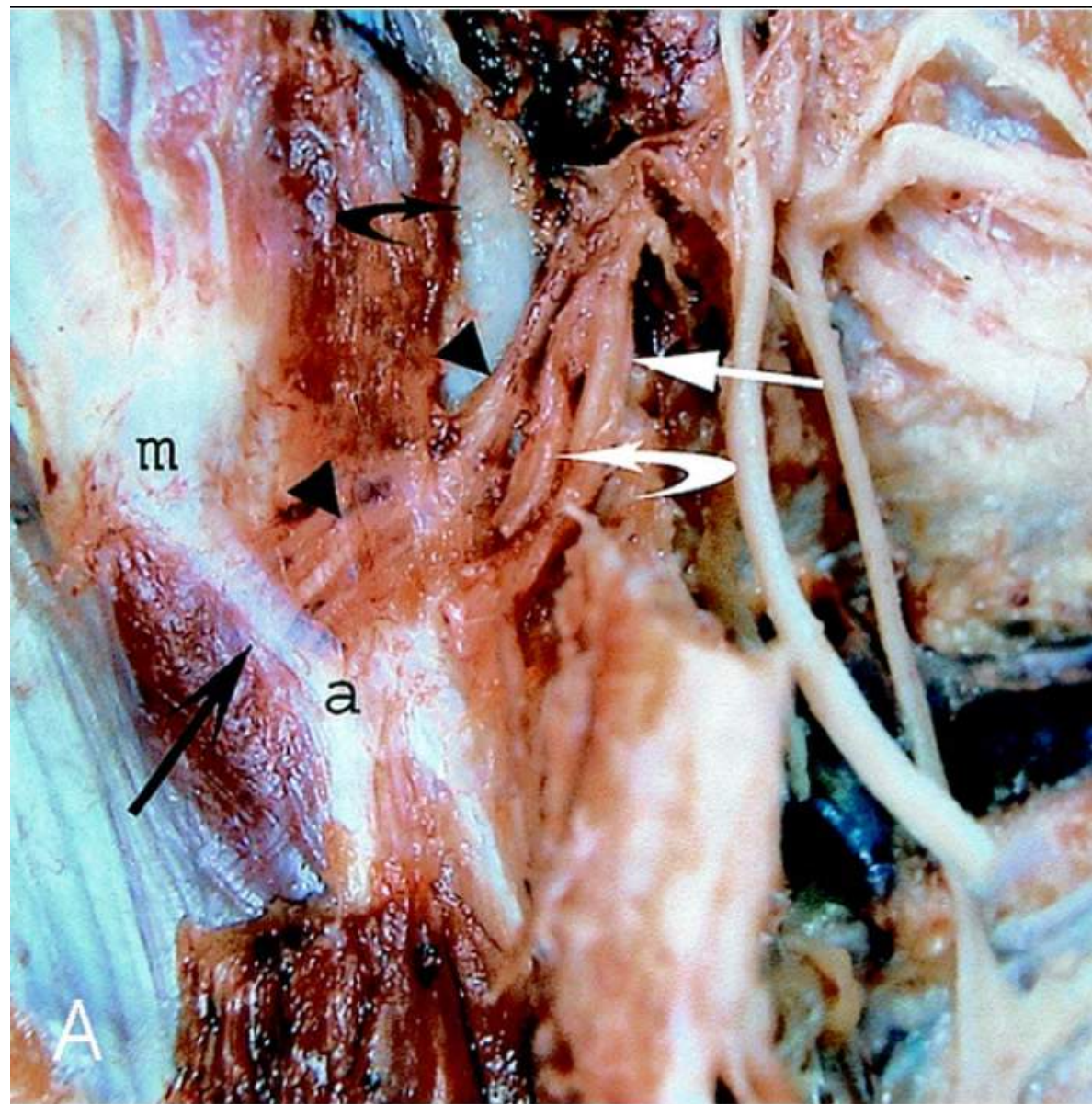


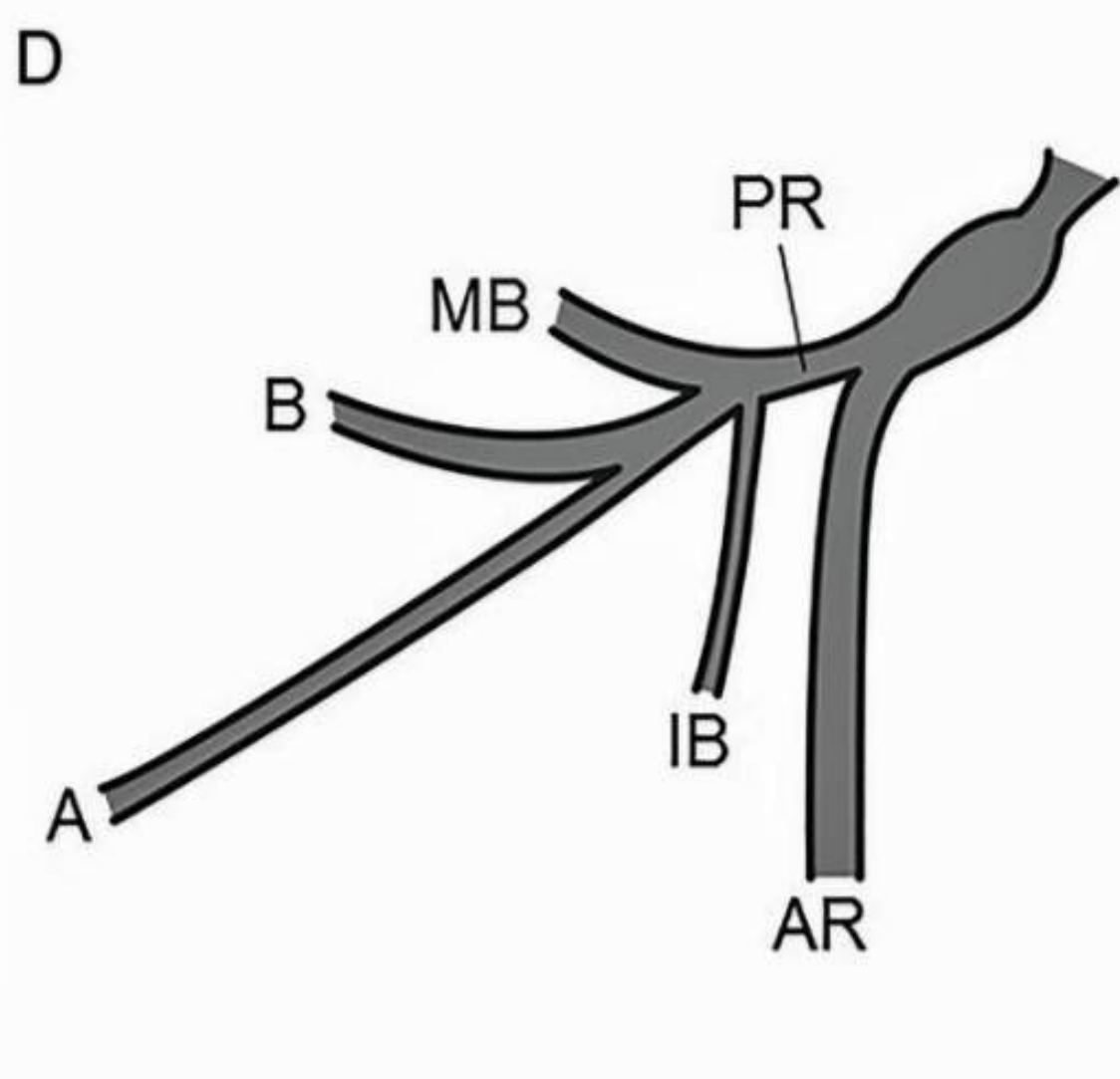
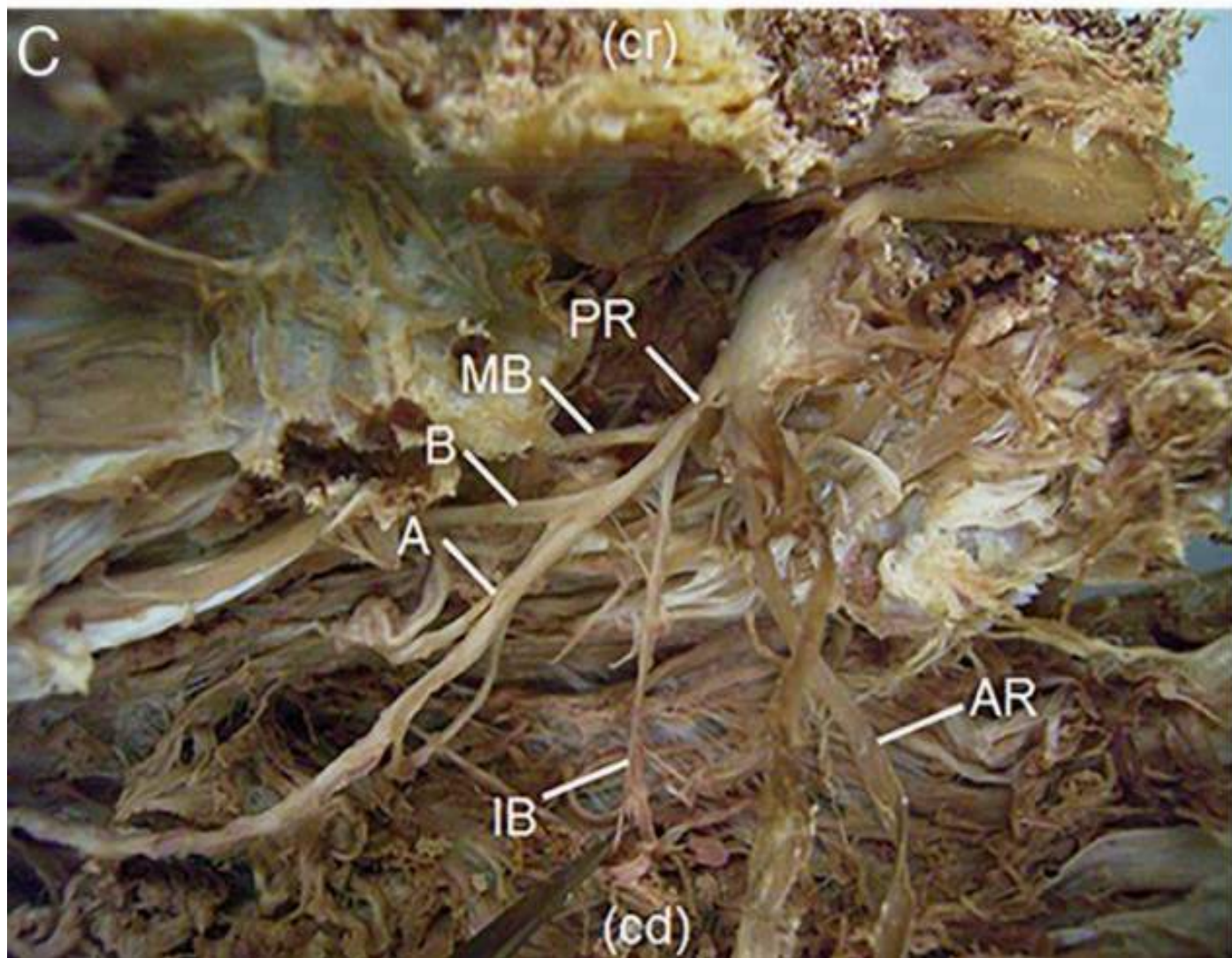
— DPR3

©MMG 2006

400x400 - 27.2kB - San Diego Facet Joint Rhizotom...
<http://www.jurewitz.com/personal-injury/facet-join...>



