Douleurs Périnéales Neurogènes

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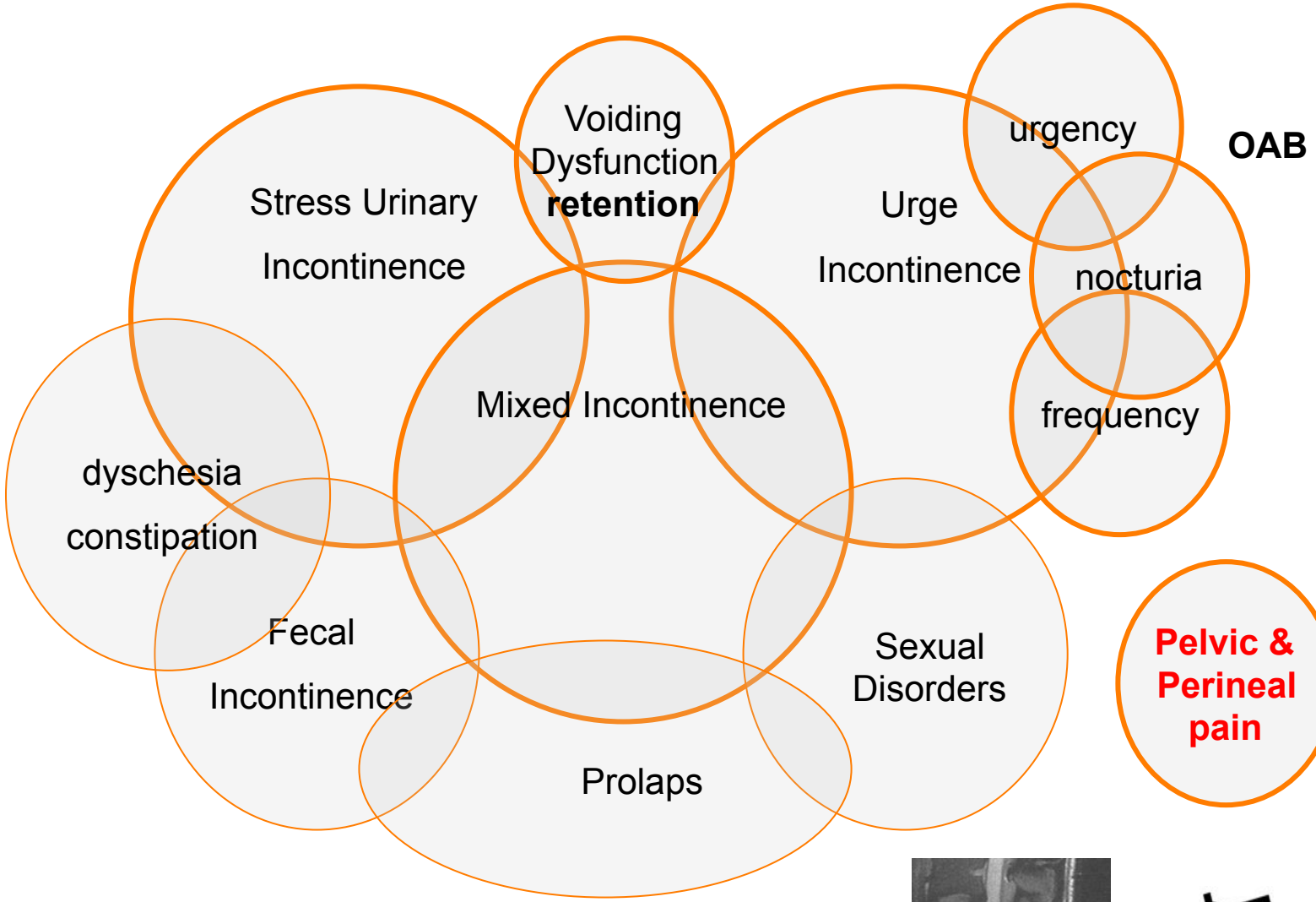
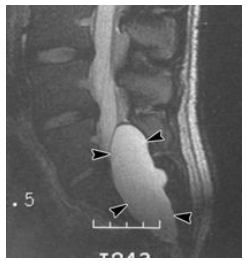
DIU Neuro-Urologie 2013-2014



- Perineal Pain very frequent
- urinary, rectal, sexual symptoms : **often intricated** +++
- Remark: **psychogenic component**
- due to : mechanical (urogynecological) or neurological alterations

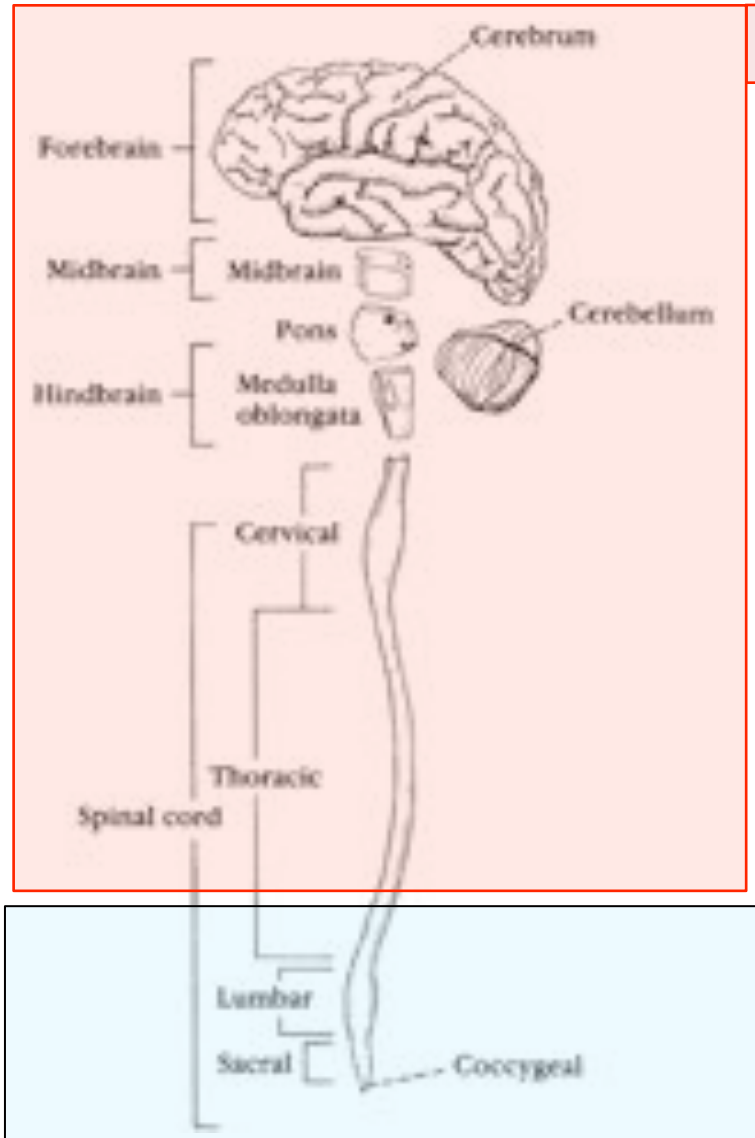


necessary to take in account both etiologies and Quality of life

Central nervous system

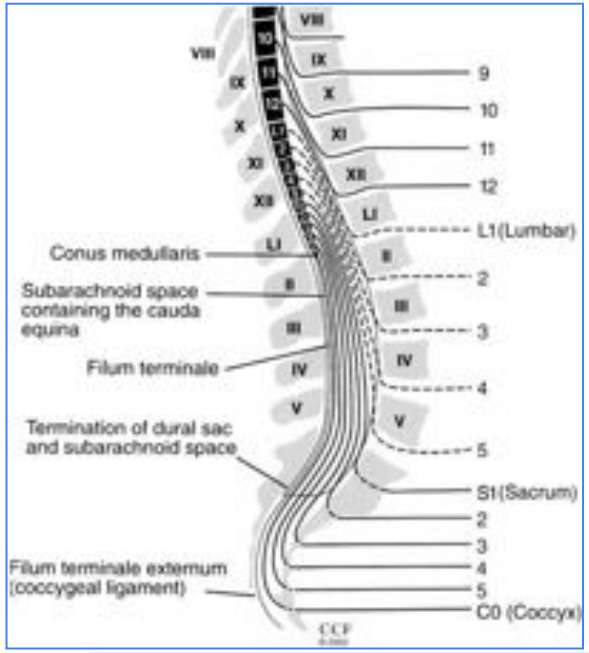
Anatomy of nervous system

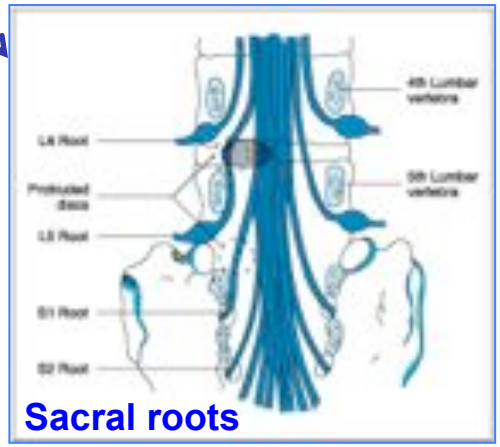
Nervous system split in central/peripheral levels



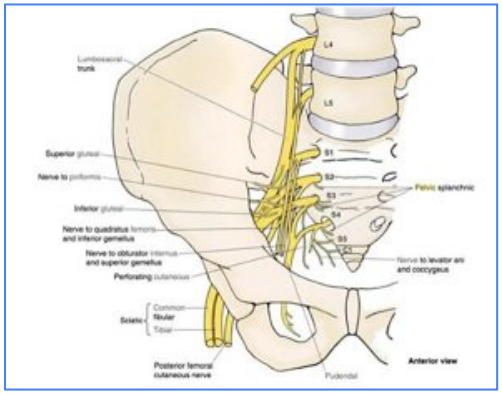
Peripheral nervous system

Includes : plexus, roots, sacral spinal cord, peripheral nerve (pudendal nerve)



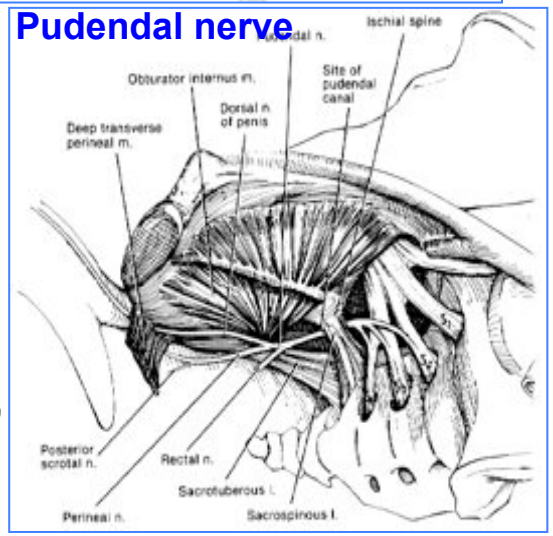


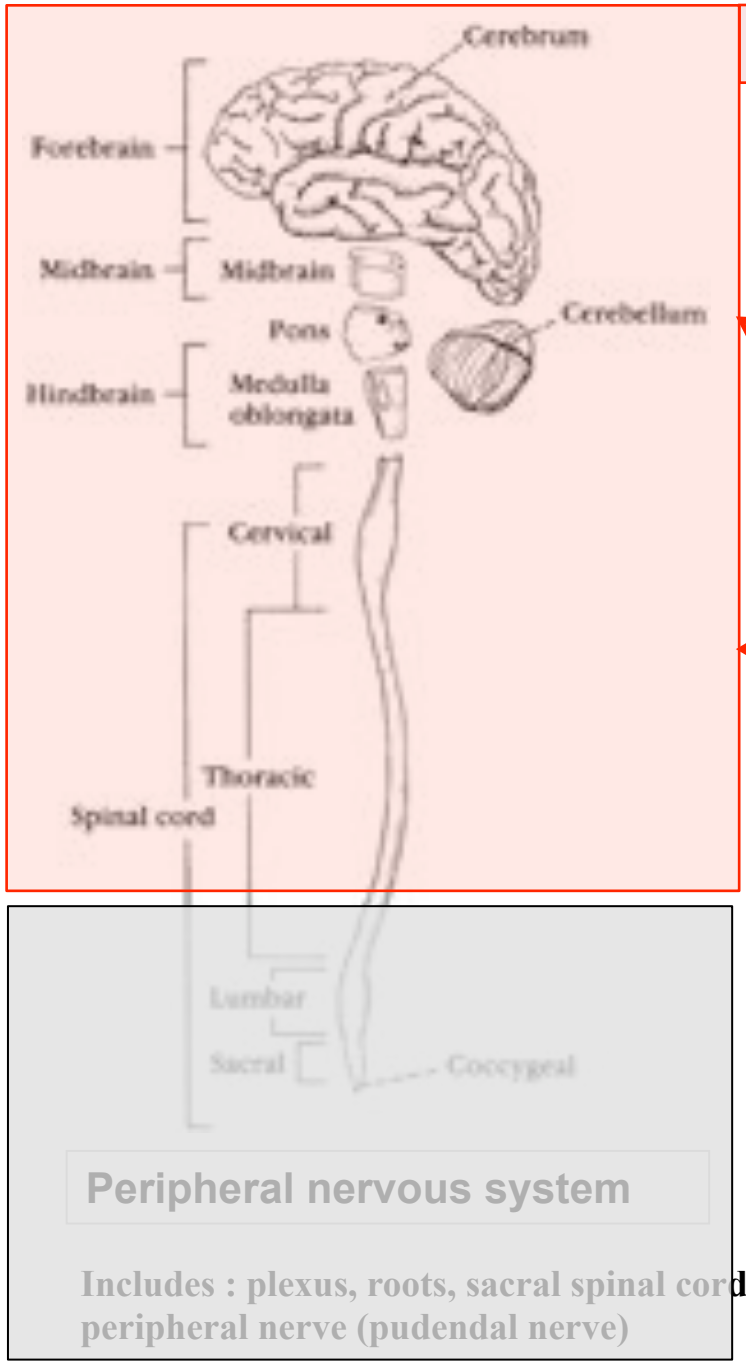
Sacral roots



Sacral plexus

Pudendal nerve



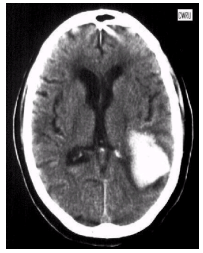


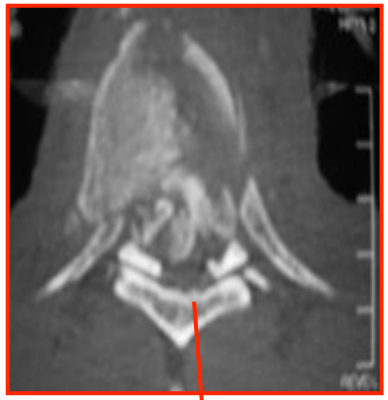
Central nervous system

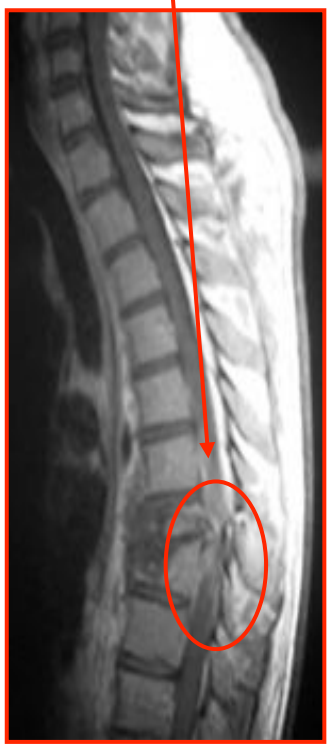
Brain lesions :
- stroke
- Parkinson
- tumors
- infectious (abscess, encephalitis,...)
- trauma

Spinal cord lesions :
- vascular
- trauma (SCI)
- tumors
- infectious (abscess, myelitis,...)
- MS
- arthrosis

Etiologies of perineal pain in central nervous system lesions





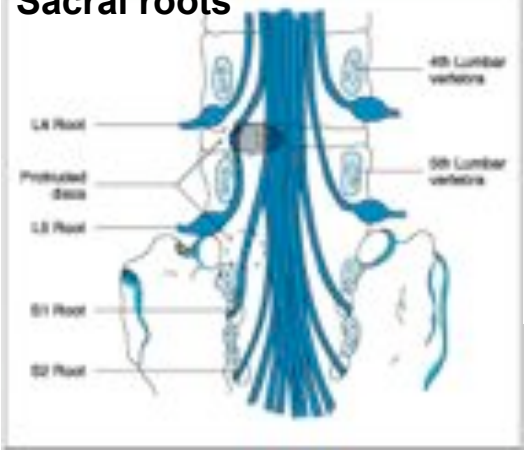


Peripheral nervous system

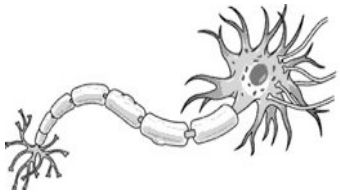
Includes : plexus, roots, sacral spinal cord, peripheral nerve (pudendal nerve)

Etiologies of neurogenic perineal pain in peripheral nervous system lesions

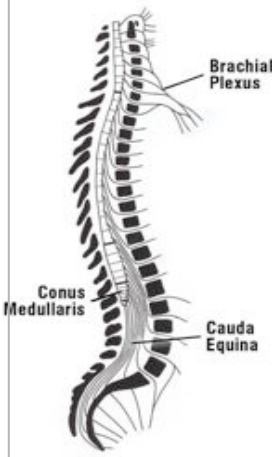
Sacral roots

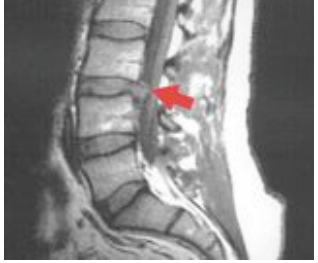


Peripheral neuropathies

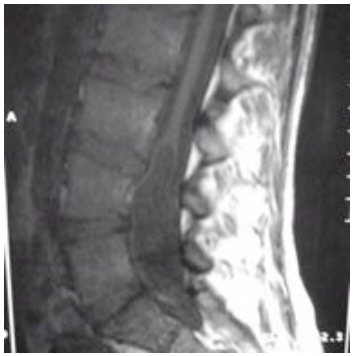


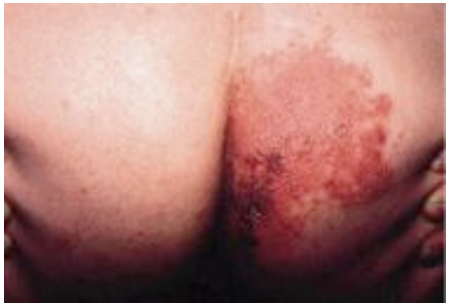
Disk herniation





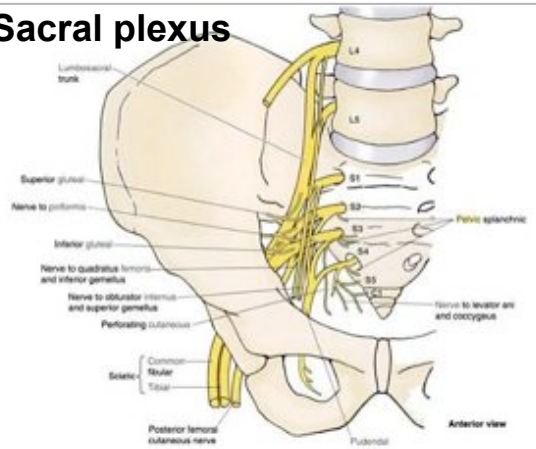
Spinal tumors



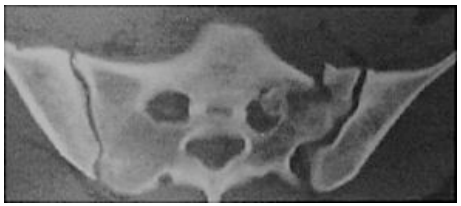


sacral myelitis (herpes zoster, Lyme …)