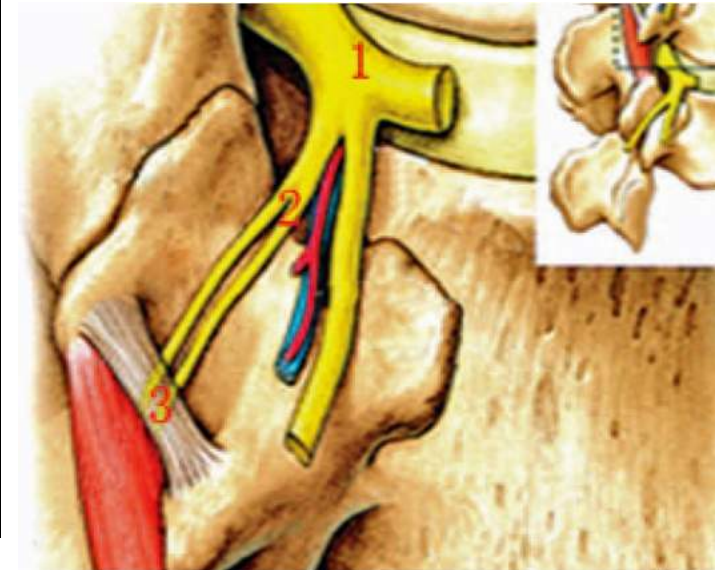




Rhizotomy



RHizolysis



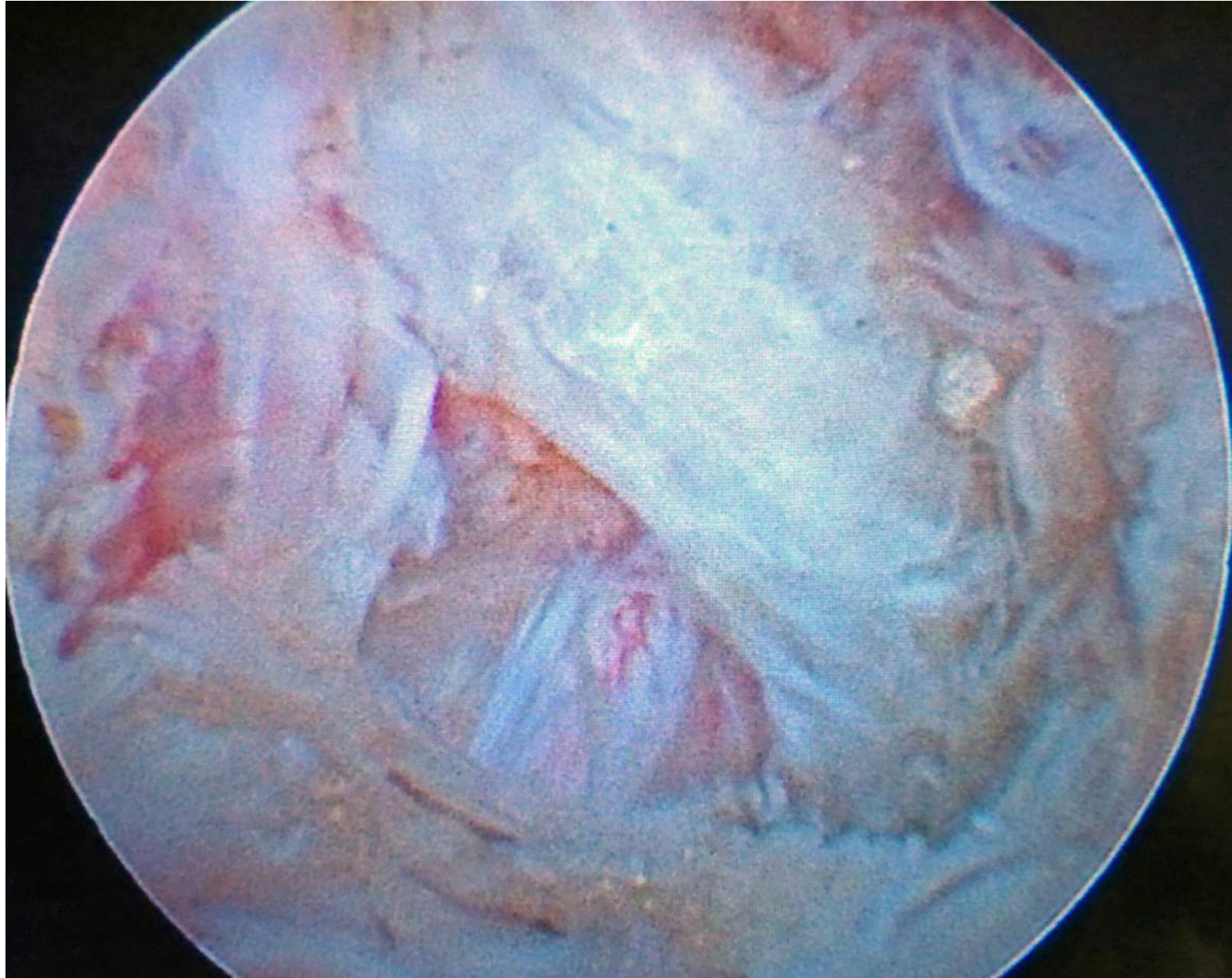
47歳女性

両臀部痛

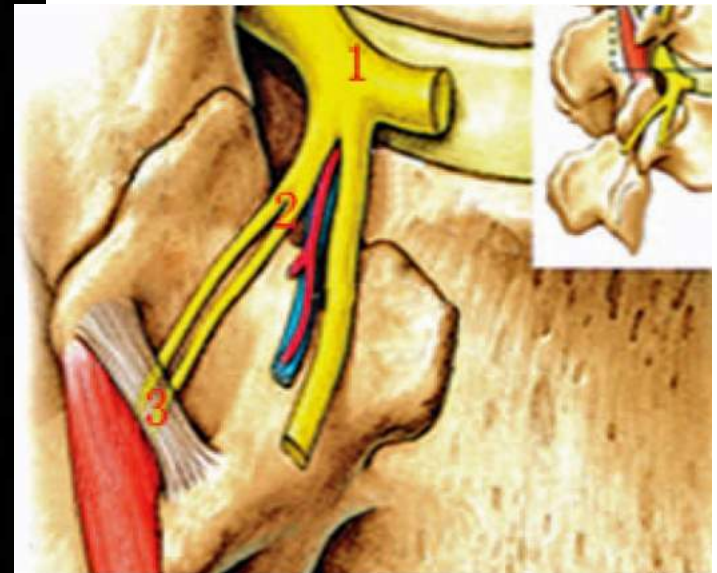
下肢に関連痛

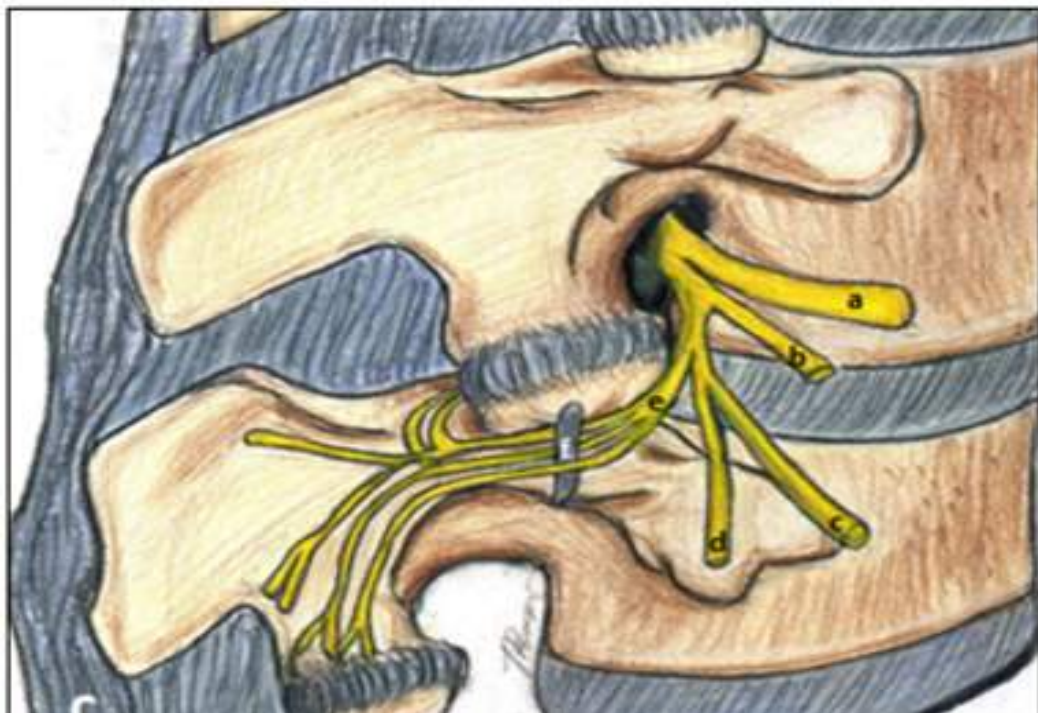
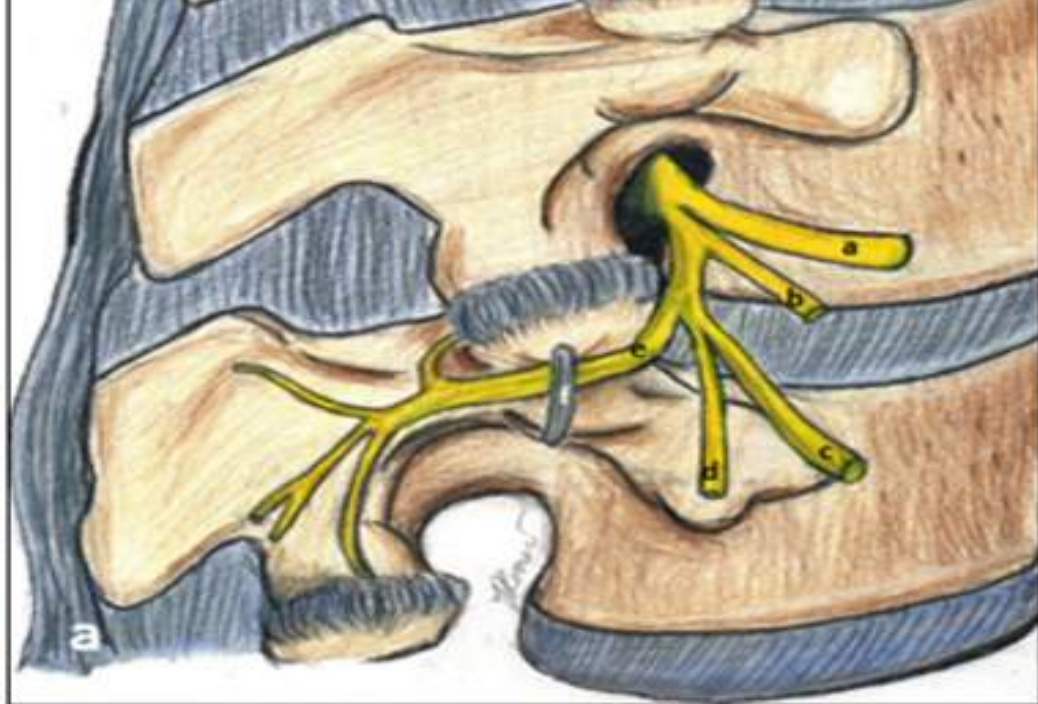
Kempサイン陽性