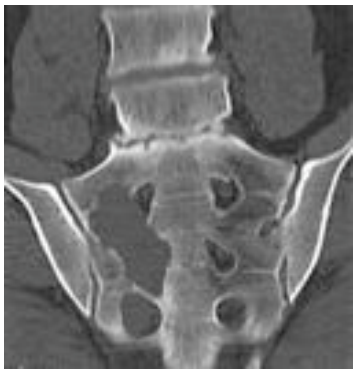
Sacral plexus



sacral plexus injury (traumatic, radiotherapy, tumors)

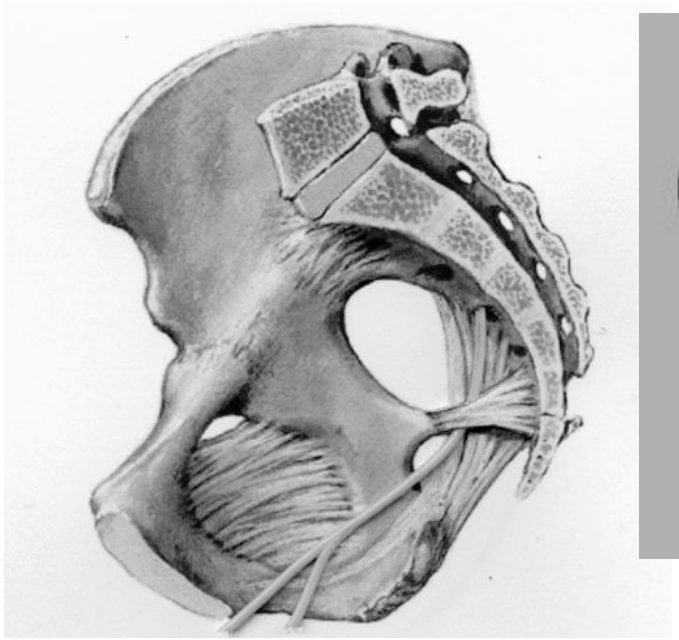


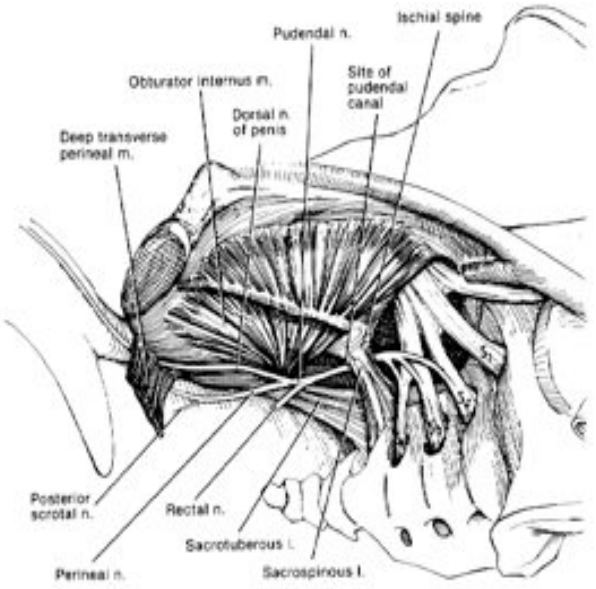
Sacrum fracture

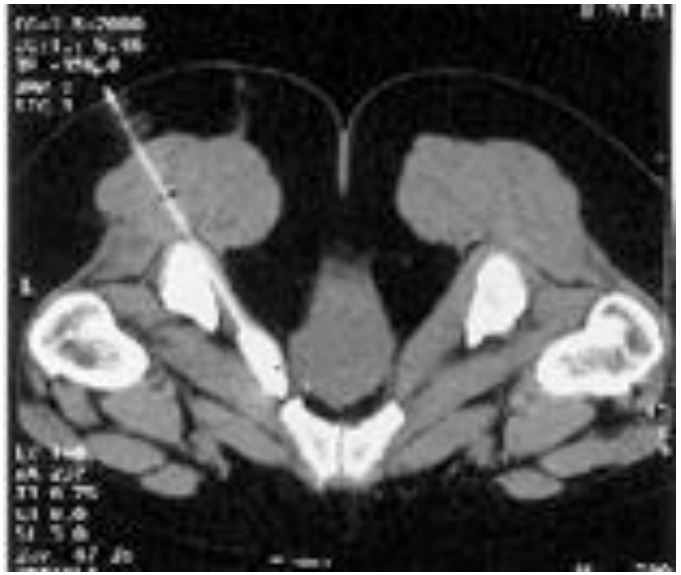


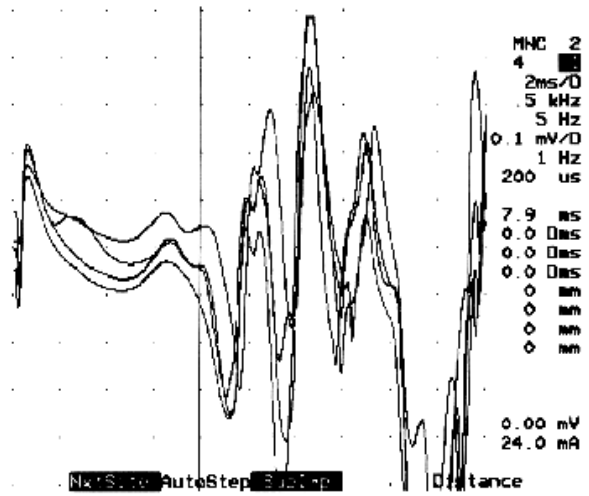
Sacral tumors

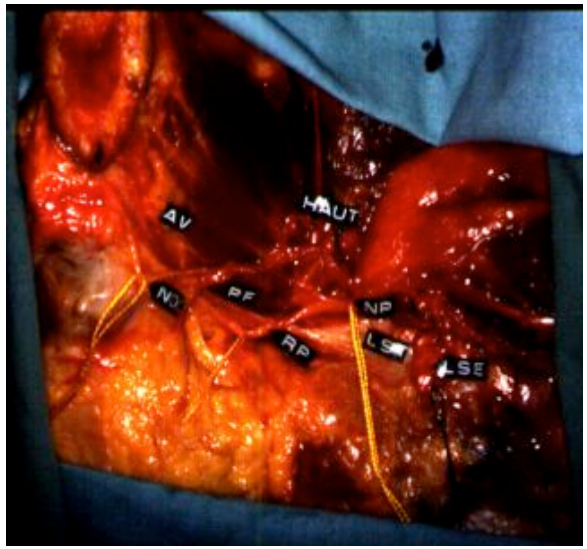
Pudendal Neuralgia





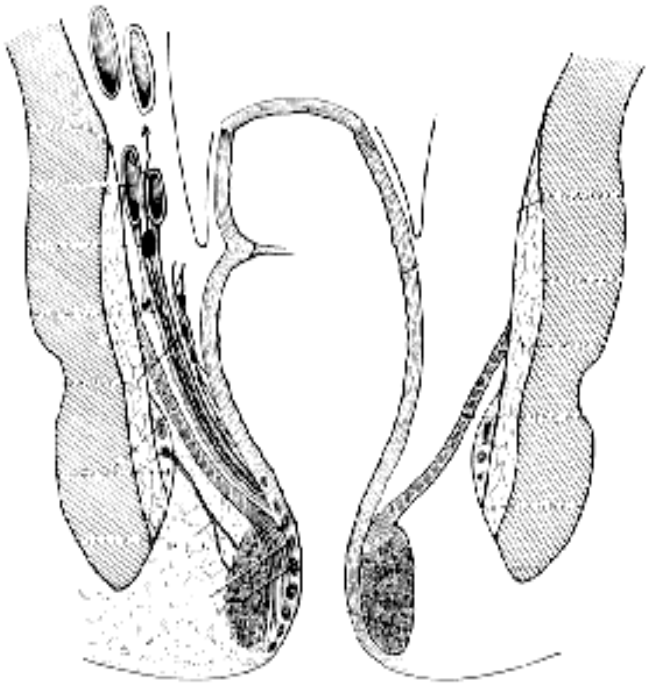


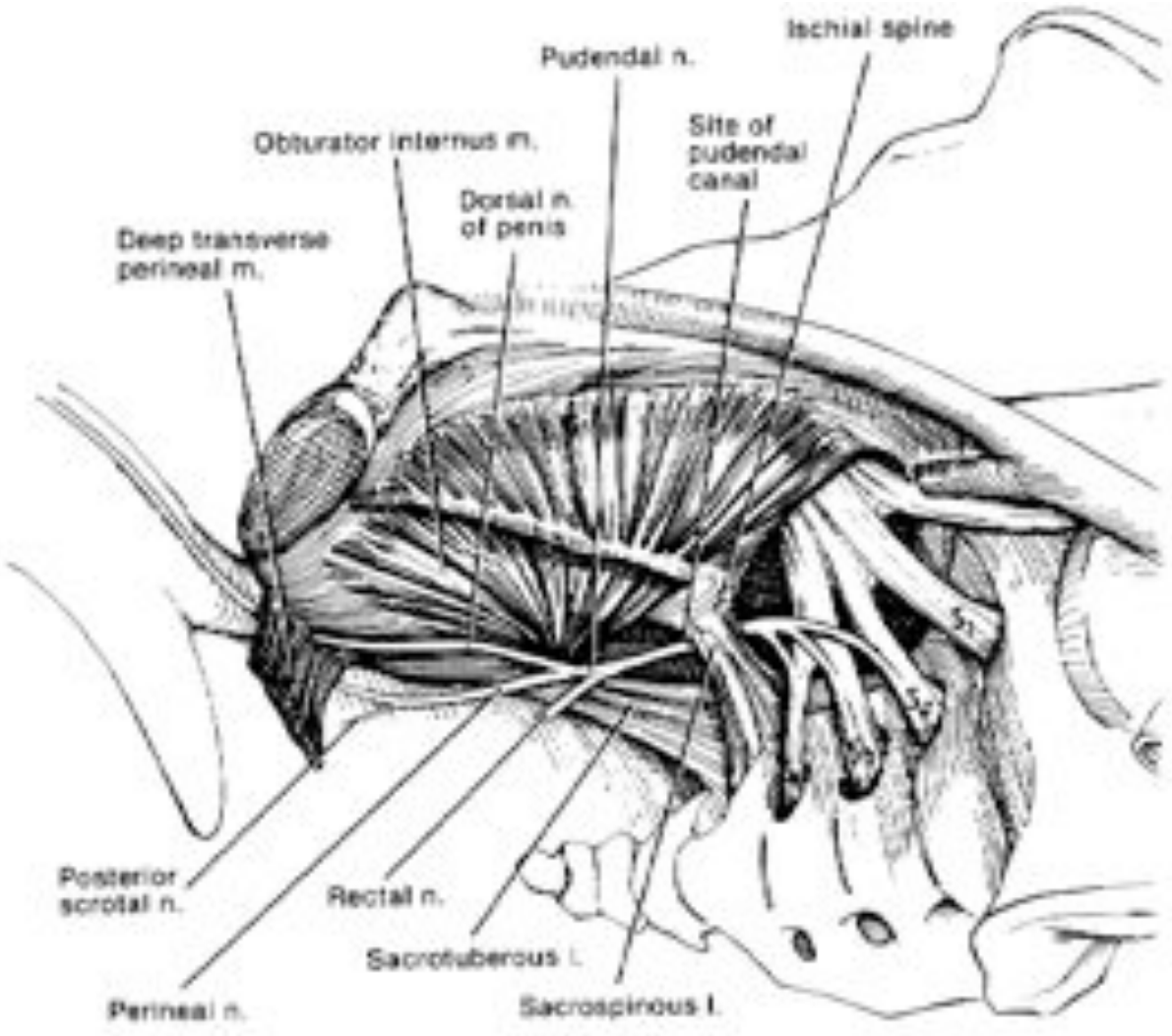




Sites of compression …

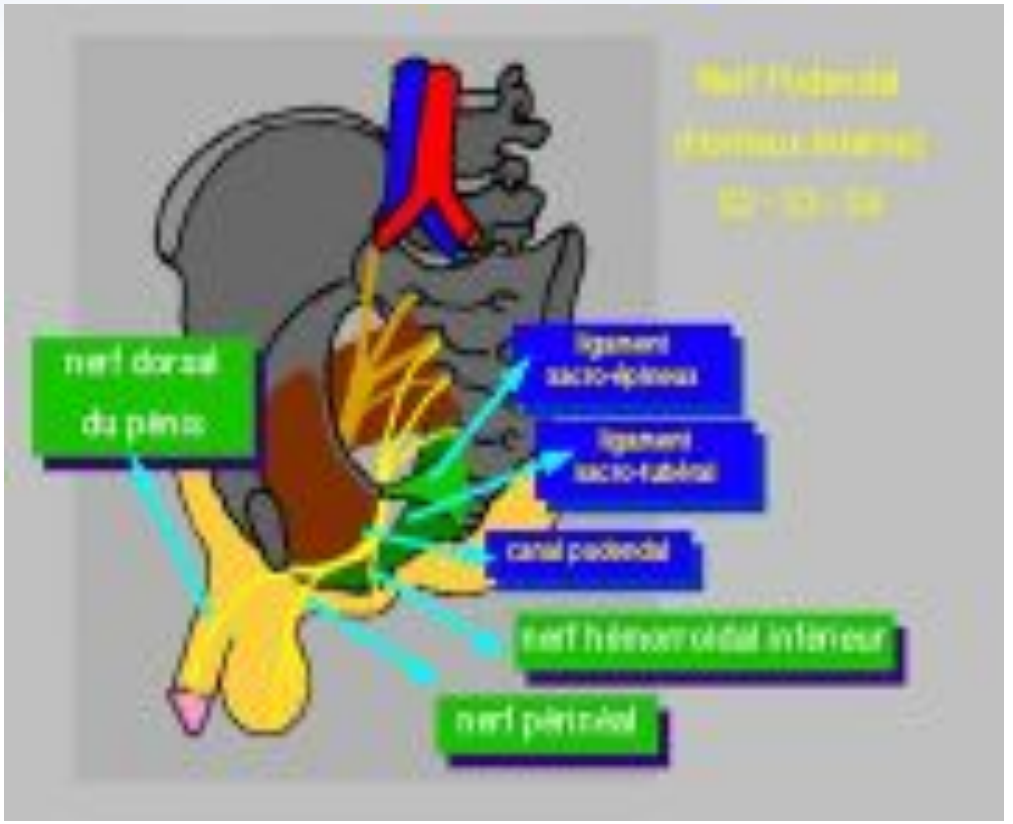
- Ischial spine
- Alcock pudendal canal





nerf pudendal: sites de conflits

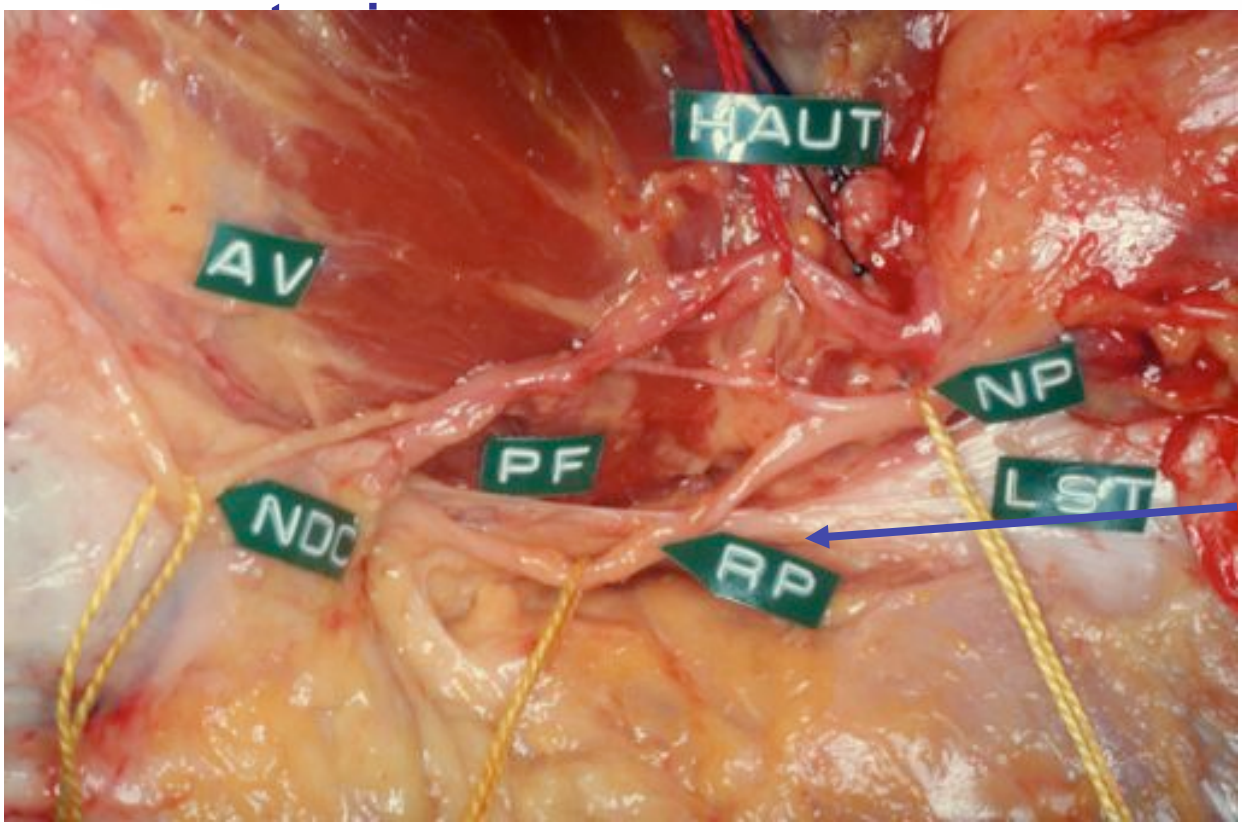
- **Le canal sous piriforme: conflit possible également avec le tronc sciatique**
- **L'épine sciatique: conflit dans la pince ligamentaire entre ligaments sacro-épineux et sacro tubéral**
- **Le canal pudendal d'Alcock: fibrose de l'aponévrose de l'obturateur interne, conflit avec le processus falciforme du ligament sacro-tubéral**
- **Nerf dorsal de la verge ou du clitoris: canal sous pubien**



- **Un facteur aggravant: l'hyperpression périnéale**

- **Physiopathologie de la douleur: perte de mobilité du nerf**

La névralgie pudendale



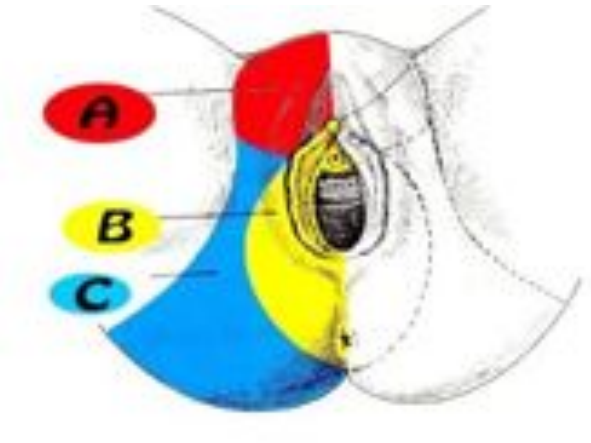
Toute perte de mobilité du nerf pudendal favorisera l'écrasement du nerf sur le prolongement falciforme du ligt sacro-épineux lors de la station assise

Névralgie pudendale

- Historique:
  - 1987 G Amarenco : douleurs périnéales du cycliste: hypothèse d'une compression du nerf pudendal dans le canal d'Alcock
  - 1989 dissections anatomiques: le nerf pudendal est un nerf exposé à la compression et à la perte de mobilité, corrélations cliniques
  - 1989 possibilités de libérer chirurgicalement le nerf confirmant un syndrome canalaire
  - 1991 possibilité d'infiltrations
  - 2005 protocole chirurgical randomisé: preuve du bénéfice de la libération chirurgicale du nerf
  - 2008 critères consensuels de syndrome canalaire du nerf pudendal
  - 2012: protocole de recherche clinique national, visant à évaluer la vraie valeur des infiltrations

Clinical signs are the major criteria

- Pain in pudendal nerve aera
- Pain increases in sitting position
- Without awakening
- Without objective loss of sensibility
- Positive block test



Nantes criteria …

Questionnaire DN4

Répondez aux 4 questions ci-dessous en cochant une seule case pour chaque item.

INTERROGATOIRE DU PATIENT

Question 1: La douleur présente-t-elle une ou plusieurs des caractéristiques suivantes?

	oui	non
1 - **Brûlure**		
2 - **Sensation de froid douloureux**		
3 - **Décharges électriques**		

Question 2: La douleur est-elle associée dans la même région à un ou plusieurs des symptômes suitvants?

	oui	non
4 - **Fourmillements**		
5 - **Picotements**		
6 - **Engourdissement**		
7 - **Démangeaisons**		

EXAMEN DU PATIENT

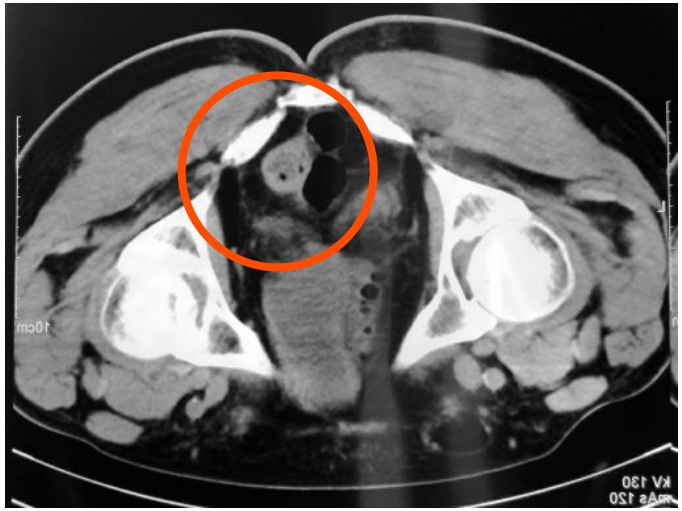
Question 3: La douleur est-elle localisée dans un territoire ou l'examen met en évidence?

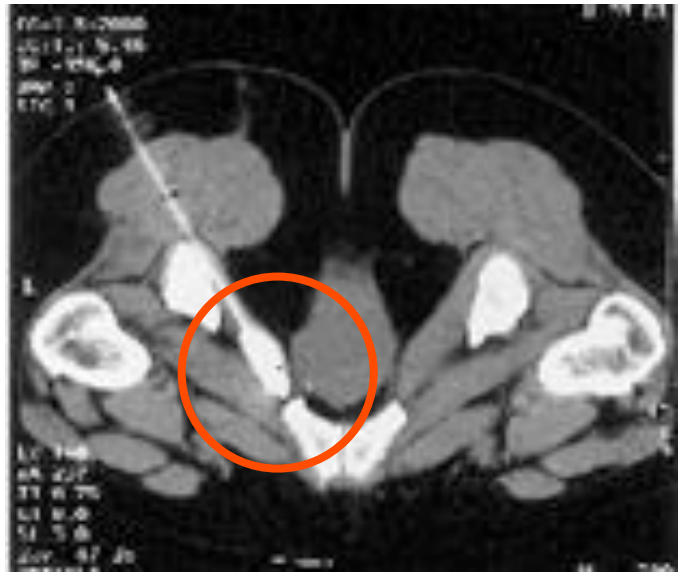
	oui	non
8 - **Hypoesthésie au tact**		
9 - **Hypoesthésie à la piqûre**		

Question 4: La douleur est-elle provoquée ou augmentée par:

	oui	non
10 - **Le frottement**		

*Bloc diagnostic du nerf pudendal





- **Quelque soit la méthode de repérage (radio, scanner, neurostimulation)**
- **Dans le ligament sacro-épineux ou dans le canal d'Alcock**
- **Un bloc positif (soulagement de plus de 50% de la douleur dans les suites immédiates de l'infiltration) affirme une atteinte en aval du site d'infiltration *mais pas sa nature***

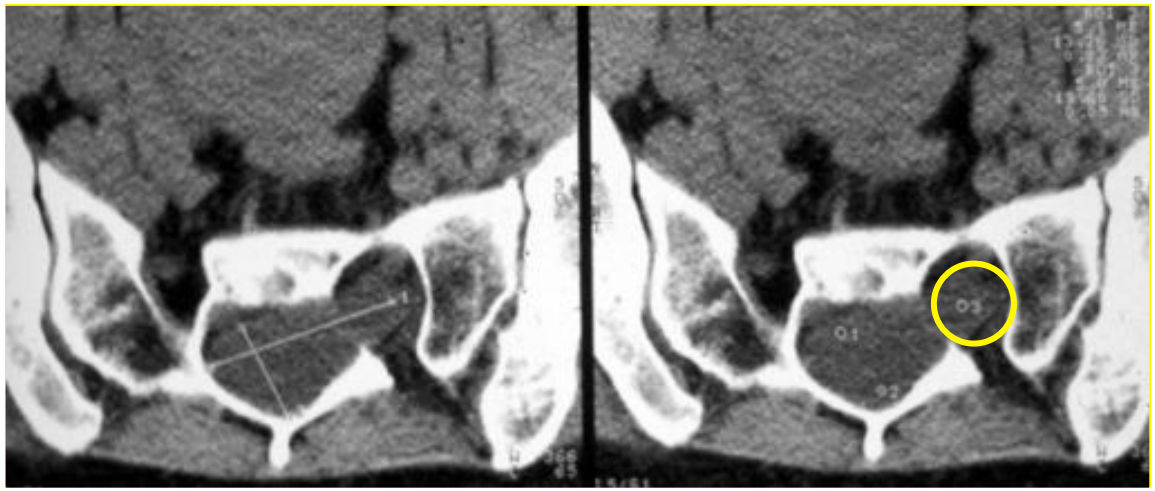
8 critères complémentaires au diagnostic de névralgie pudendale

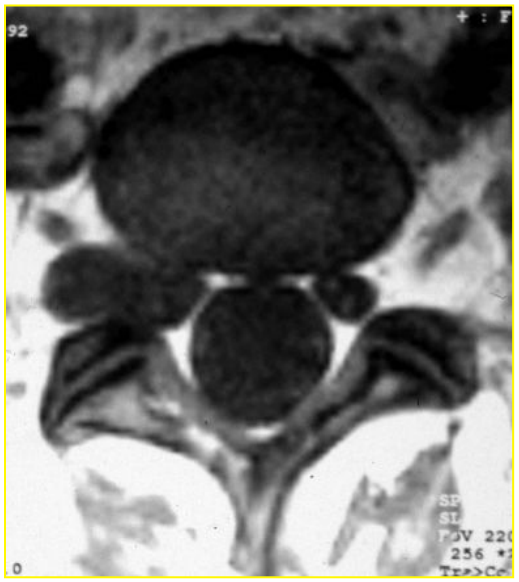
- Brûlures, tiraillement, engourdissement,décharges électriques
- Allodynie ou hyperpathie
- Sensation de corps étranger endocavitaire (« sympathalgie » rectale ou vaginale)
- Aggravation de la douleur au cours de la journée
- Douleur à prédominance unilatérale
- Douleurs apparaissant après la défécation
- Présence d'une douleur exquise à la pression de l'épine sciatique (surtout si unilatérale)
- Données de l'ENMG chez l'homme ou la femme nullipare*

4 critères d'exclusion

- Douleurs uniquement coccygienne, fessière, pubienne, hypogastrique
- Prurit
- Douleurs uniquement paroxystiques
- Anomalies d'imagerie pouvant expliquer la douleur*

* problème de la découverte d'un kyste arachnoïdien de Tarlov:*banalité, non symptomatique donc non responsable*

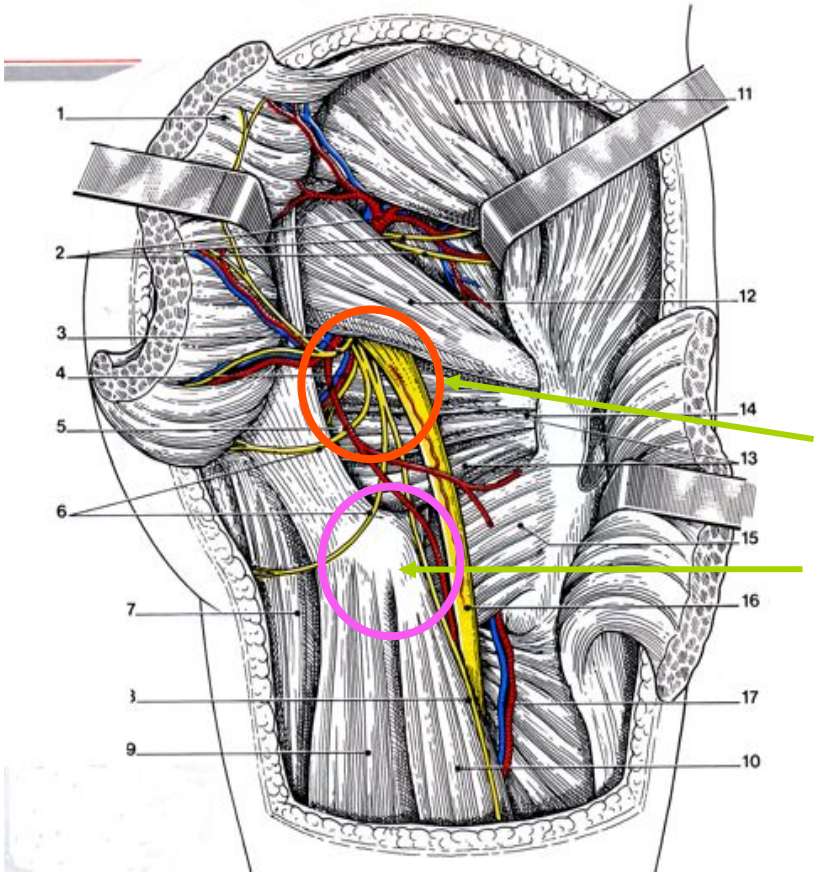




Signes associés n'excluant pas le diagnostic

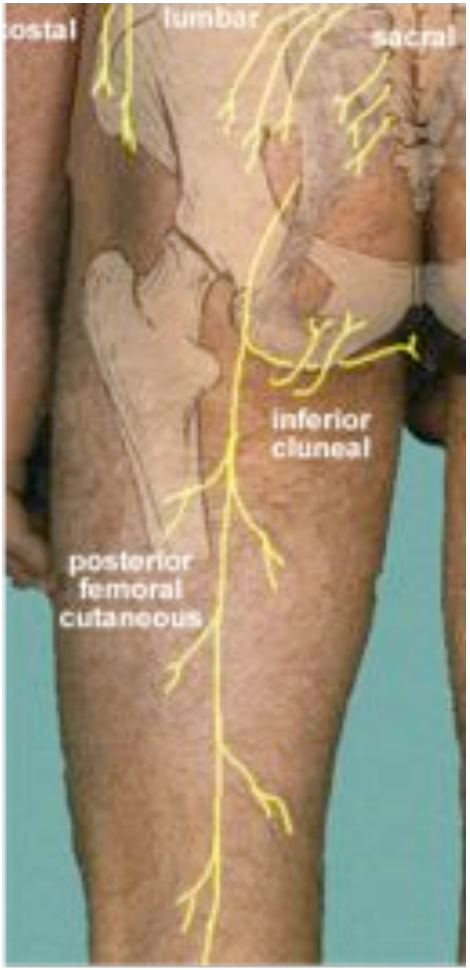
- irradiations fessières ou au membre inférieur*, notamment en station assise
- Douleur sus pubienne
- Pollakiurie et/ou douleurs au remplissage vésical
- Douleur apparaissant après l'éjaculation
- Dyspareunie et/ou douleurs après les rapports
- Troubles de l'érection
- Normalité de l'ENMG (n'explore pas toute les fibres)

syndrome du muscle piriforme



Canal sous piriforme

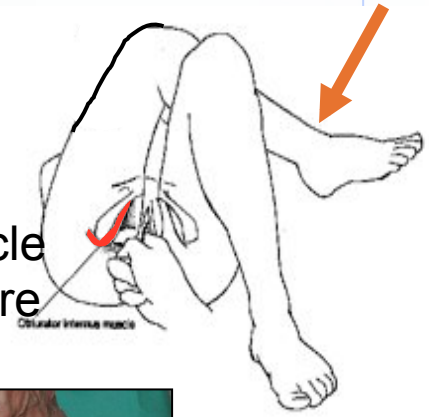
Région ischiatique



avec atteinte du nerf cutané post de la cuisse et du nerf clunéal inférieur(double crush)

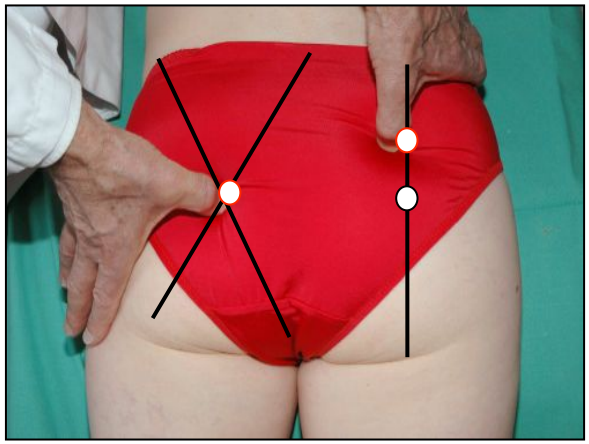
Douleurs Myo-fasciales

- Points gâchettes à la palpation
  - fesse, paroi abdominale, touchers pelviens



Muscle pirifore

- Tension musculaire
  - Muscles releveurs de l'anus
  - Muscles obturateurs internes
  - Muscles piriformes
  - Muscles psoas



- Douleurs diffuses, physiopathologie obscure
- Causes ou conséquences?

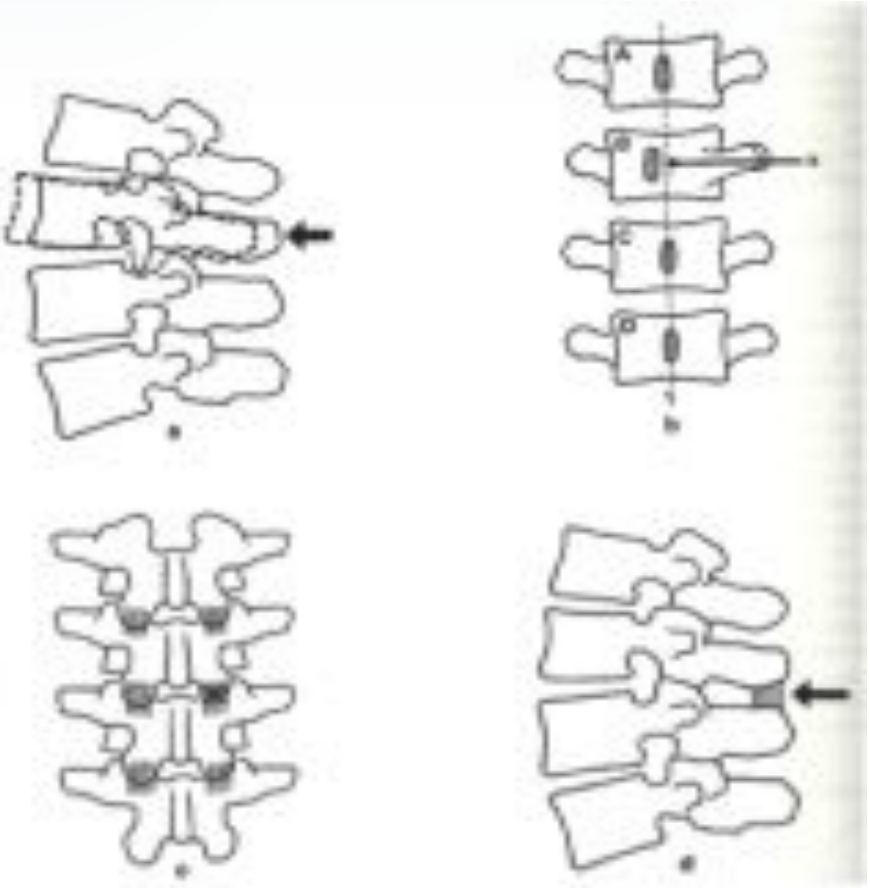
Nerf clunéal inférieur

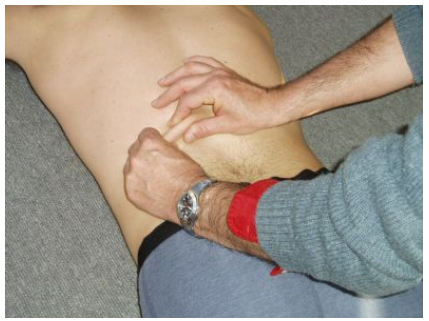
- 2 sites de conflits
  - Canal sous piriforme avec souffrance nerf cutanée postérieur de la cuisse:
    - irradiations face postérieure de cuisse , ischion et latéro périnéales
    - Hypersensibilité distale à la pression
  - Région ischiatiques:
    - surtout chaises dures, douleurs latéro périnéales, sans douleur de verge ou du clitoris
    - Avec bloc ischiatique positif
- Traitement:
  - Kiné, infiltrations, chirurgie

Syndrome de Maigne

Examen segmentaire rachidien:

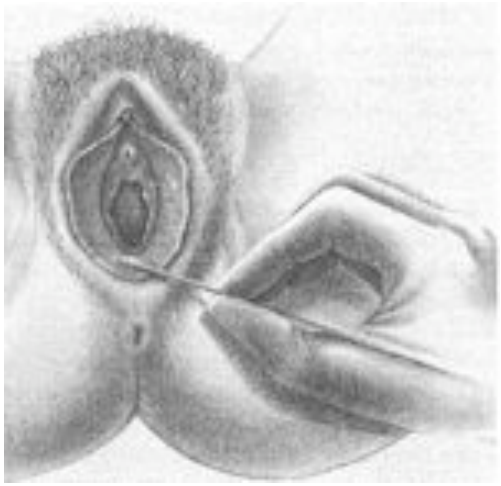
-Pression axiale sur l'épineuse
-Pression latérale sur l'épineuse
-Pression-friction sur les massifs articula postérieurs
-Pression sur le ligament interépineux
-Cellulagie: palper rouler
-*Myalgies fessières hautes*
-*Hypersensibilité hémipubis*



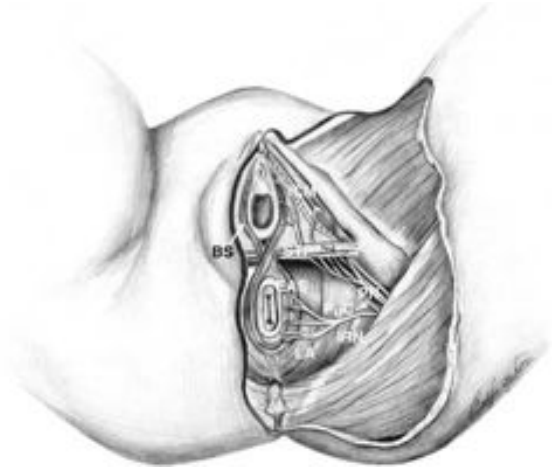


Alcock's canal syndrome : not only pain !