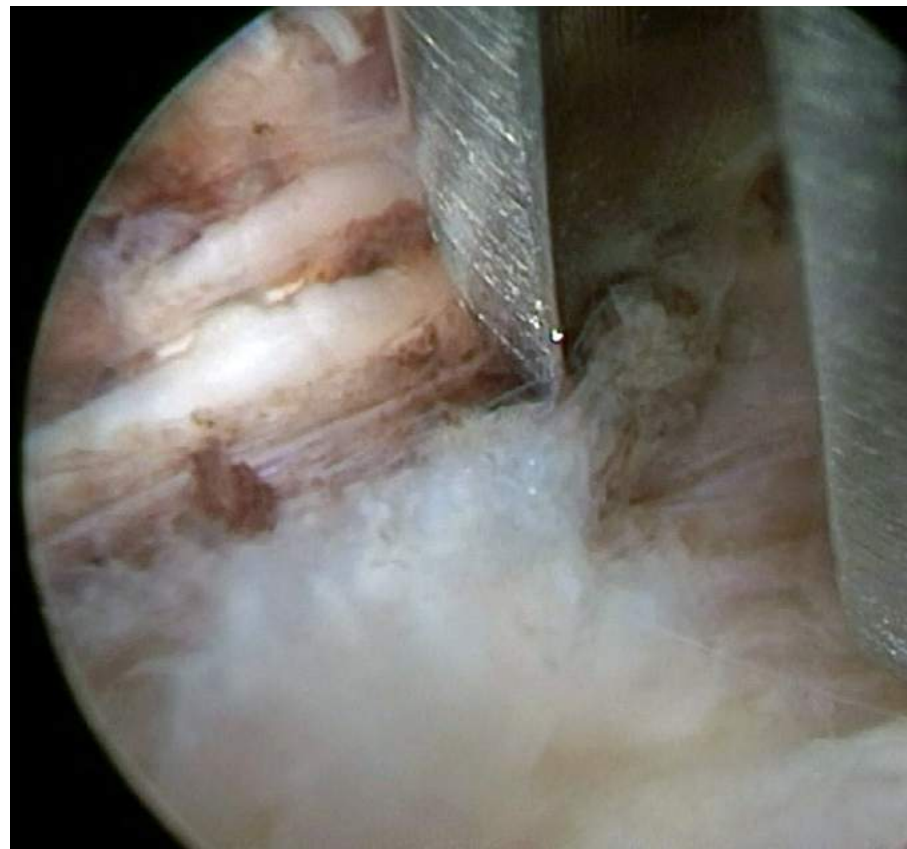
MRI 正常





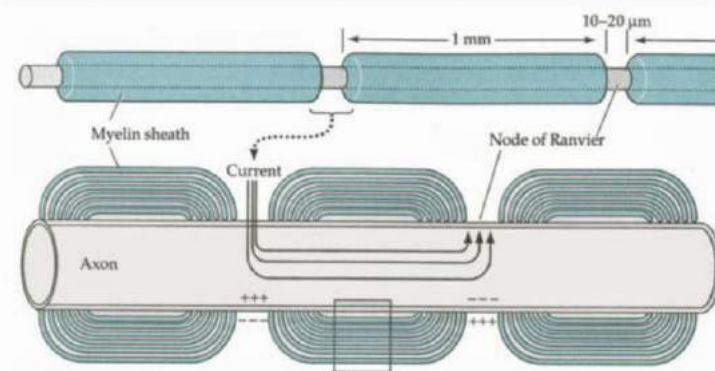






活動電位の伝導

有髄神経 → ランビエ絞輪を飛び飛びに伝わる



The Medial Branch

- The medial branch originates from the stem of the PRSN on the superior side of the transverse process of the lower vertebra as the other two branches do. After the origin, the medial branch takes a posteromedial direction. After passing through the area posterior to the origin of the transverse process, the branch always passes on the bony floor under the **mamilloaccessory ligament**. Then, it delivers branches to the upper and lower facet joints before **providing branches to the multifidus muscle**. The mamilloaccessory ligament is a collagen-rich part of the origin of the **longissimus and iliocostalis muscles**. The ligament covers, fixes, and protects the medial branch as a strong bundle, which contains the medial branch in a fat tissue cover. The medial branch supplies motor fibers to the multifidus muscle while it runs along the spinous process and interspinous ligament in the multifidus muscle. The extension of the main stem of the medial branch produces fine branches in the subcutaneous region to supply the cutaneous region near the midline. The close region of the skin to the midline is bilateral supply.

Rhizotomy

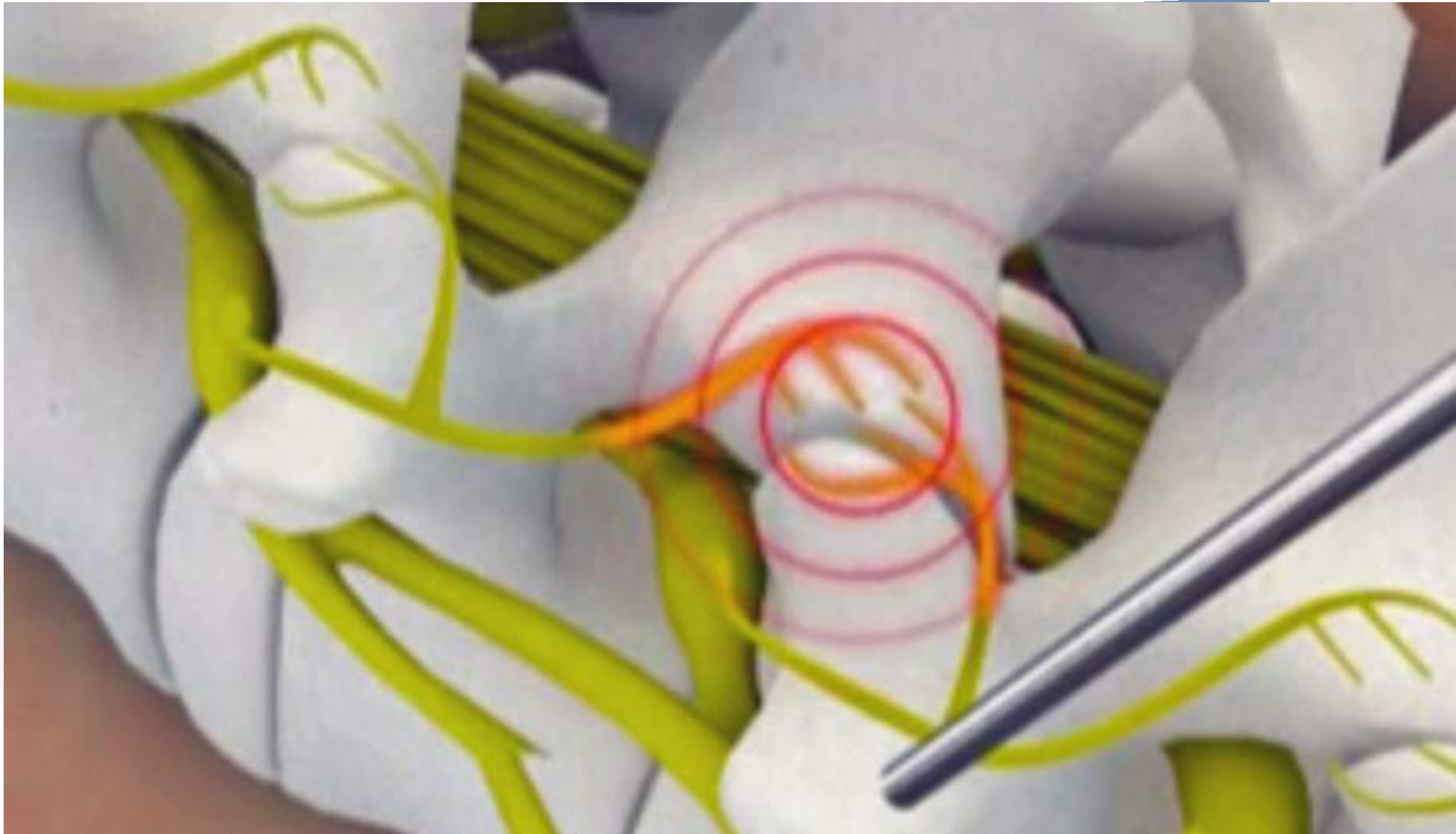




図1 後枝内側枝の関連痛のパターン

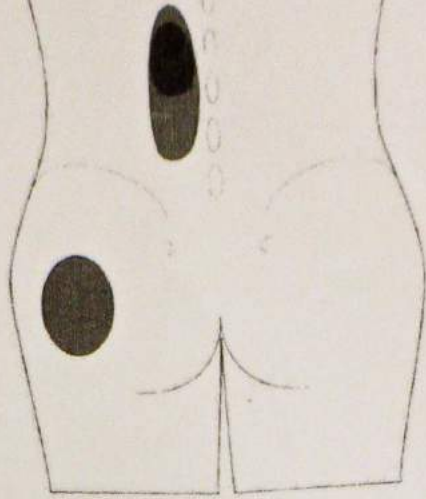


図2 L2 後枝内側枝の関連痛のパターン

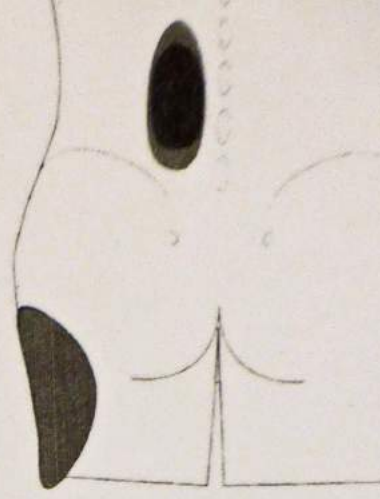
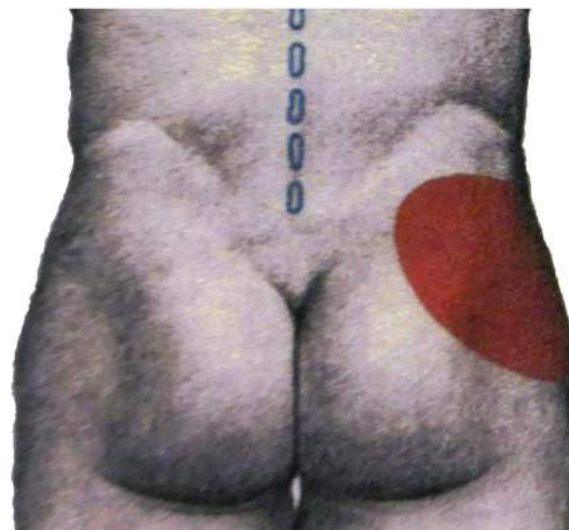