Neurologic examination

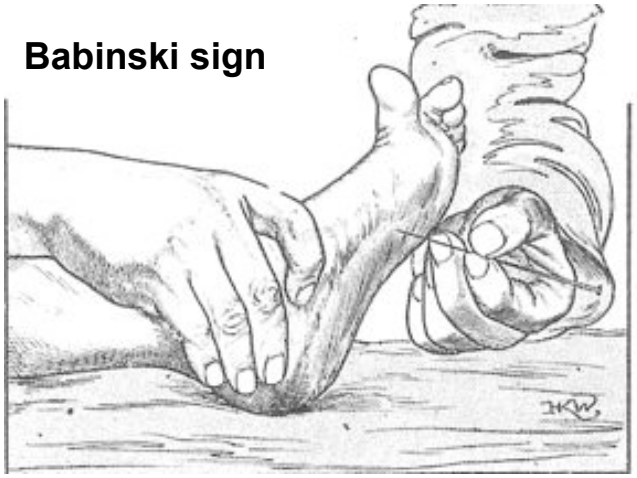


Loss of touch sensation

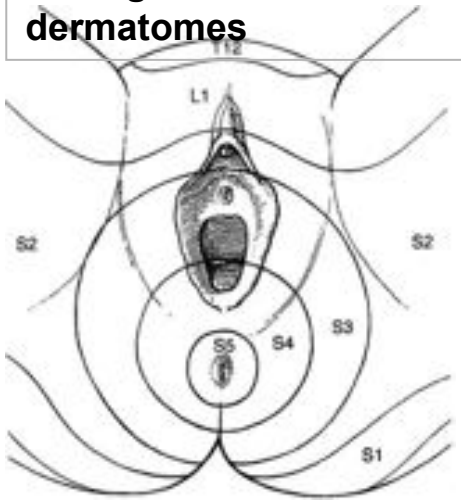


Anal tone decreased

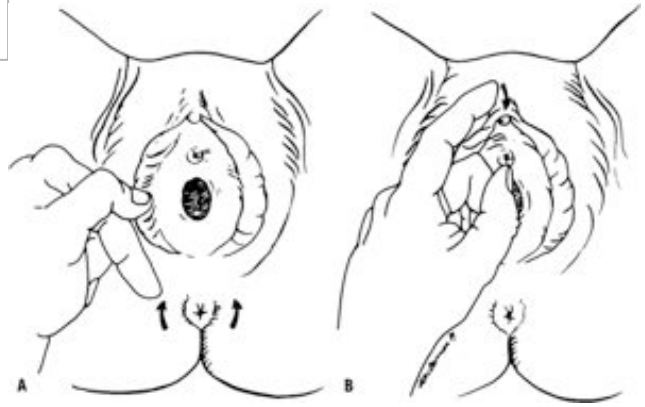
Babinski sign



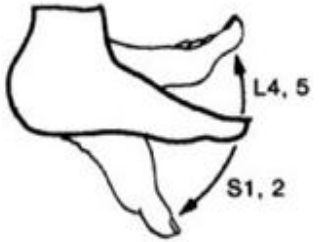
Sensory function is evaluated by testing the lumbar-sacral dermatomes

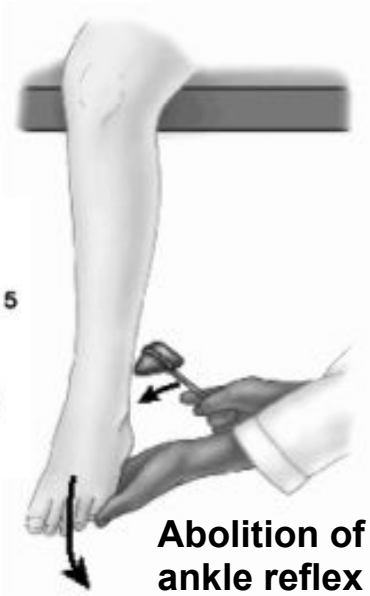


Motor function is evaluated by testing the muscle strenght and tone



Abolition of BC reflex



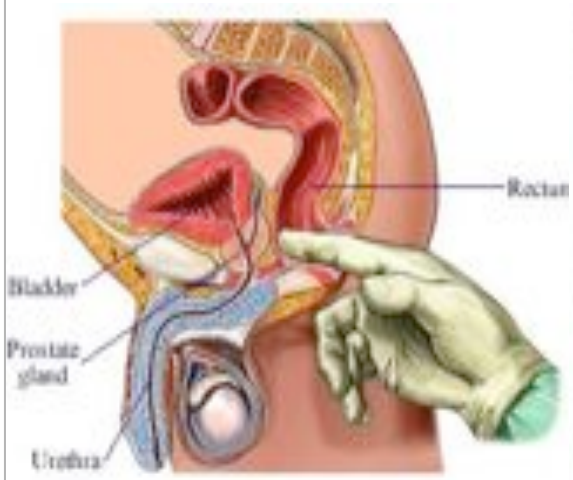


Abolition of ankle reflex

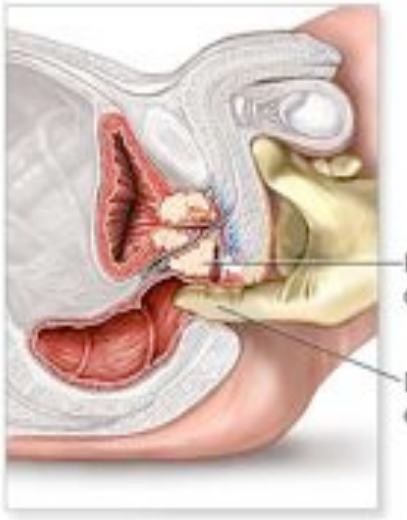
Muscle strenght (plantar Flexion) decreased

"There's nothing wrong with your reflexes ..."

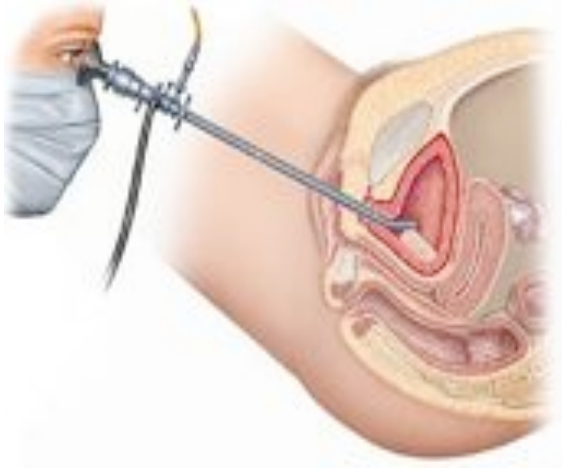
Uro-gynecological evaluation : always possible to have associated lesions which lead to perineal pain



prostatitis



Prostate cancer

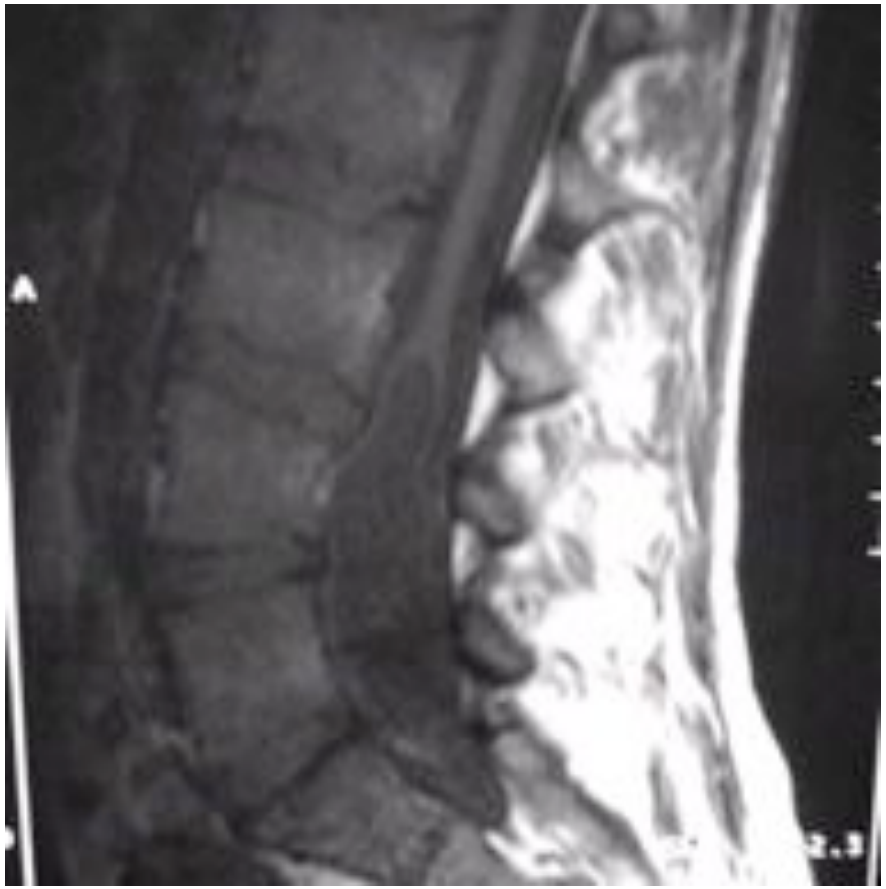


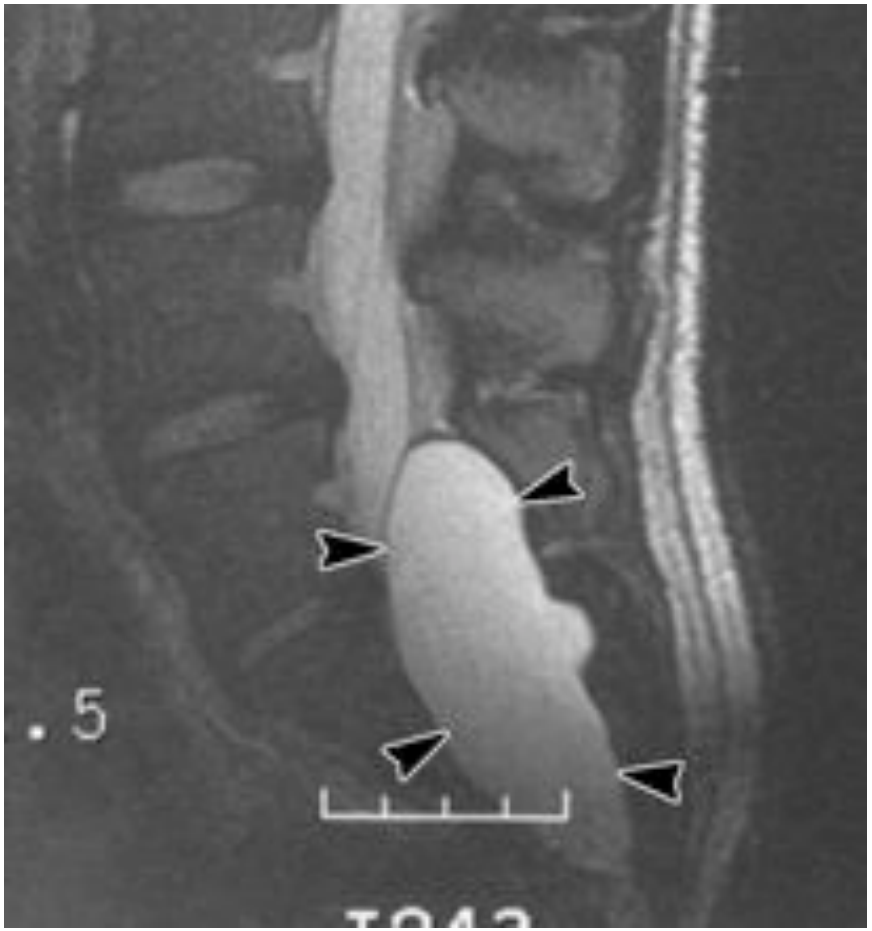
bladder

hemorrhoïds

prolaps

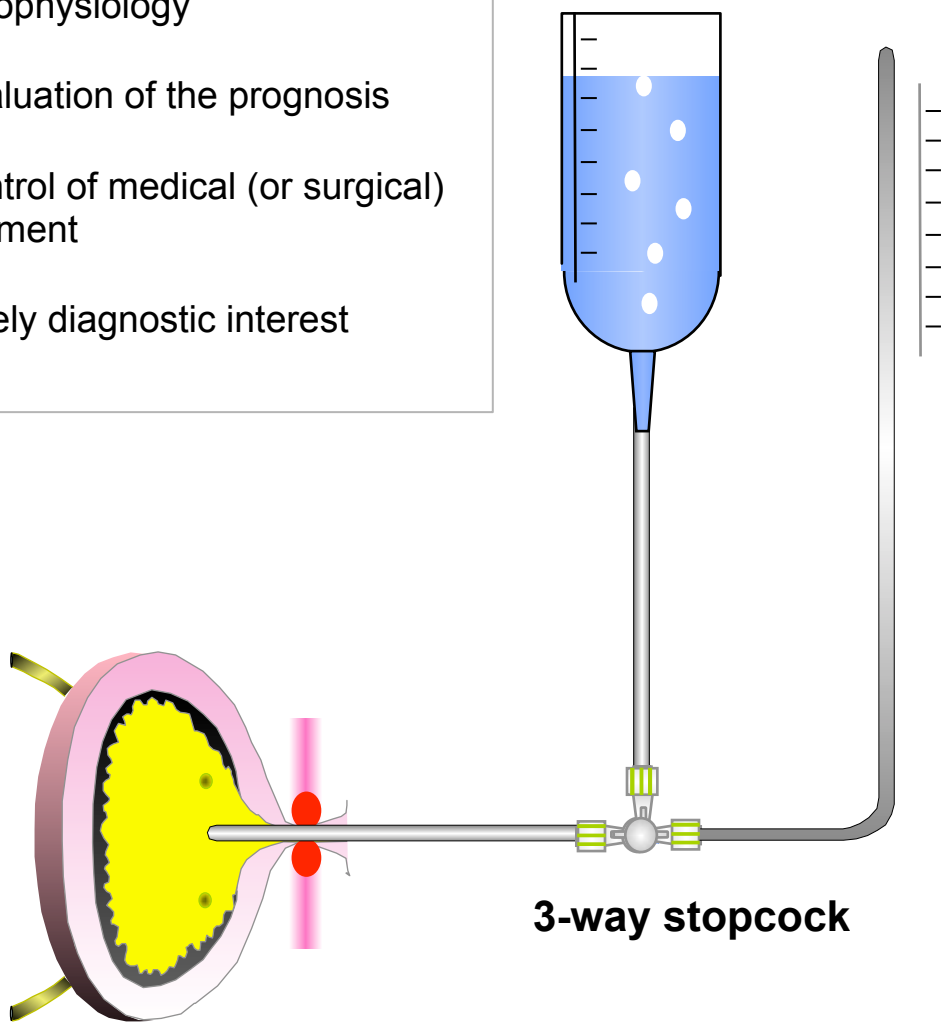
MRI (spinal cord and pelvis) : always before emg





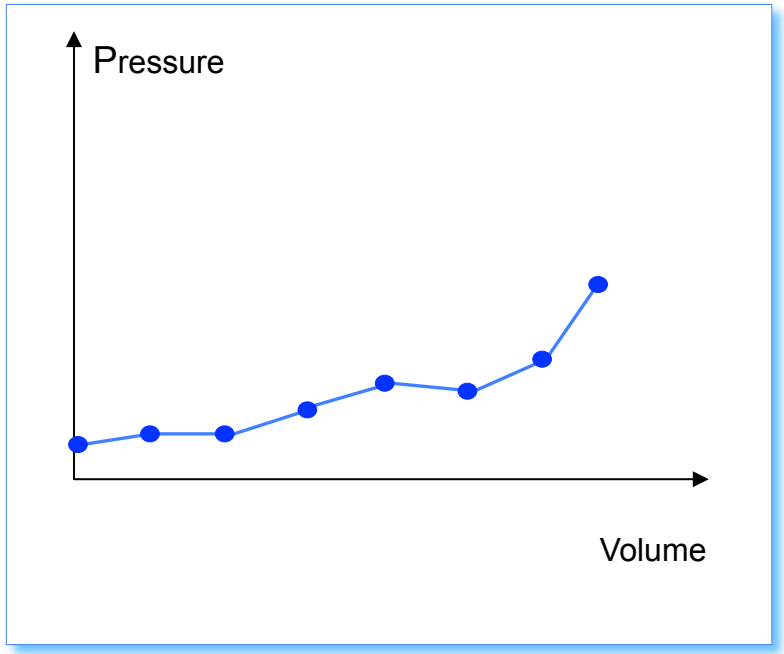
URODYNAMIC

- very important tool to precise pathophysiology
- evaluation of the prognosis
- control of medical (or surgical) treatment
- rarely diagnostic interest