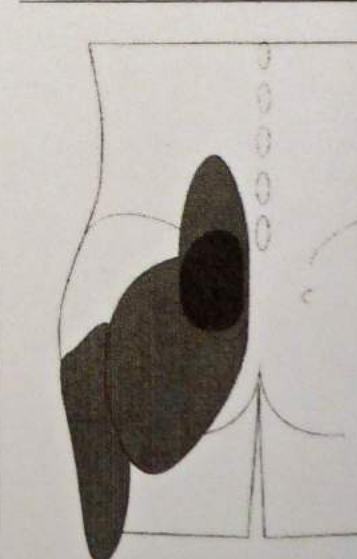
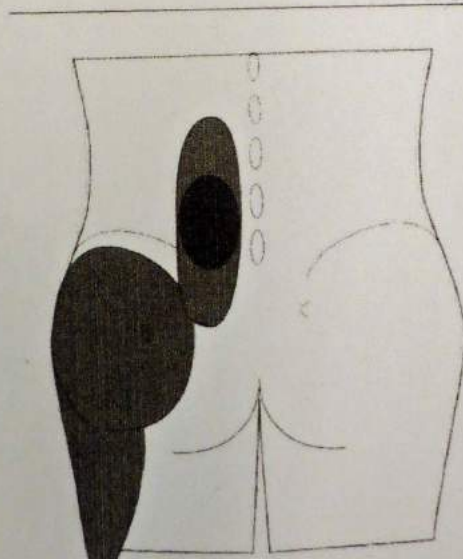
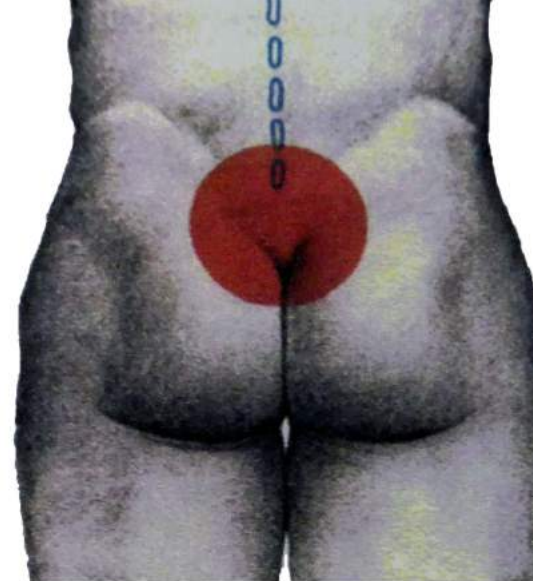
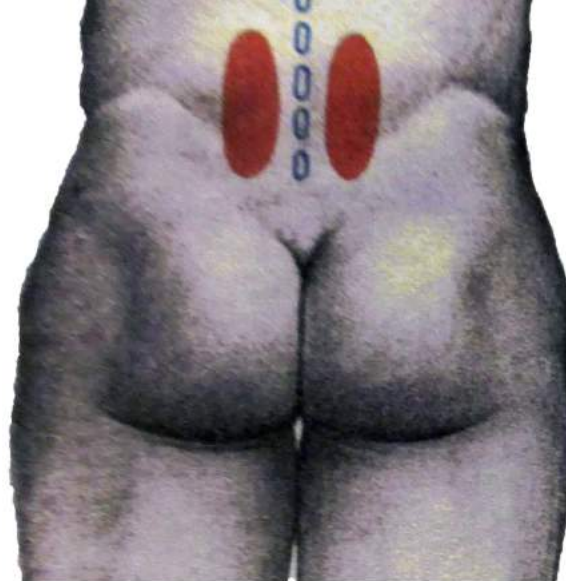
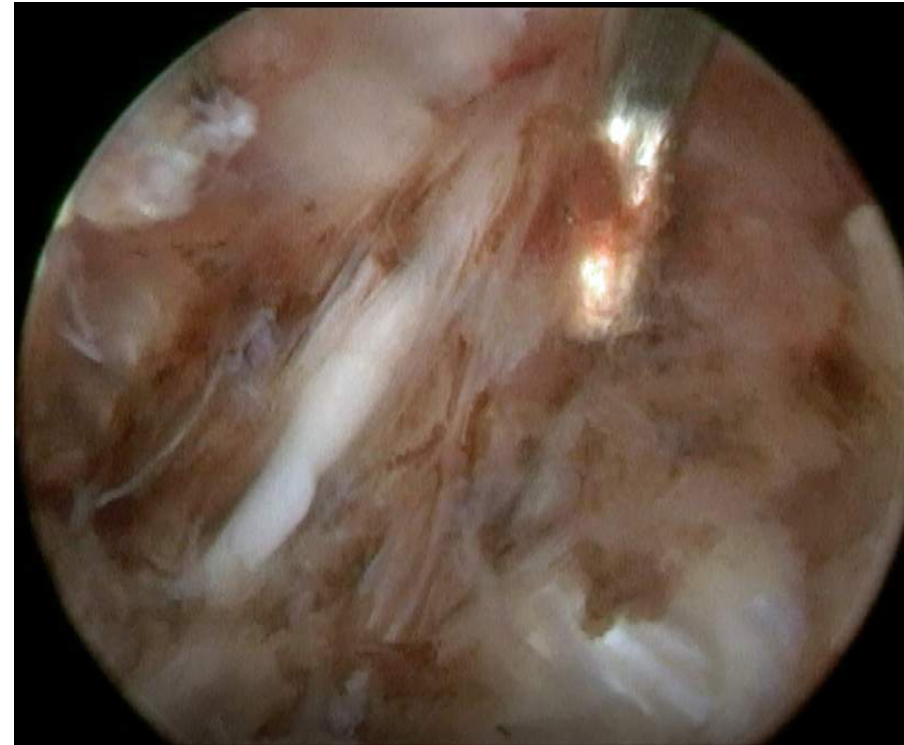
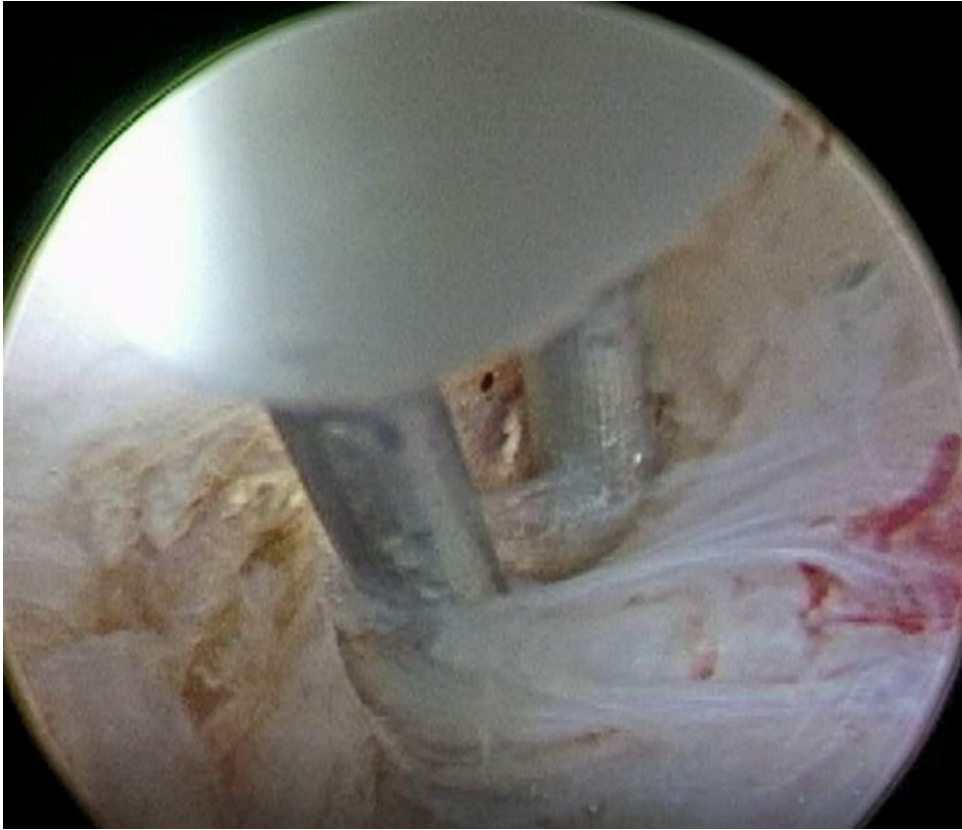


図3 L3 後枝内側枝の関連痛のパターン

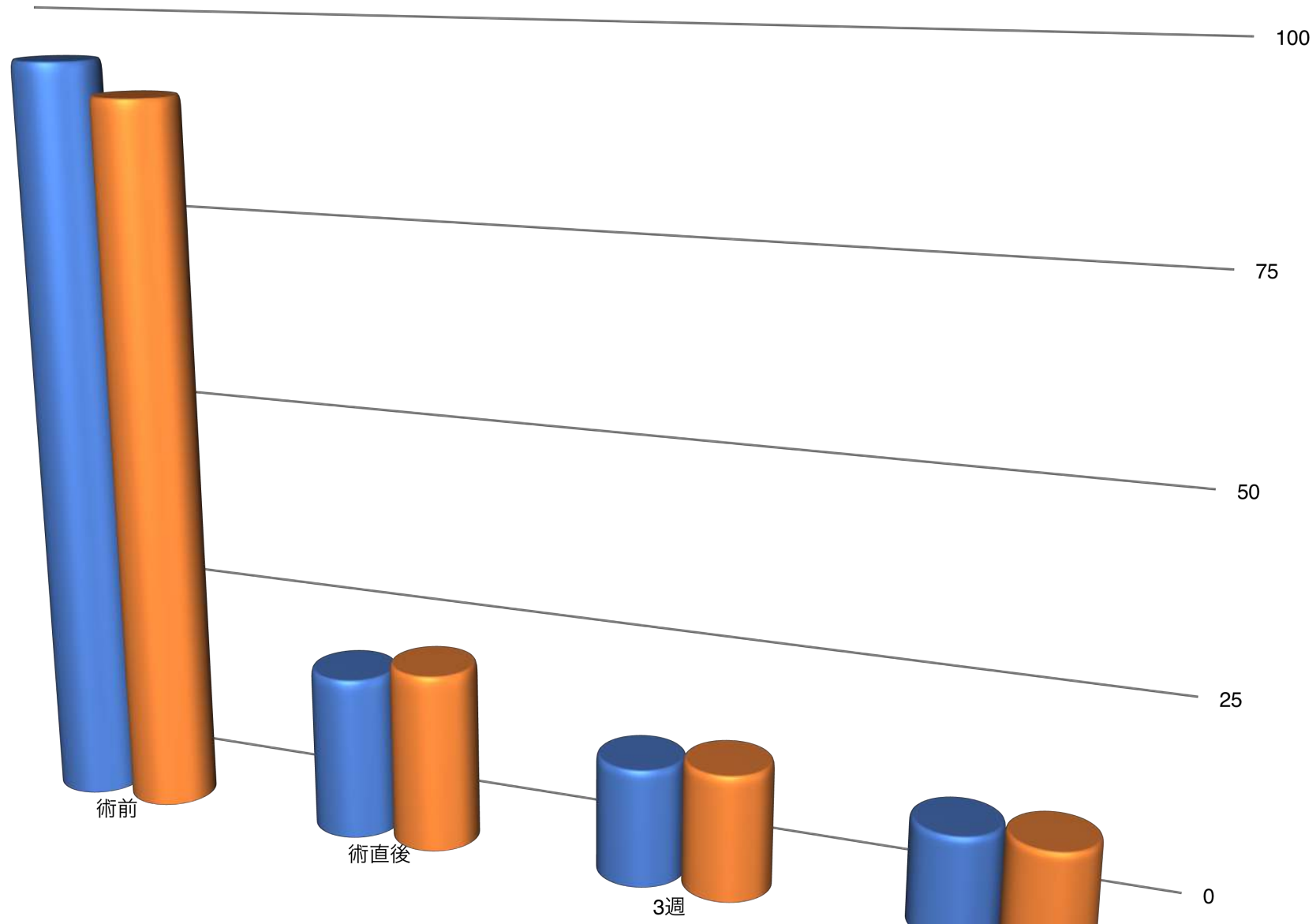


Rhizotomy

Rhizolysis

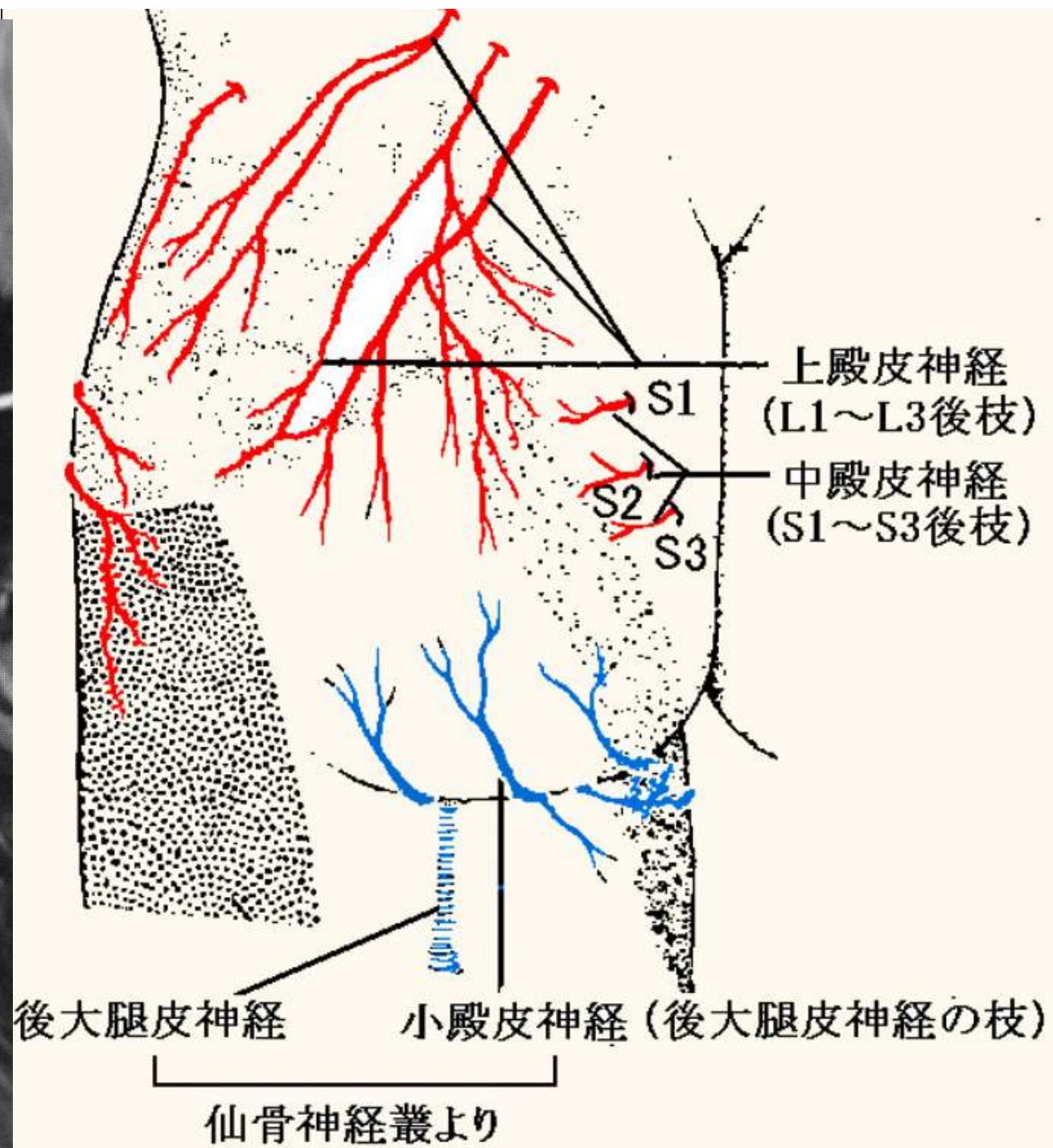
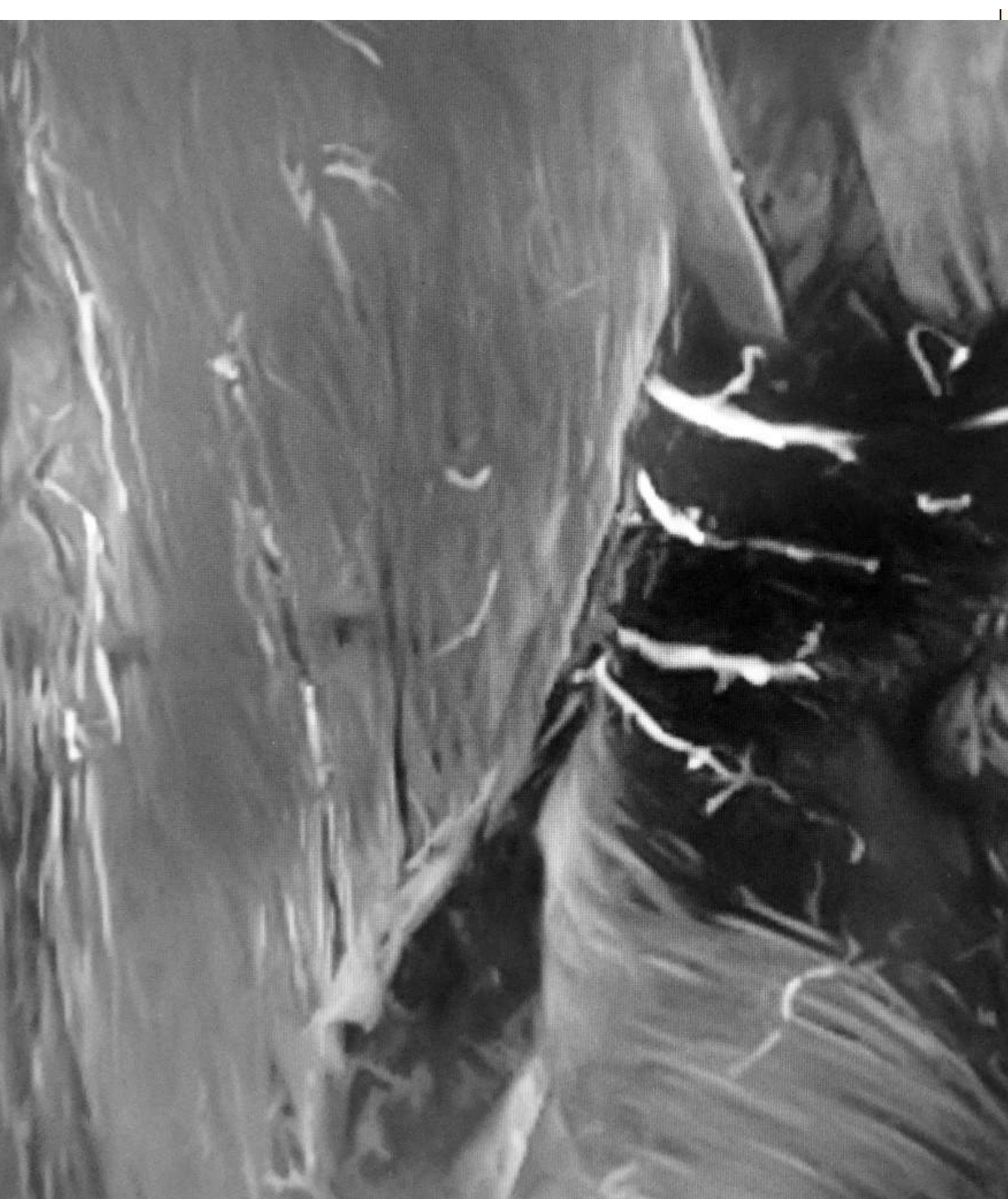