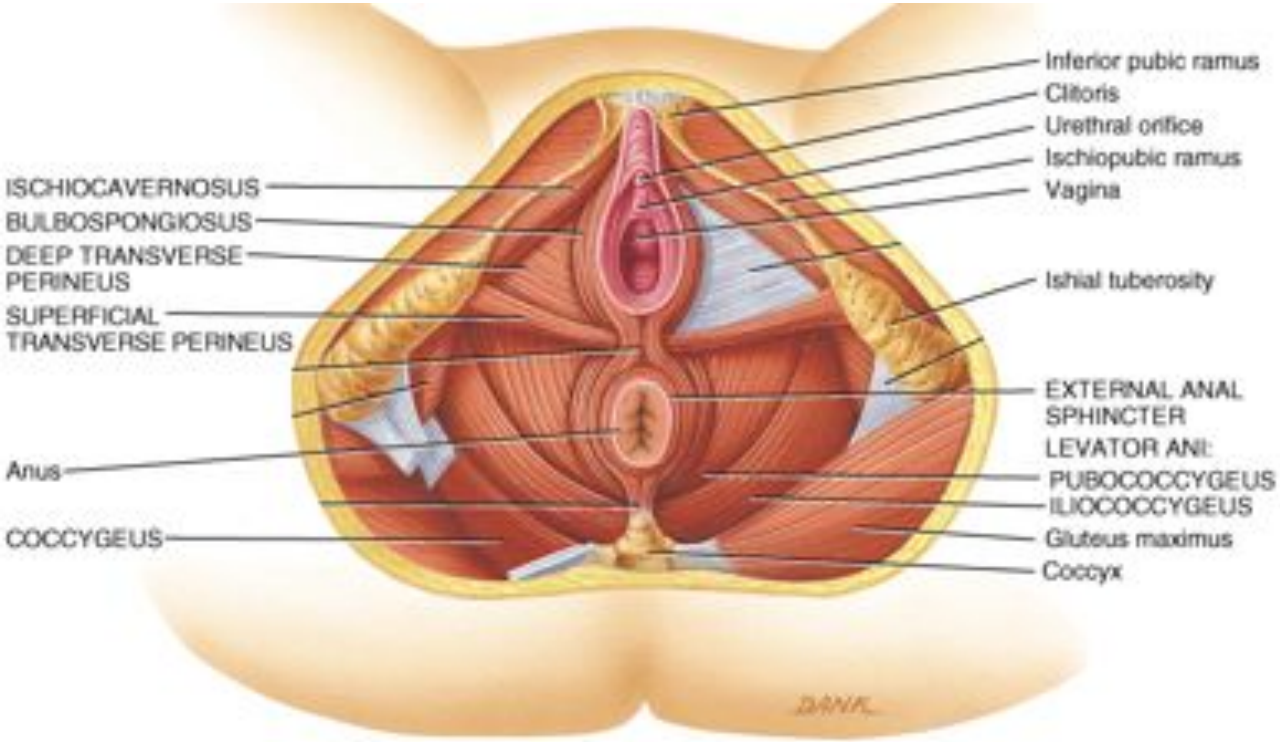
3-way stopcock

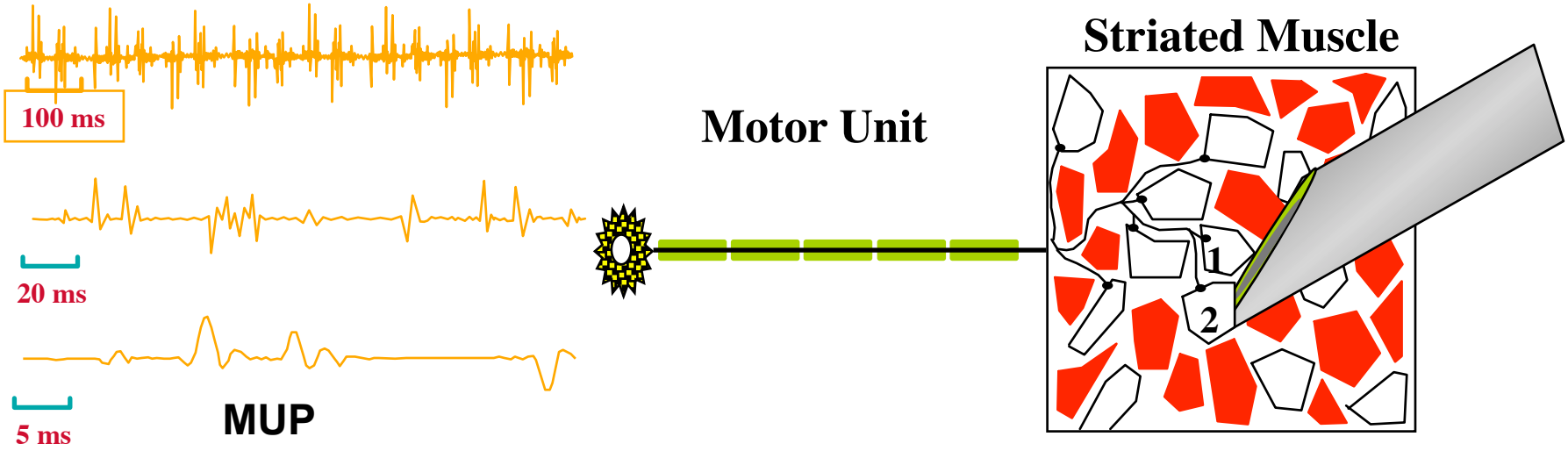
Vesical pressure



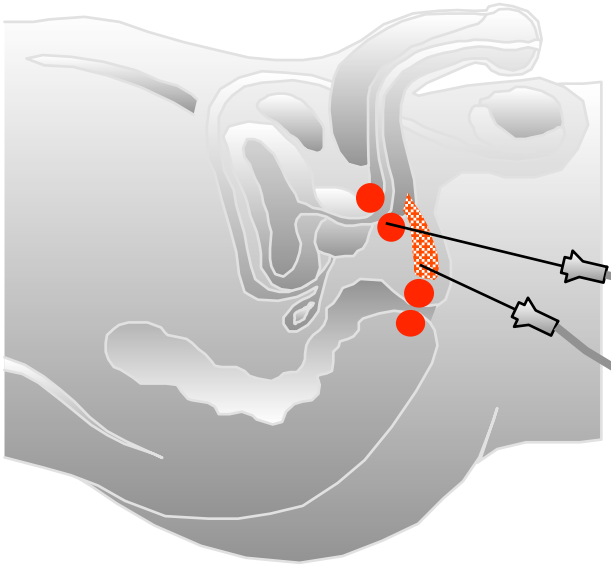
Water Column - Torricelli 1608-1647

electromyography



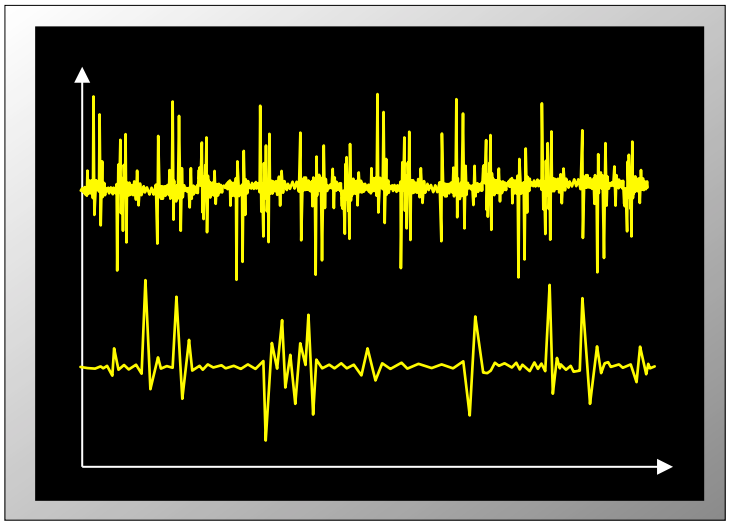


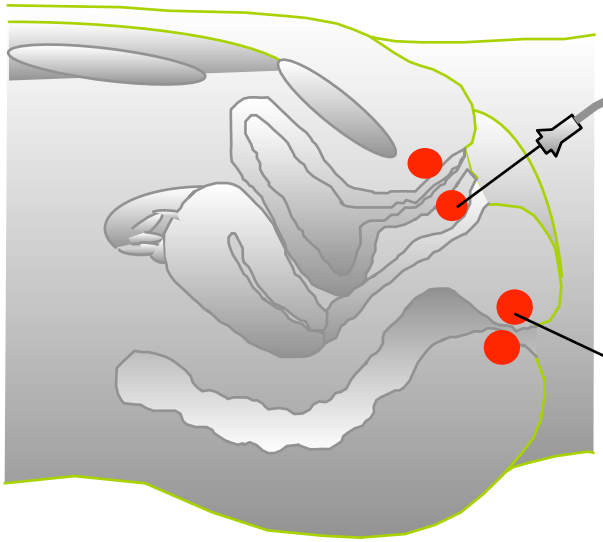
Electromyography



Urethral Sphincter

m. Bulbocavernous



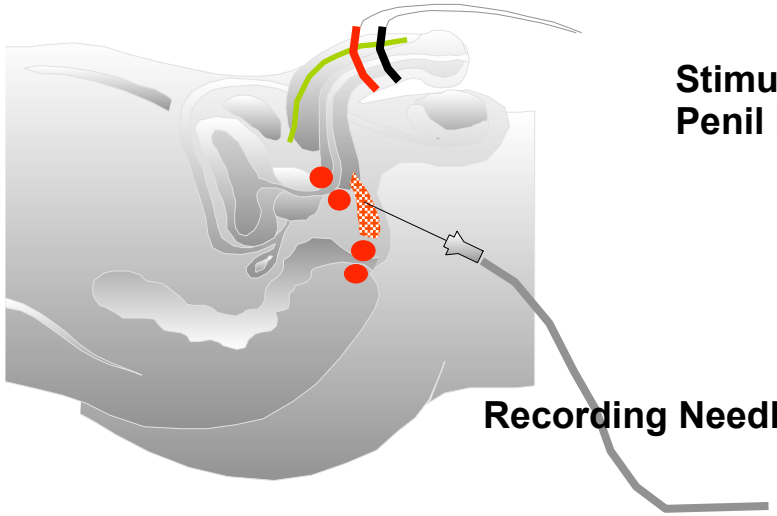


Urethral Sphincter

Anal Sphincter

Recording EMG

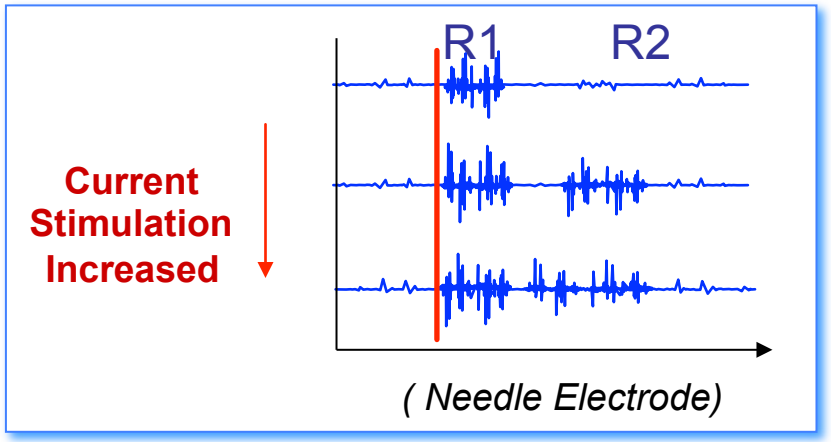
Bulbocavernous Reflex

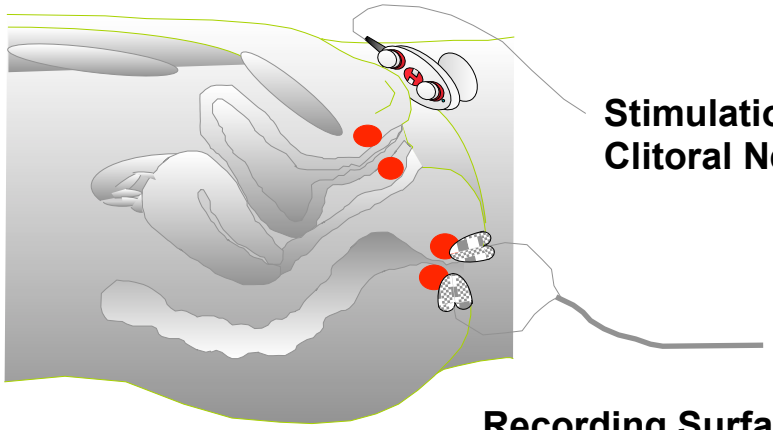


Stimulation
Penil Nerve

Recording Needle

m. Bulbocavernous

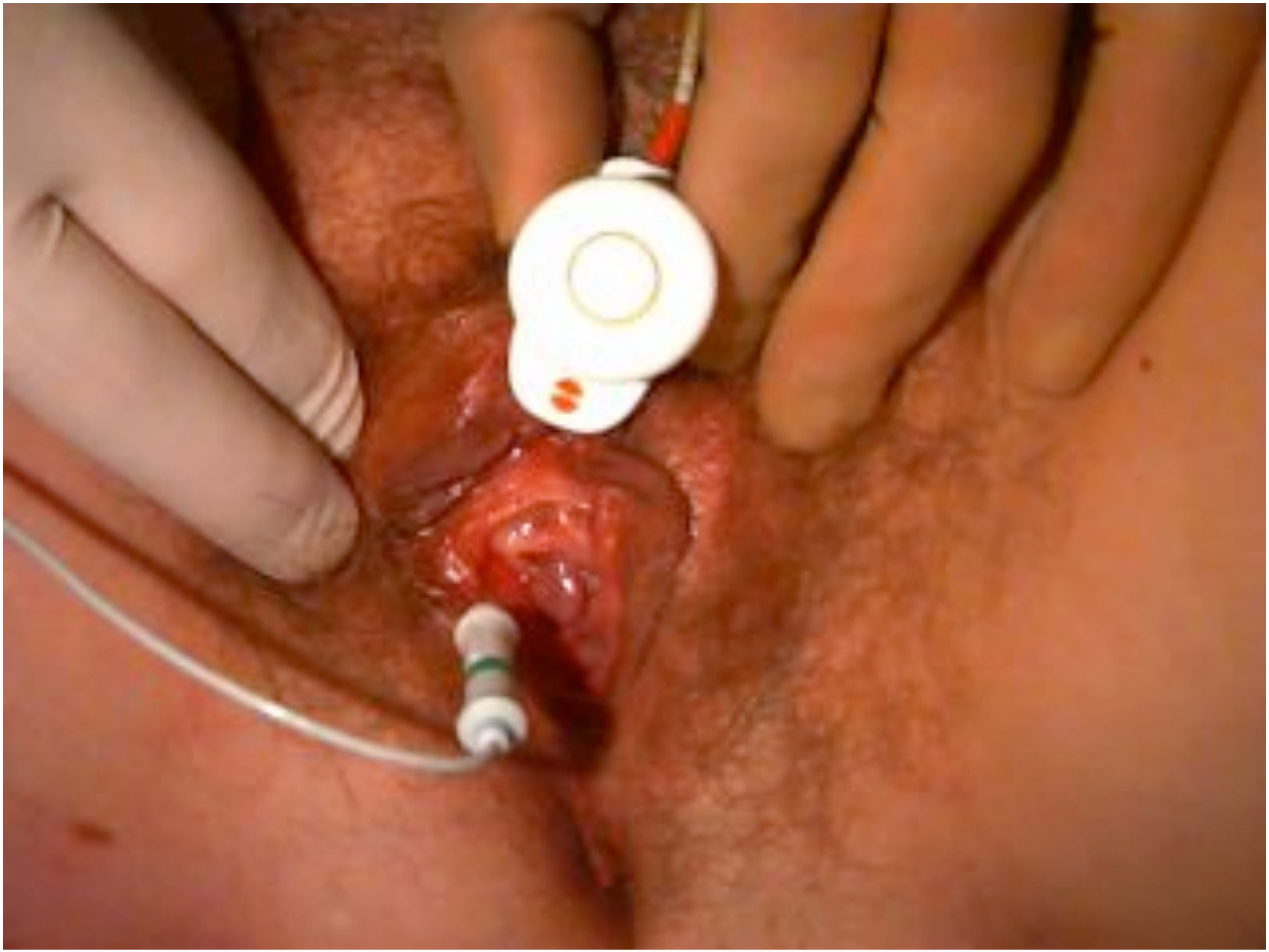




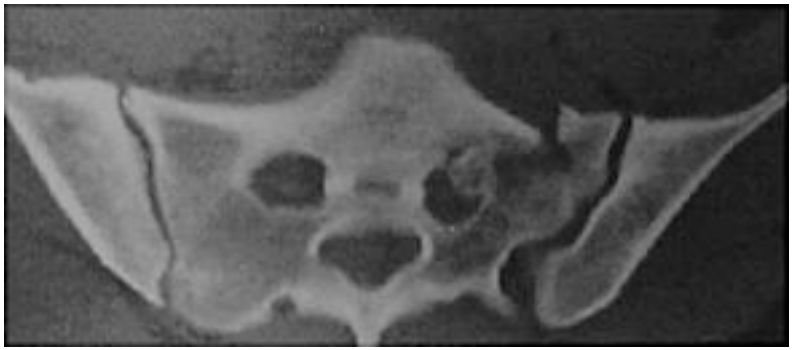
Stimulation
Clitoral Nerve

Recording Surface

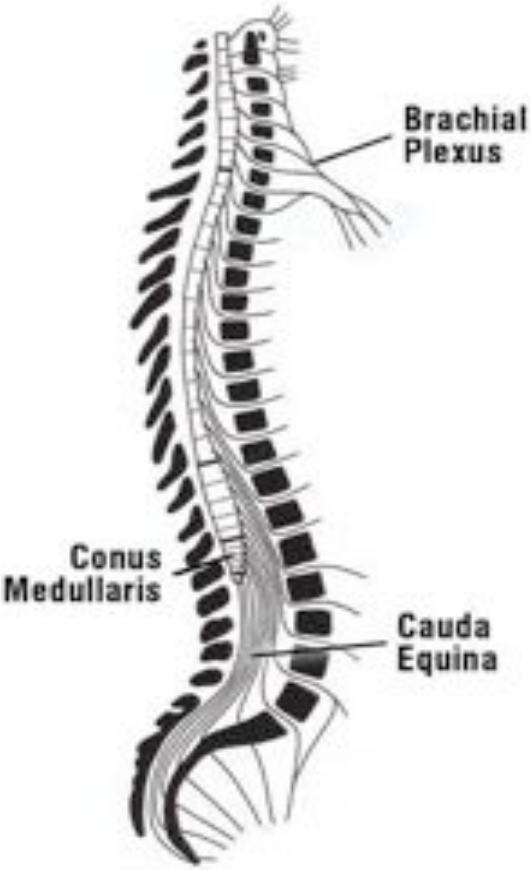
Recording Reflex
Latency R1
typ. 33 ms

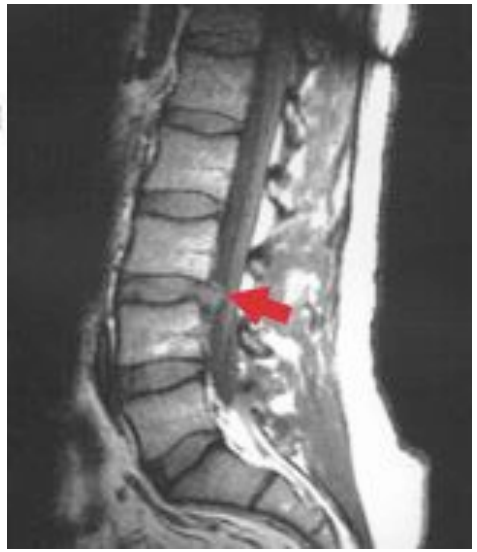


Interest of bulbo-cavernosus reflex

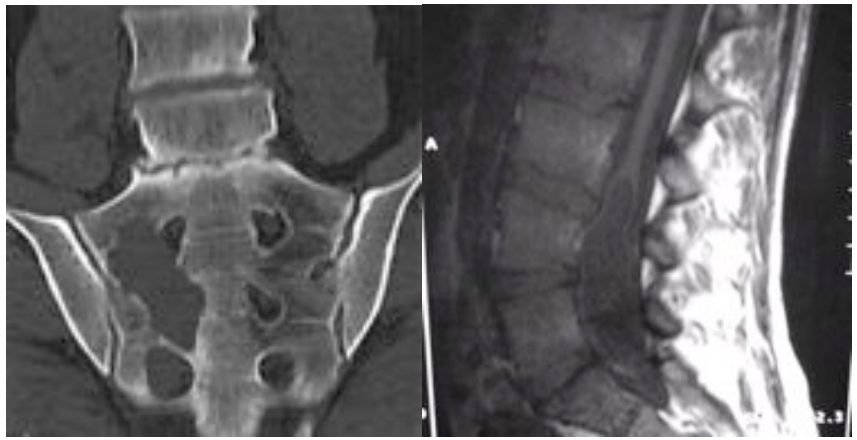


Sacrum fracture



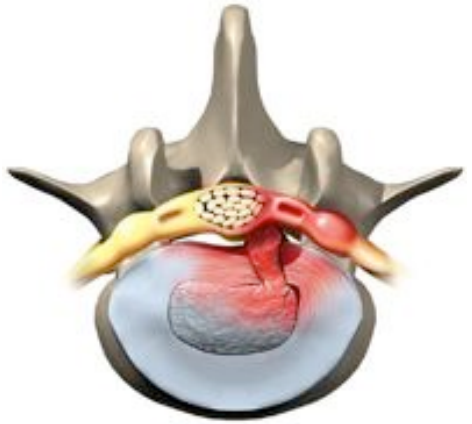


Disk herniation

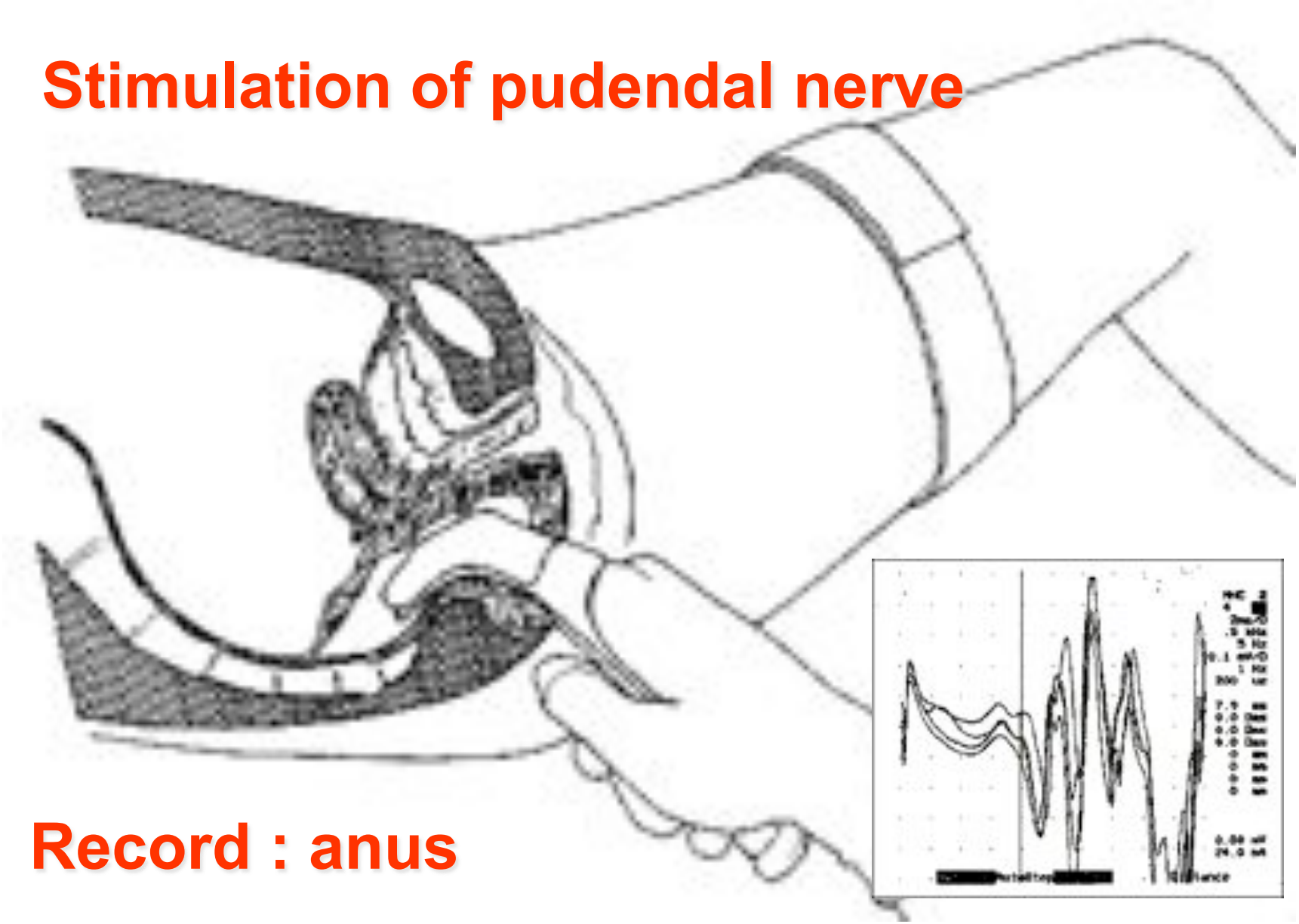


Sacral tumors Spinal tumors

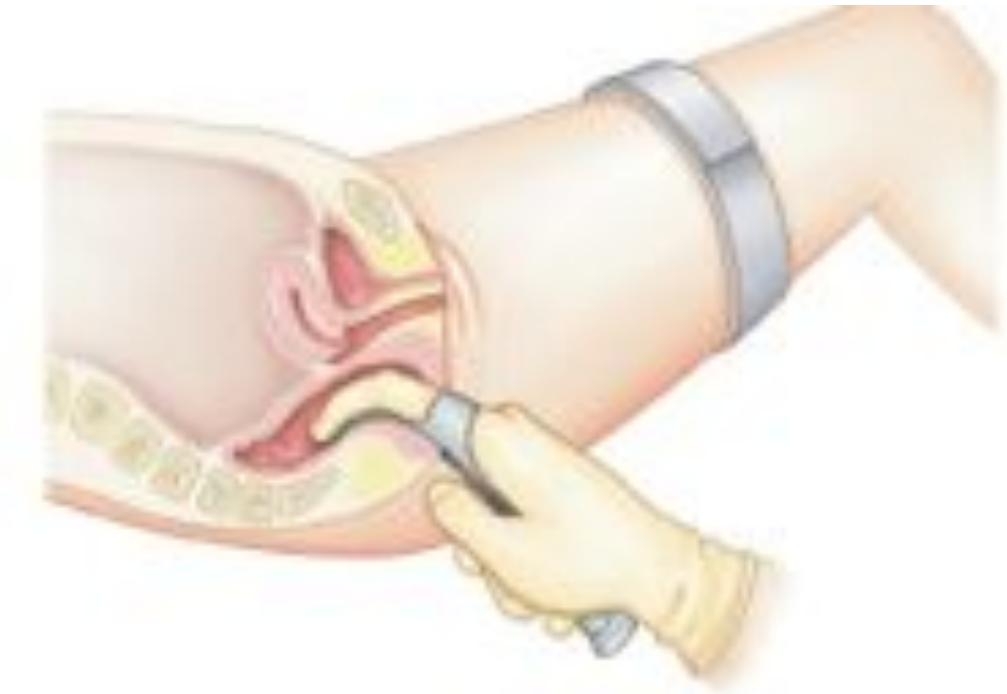
- diagnosis
- prognosis

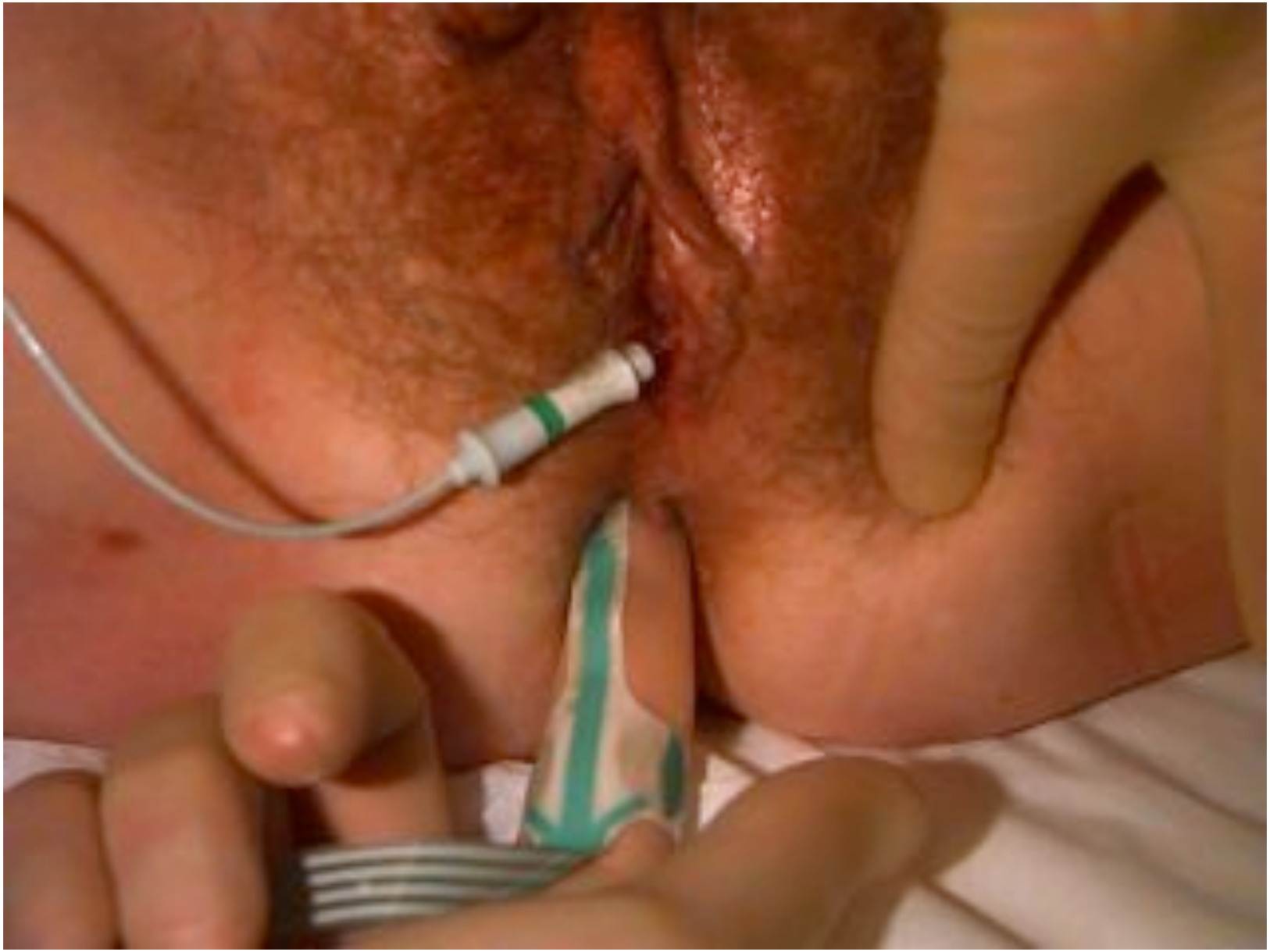


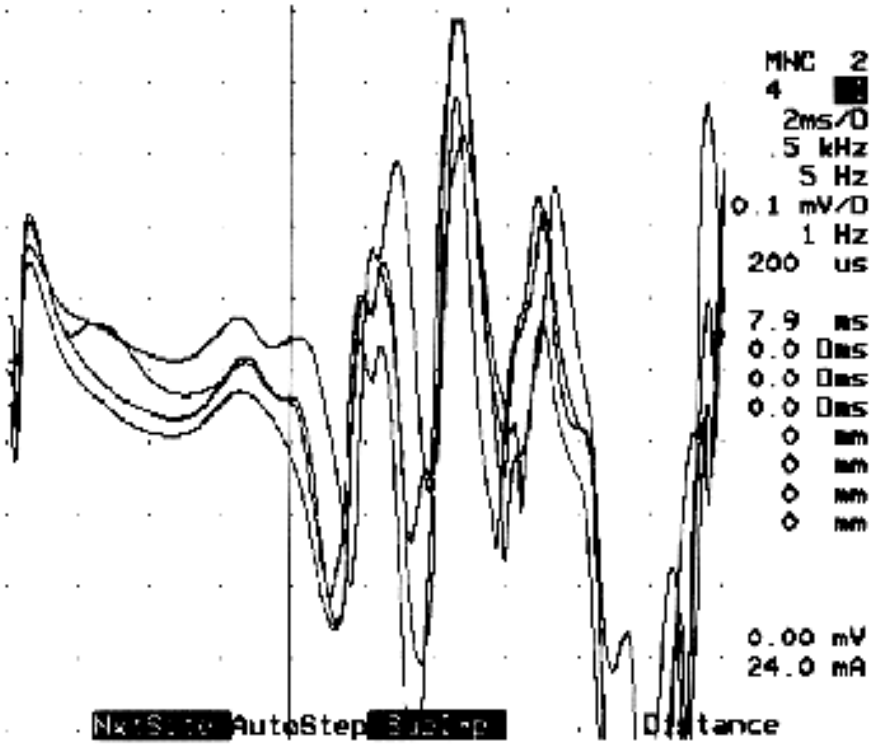
Pudendal nerve terminal motor latency



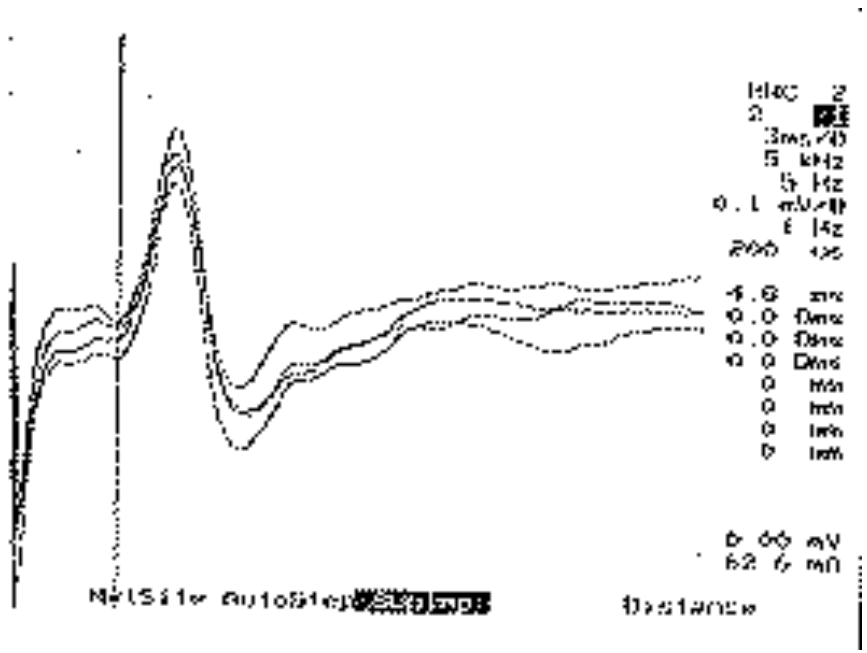
St Marks electrode







Record in BC muscle



Record in anal muscle

Restrictions of emg examination

- **poor specificity :**