Outcome between Rhizolysis & Rhizotomy



Structural sources of low back pain

- 1. Zygapophyseal joint
- 2. **S C N (superior cluneal nerve) 上殿皮神經**
- 3. Transverse run of nerve root
- 4. Piriformis synd
- 5. Sinuvertebral nerve
- 6. segmental vessel
- 7. anomaly of nerve
- 8. muscle of back (M. Multifidus)



pathoanatomy

- Tholacolumbar fascia
- Artery
- Osteofibrous tunnel



日付 / 時間

04-24-2018 / 08:42

姓

名

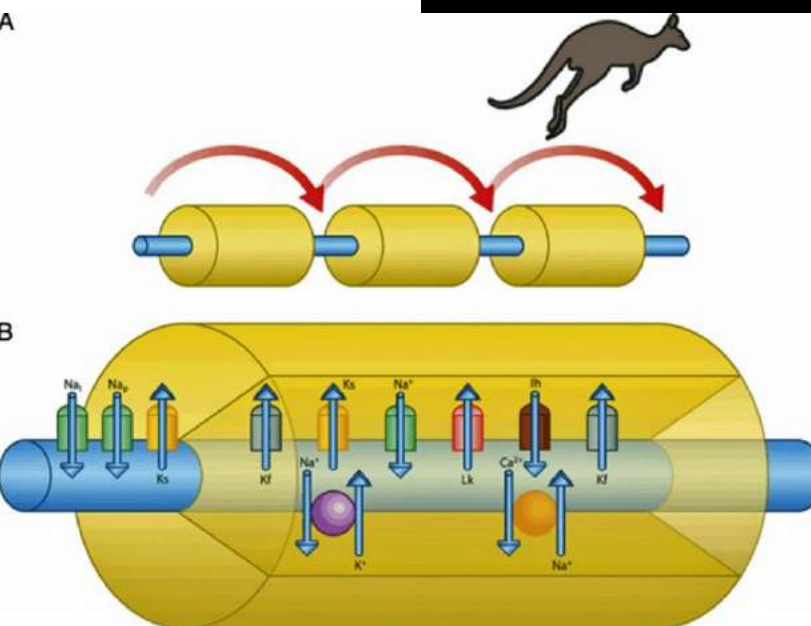
生年月日

患者 ID

性別

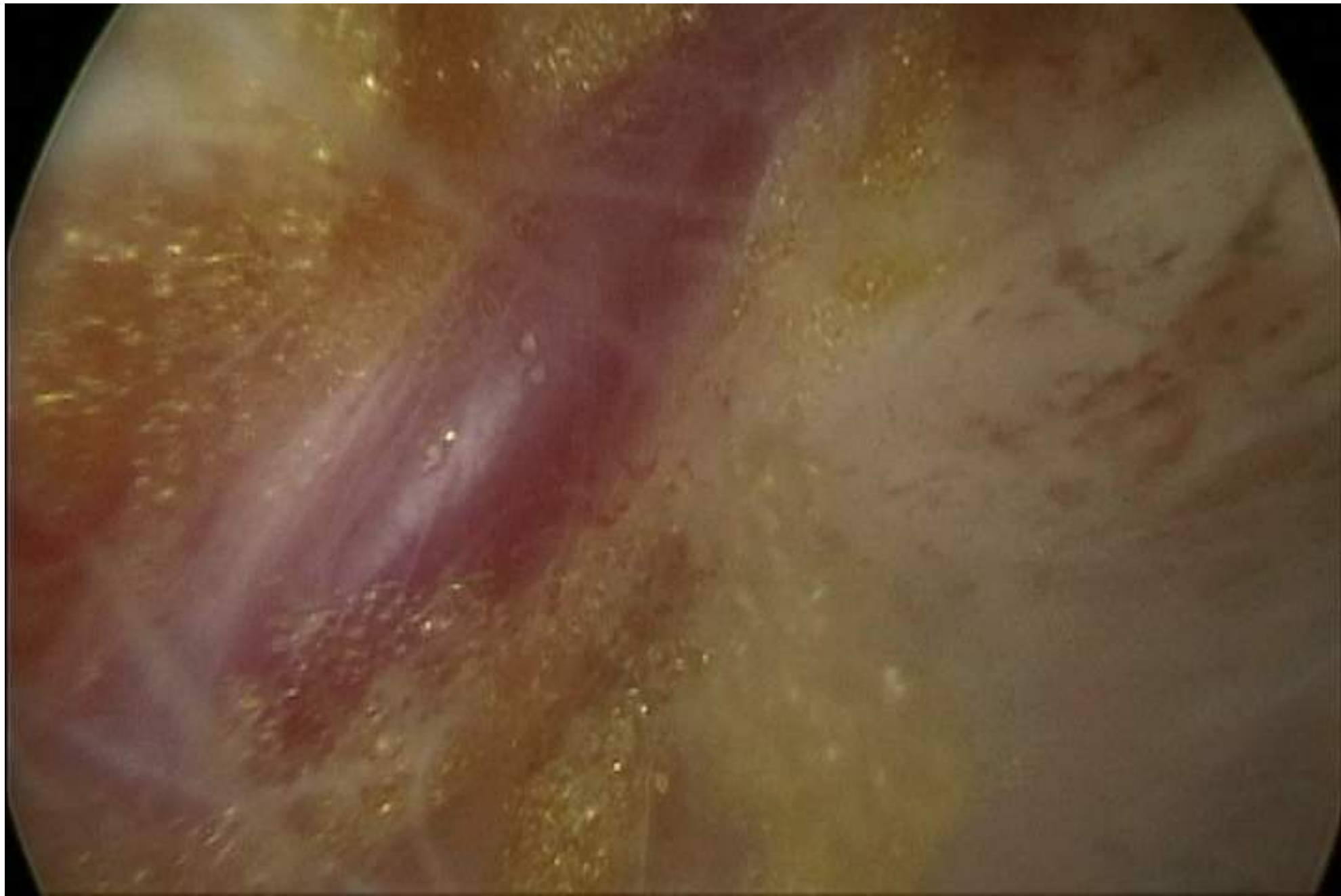
コメント

病院名



pathoanatomy

- Tholacolumbar fascia
- Artery
- Osteofibrous tunnel



pathoanatomy

- Tholacolumbar fascia
- Artery
- Osteofibrous tunnel