  - **– electrical abnormalities are very frequent in various populations and not systematically secondary to a pudendal neuropathy caused by entrapment : stretch perineal neuropathy (childbirth, pregnancy, distal constipation, anismus); history of pelvic surgery, diabetes mellitus, alcoolic abuse, other neuropathy, …) ; spinal stenosis, …**
- **poor sensitivity :**
  - **– emg essentially studies motor fibers with important diameter (not the small)**
  - **– thus, normal examination do not exclude the diagnosis**
- **pronostic value :**
  - **– none study demonstrates a correlation between emg abnormalities and effects of infiltrations / surgery ;**

Restrictions of PNTML

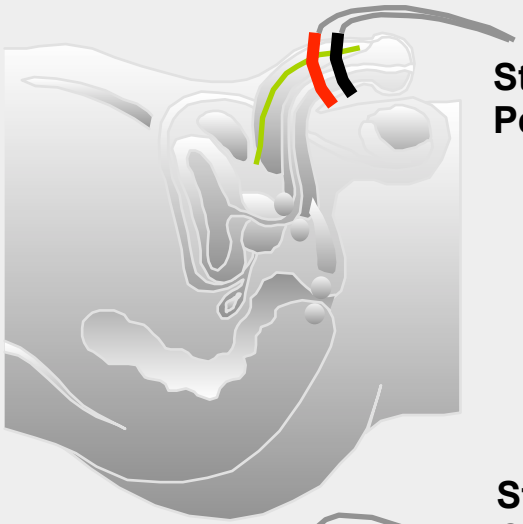
- **poor specificity :**
  - **– delayed latency is very frequent in various populations and not systematically secondary to a pudendal neuropathy caused by entrapment : stretch perineal neuropathy (childbirth, pregnancy, distal constipation, anismus); history of pelvic surgery, diabetes mellitus, alcoolic abuse, other neuropathy, …) ;**
  - **– assymetry of the right/left latencies are essential for diagnosis**
- **poor sensitivity :**
  - **– technical problems (lenght of the index, record by means needle, bad contact between electrode and muscle, no discriminative stimulation, ..)**
- **pronostic value :**
  - **– none study demonstrates a correlation between emg abnormalities and effects of infiltrations / surgery ;**

Restrictions of bulbo-cavernosus reflex

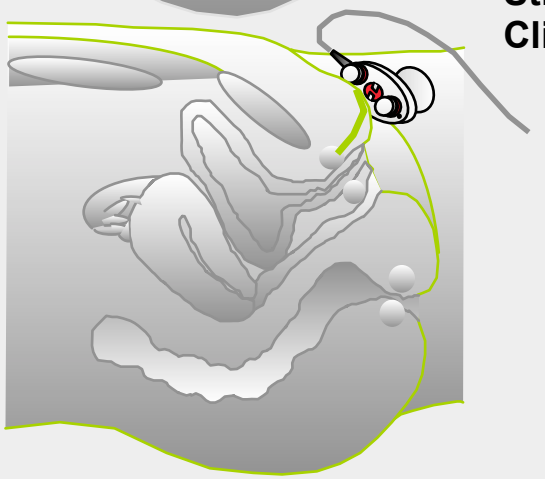
- **poor specificity :**
  - **– increased latency can be observed rather in proximal lesions (spinal cord, sacral plexus)**
- **poor sensitivity :**
  - **– necessity to compare both right and left latency**
  - **– normal examination do not exclude the diagnosis**
- **pronostic value :**
  - **– none study demonstrates a correlation between BC reflex latency and effects of infiltrations / surgery ;**

Others electrophysiological tests

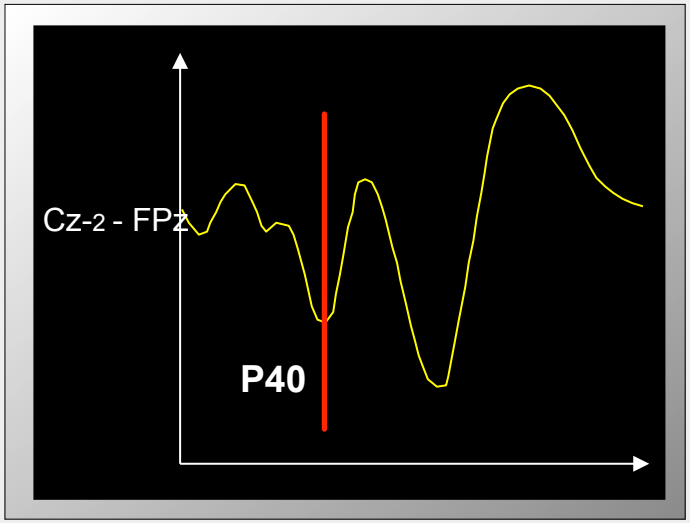
Evoked Potential



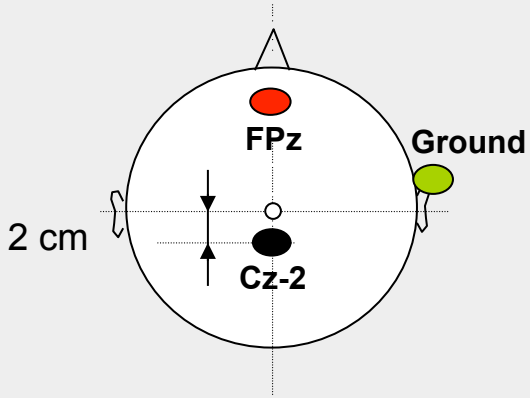
Stimulation
Penil Nerve



Stimulation
Clitoral Nerve



Record on Scalp with Scalp Needle
or Surface Electrode
Averaging : 200



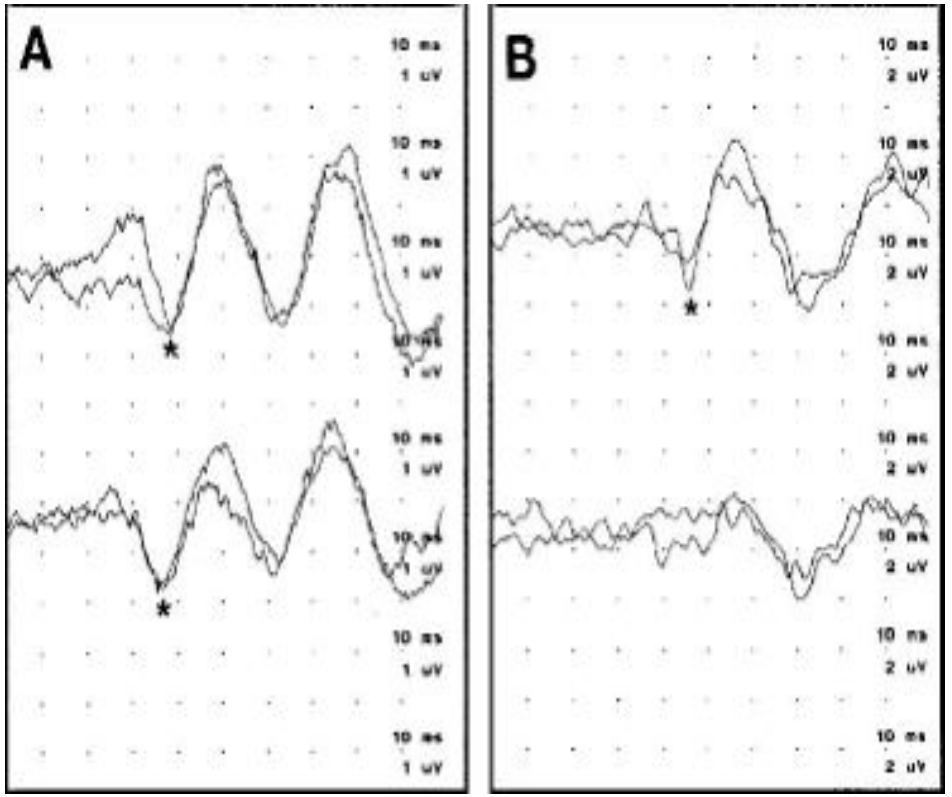
Latency P40
typ. 39 ms
(nl < 44 ms)

Testing conduction through nervous pathways - peripheral nerves; central tracts…

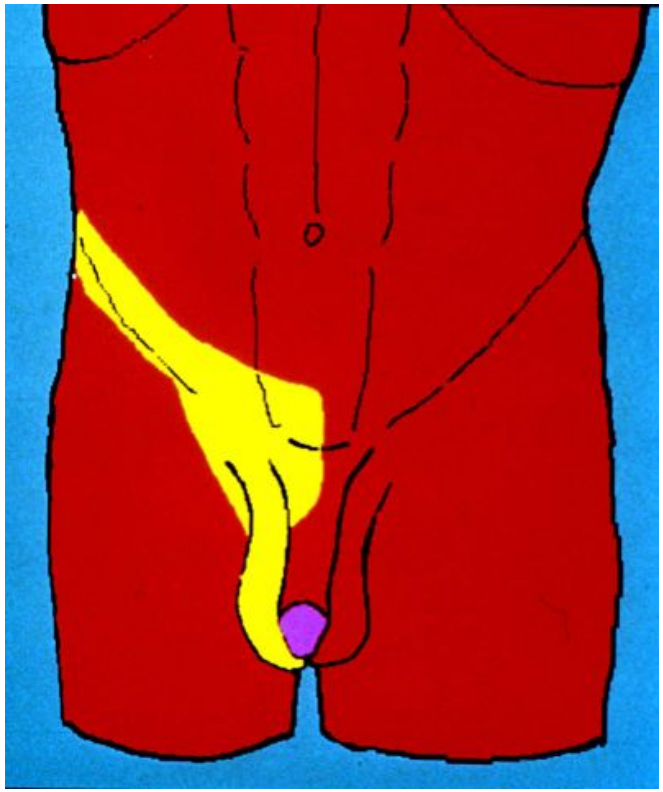
Demyelination

- Slowed conduction
- Block of conduction

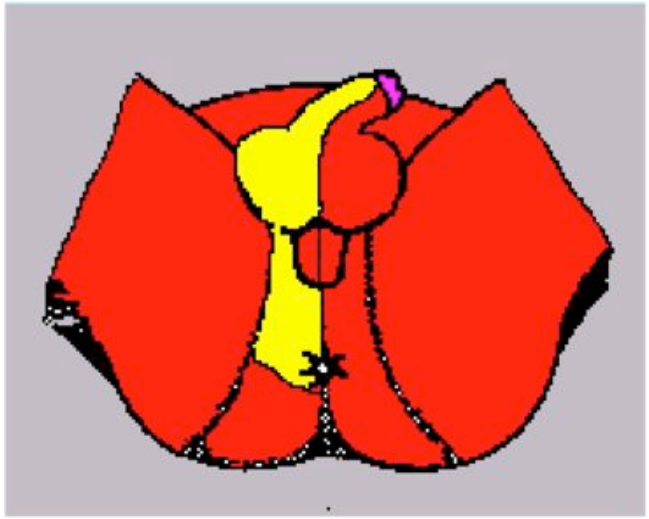
- Somatosensory EP to unilateral dorsal clitoral nerve stimulation in a normal woman (left panel) and a woman with MS



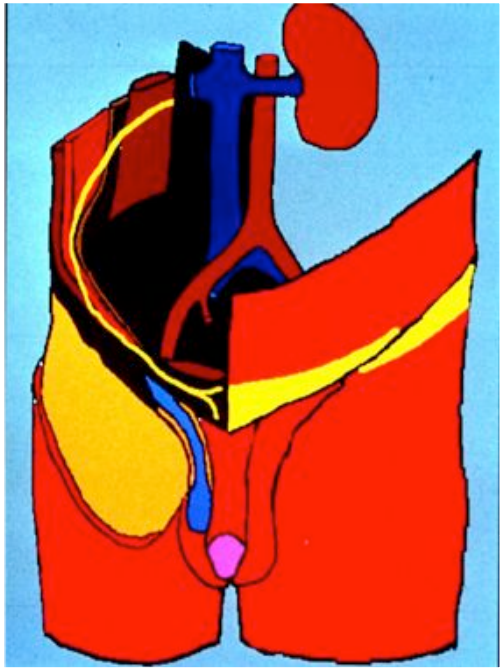
Others electrophysiological tests



Ilio-inguinal nerve

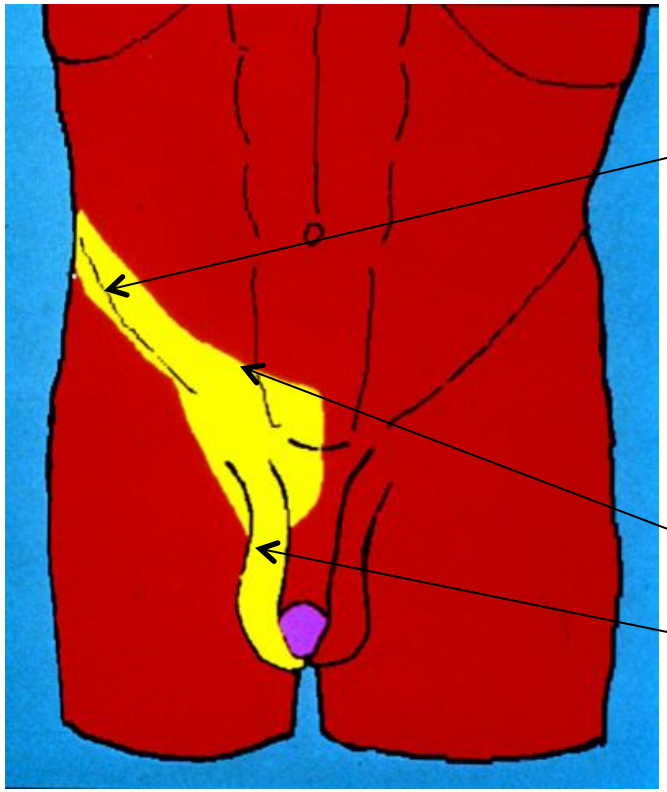


pudendal nerve

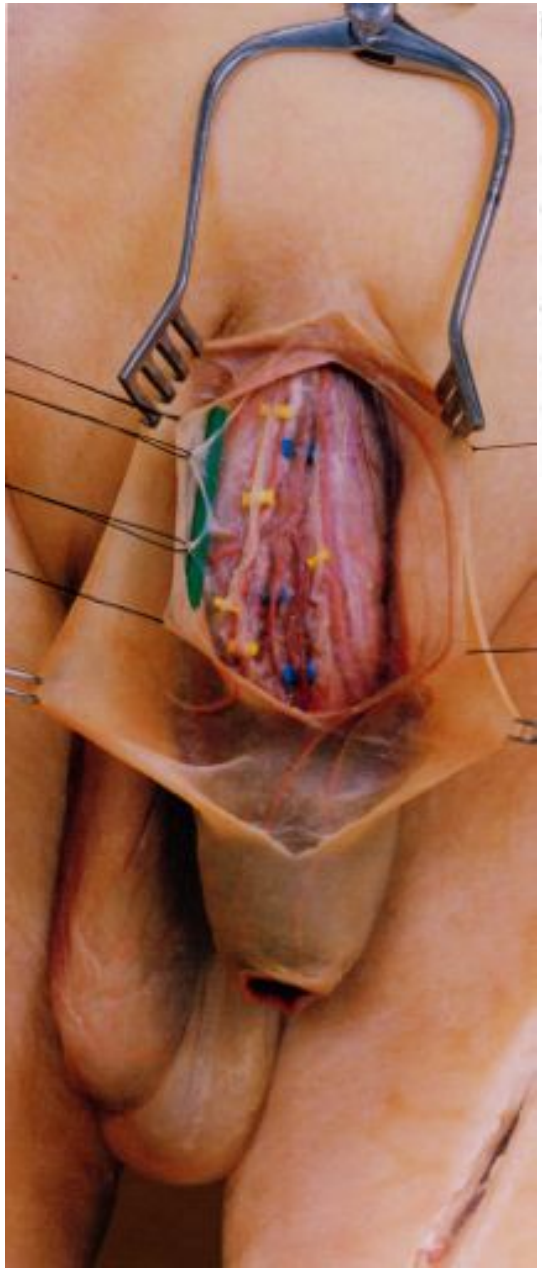


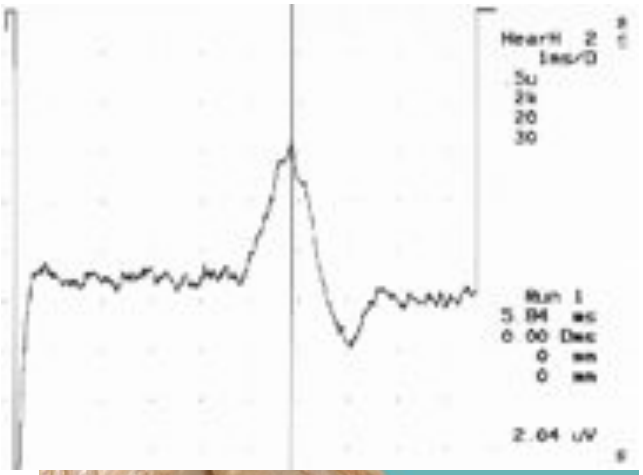
Ilio-hypogastric nerve

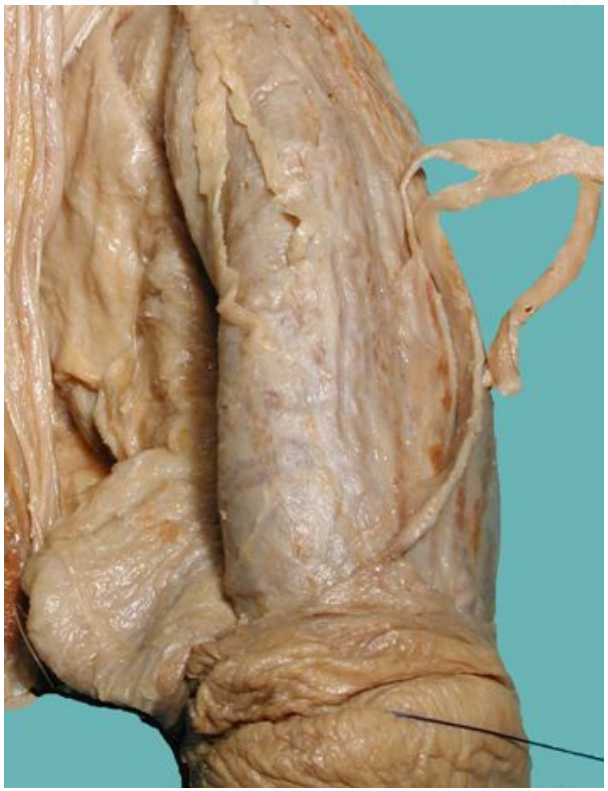
Others electrophysiological tests

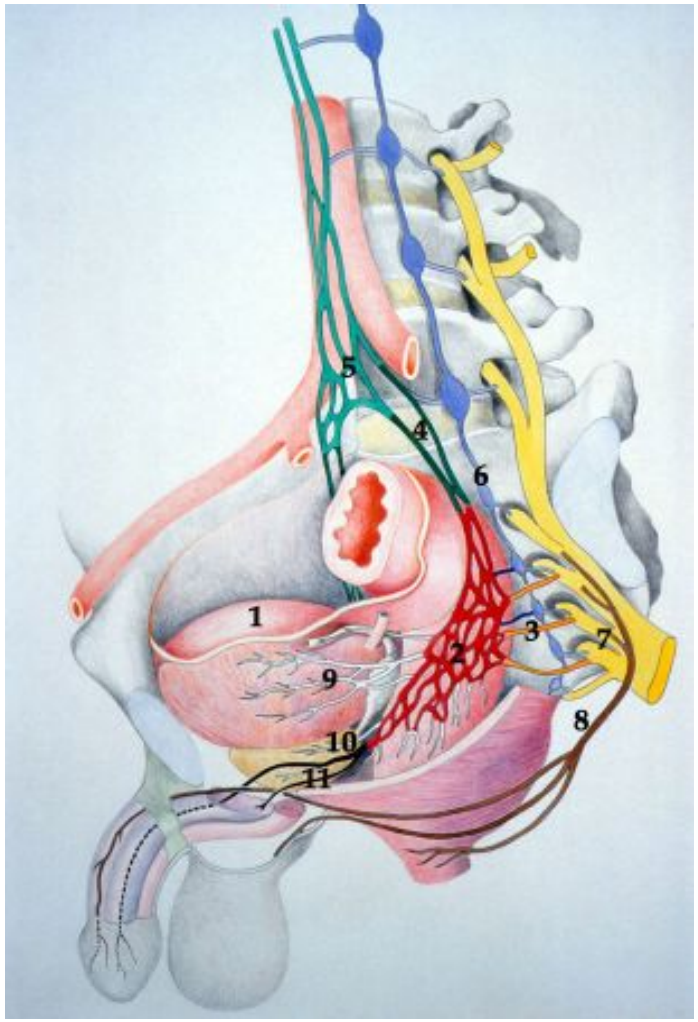


Sensory velocity of dorsal nerve of penis

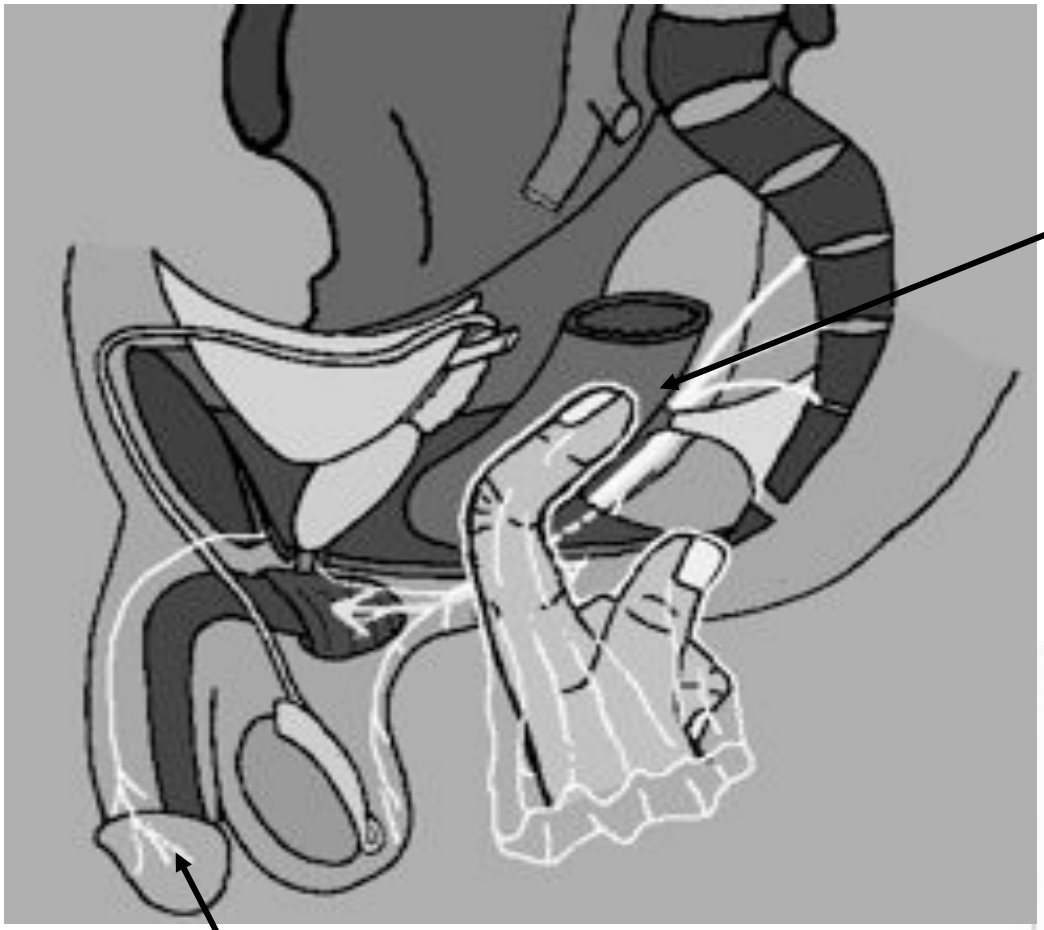






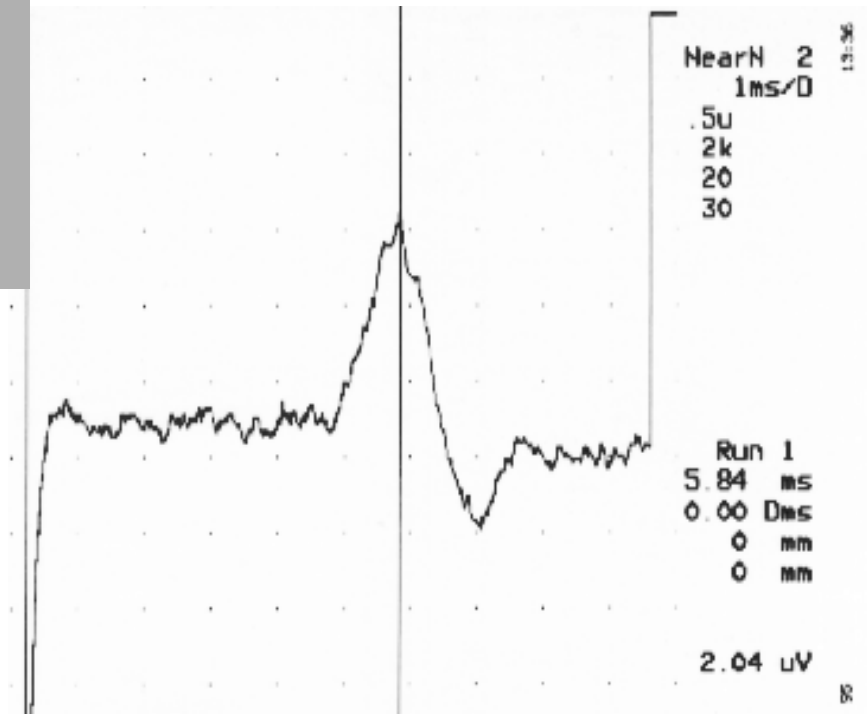


Terminal sensitive latency of pudendal nerve

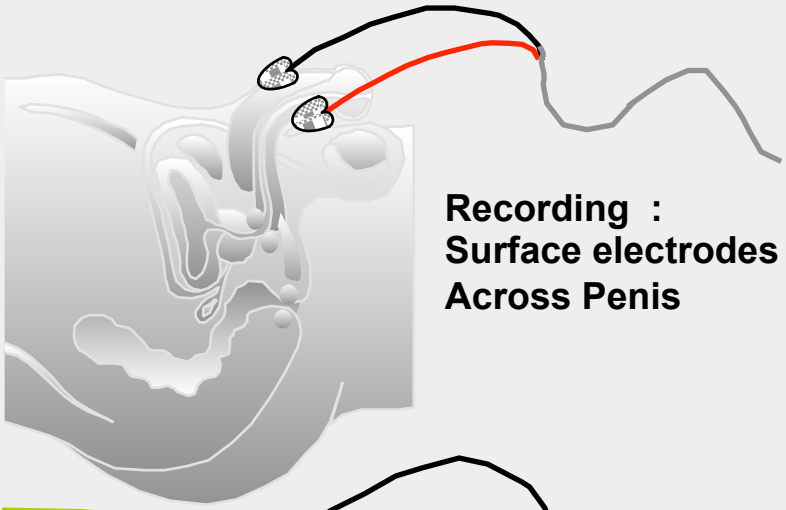


Stimulation of pudendal nerve within the rectum

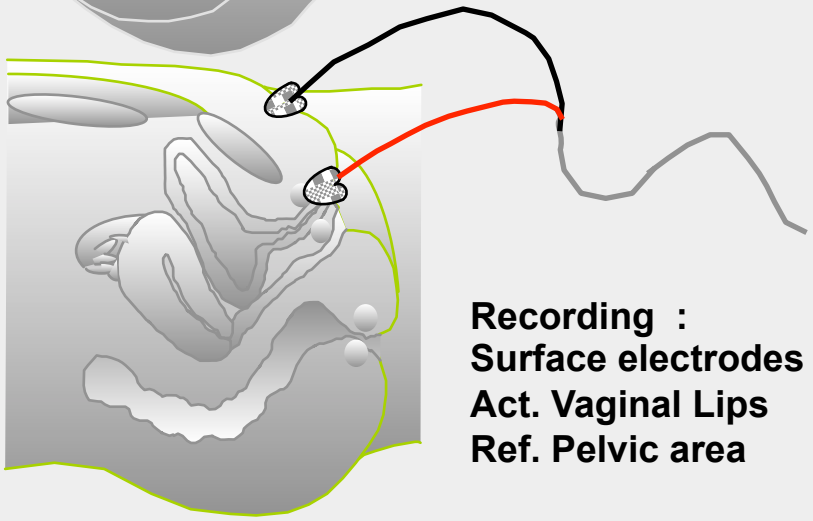
Record of sensory potential



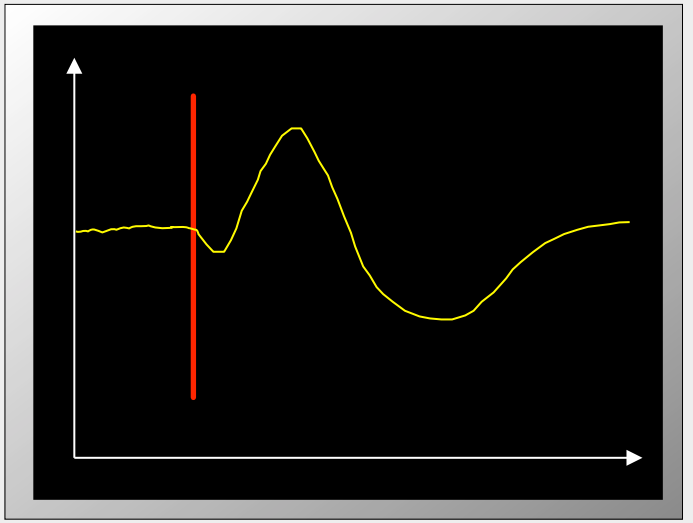
Sympathetic Response



Recording :
Surface electrodes
Across Penis

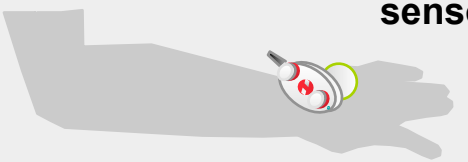


Recording :
Surface electrodes
Act. Vaginal Lips
Ref. Pelvic area



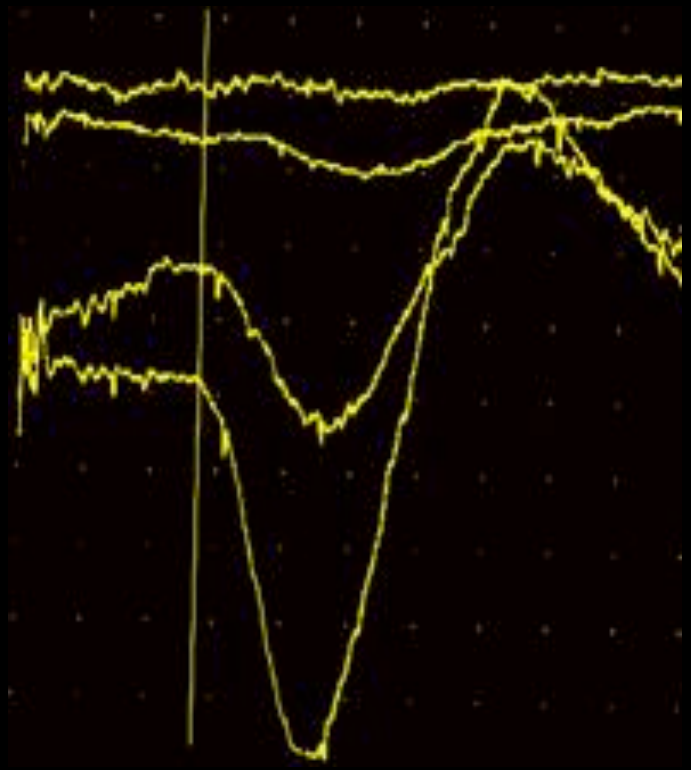
Typ. Lat. 1,5 s
Amplitude : 2 - 3 mV

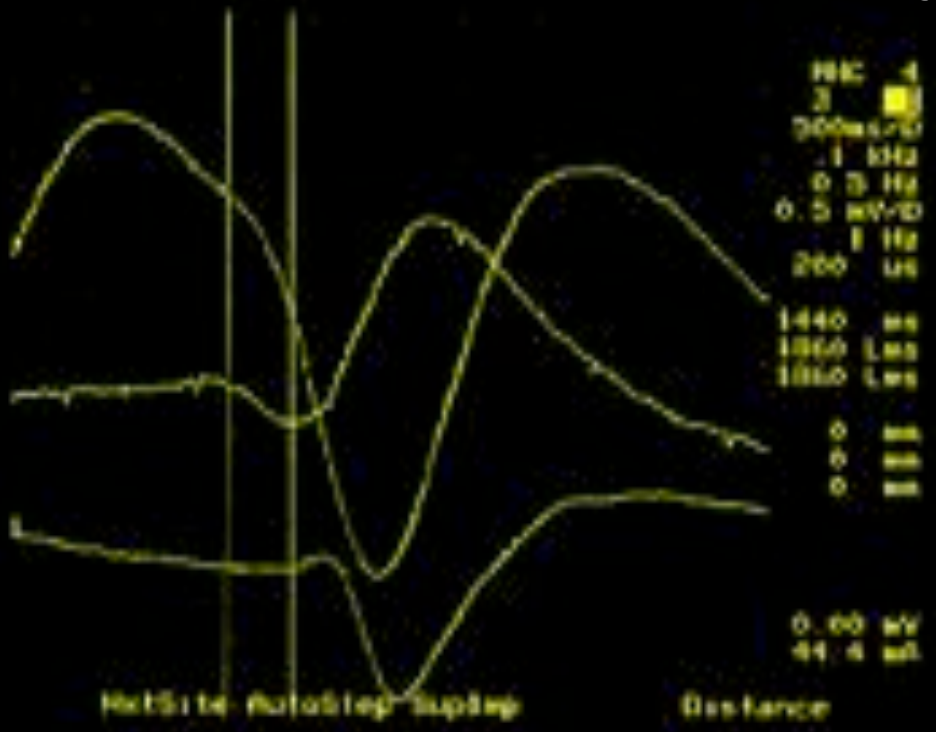
Stimulation Median nerve, Intensity 3 times sensory threshold.



Sympathetic Response

Normal subject



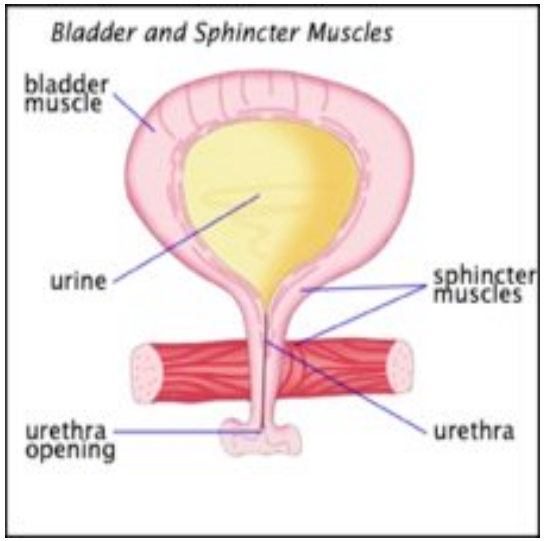


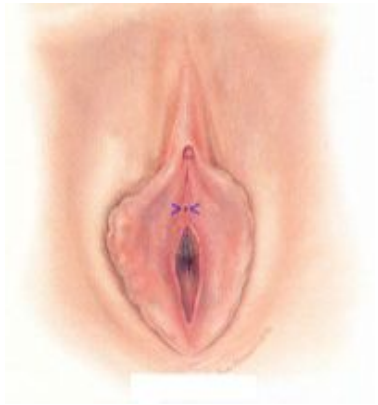
Alteration of SSR in Pudendal neuralgia ?

Medical treatment…

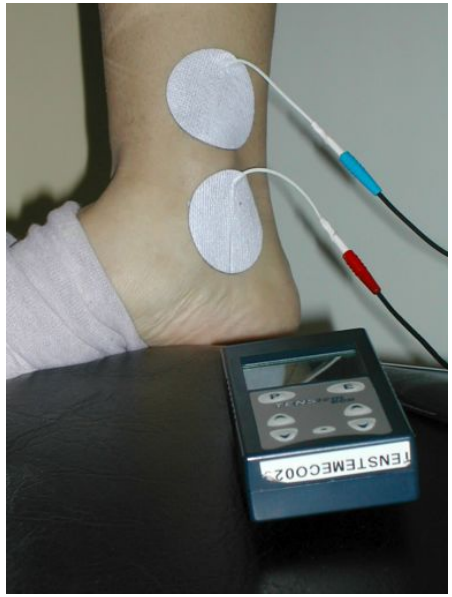
- antalgiques neurotropes
- prise en chrage multi-modale
- neurostimulation
- approche psycho-comportementale
- reeducation

Alphabloquants, stimulation SPI, reeducation, toxine…





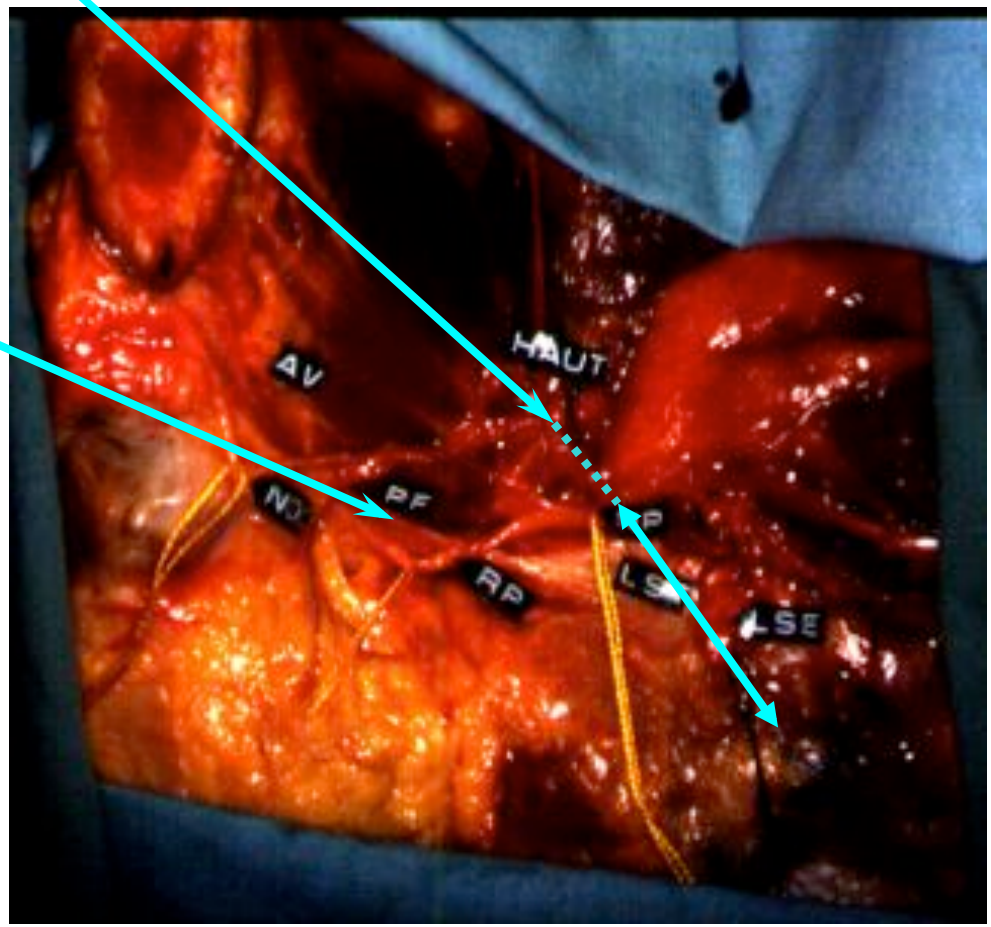
100 UI BOTOX®



Surgery …

Ischial spine

pudendal nerve



Conclusion

Emg is only a test of second (or third line …) with very specific indications

- **Pain following surgery**
- **Before a surgery of the pudendal nerve (decompression)**
- **Clinical examination and block tests : doubtful**
- **Objective loss of sensibility**
- **Abnormalities of neurological clinical examination without pathology tracked down by means MRI**

Take home messages

Civilization pathology ?

Emg … not systematically !

Clinical examination !