Pudendal nerve decompression surgery: Transgluteal technique

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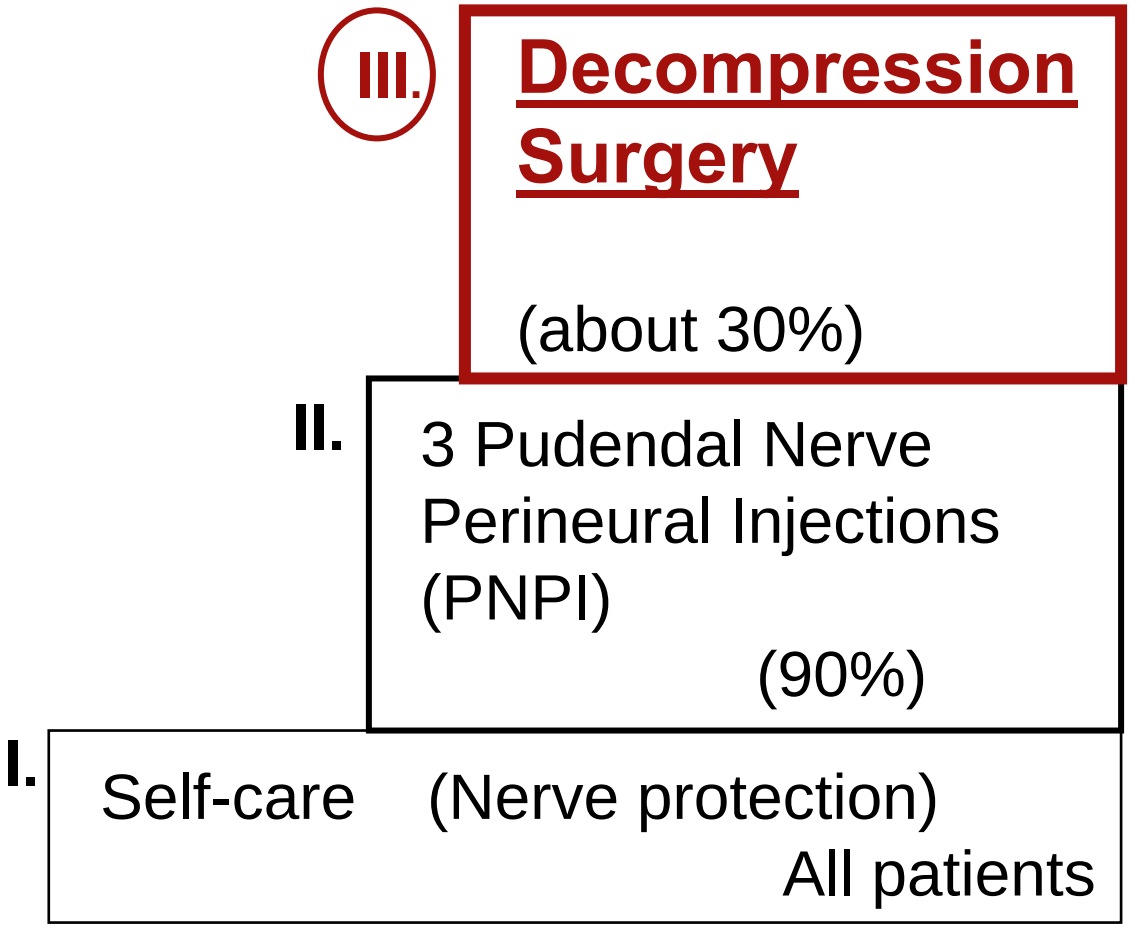
ICS Glasgow, Scotland August 2011

Three Sequential Treatments
may relieve PN Symptoms



Technique of Prof Roger Robert, Nantes, FR

What surgery is attempting to achieve.
Letter at 17months post op; 51 year old male

- My life has changed completely
- I am completely symptom free and off all medications.
- The urinary frequency, retention and incontinence have resolved.
- I can sit for hours, not minutes.
- I do not take beta blockers to control periods of tachycardia. (allostatic overload)
- I know the frustration, shame and humiliation this condition brought to my life.

Components of *surgical care* of Pudendal neuropathy include:

- Decision to perform surgery
- Technical procedure/technique
- Postoperative care of *surgical **"failures"***

Components of *surgical care* of Pudendal neuropathy include:

- Decision to perform surgery;
  - Lack of response to conservative care including PNPI
- Technical procedure/technique
  - Anatomy and anatomical variations; anomalies
- Postoperative care of *surgical **"failures"***
- **Post op pain relief may require 9-24 months**
  - **Spinal cord windup/central sensitization**
  - **Concurrent painful** pelvic neuropathies
  - Permanent nerve damage
  - Surgery may cause perineural scarring

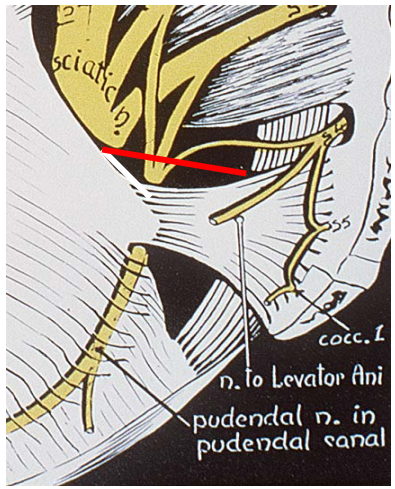
Pudendal nerve decompression surgery

- Transgluteal approach
  - Prof. Roger Robert, 2010
    Nantes, France

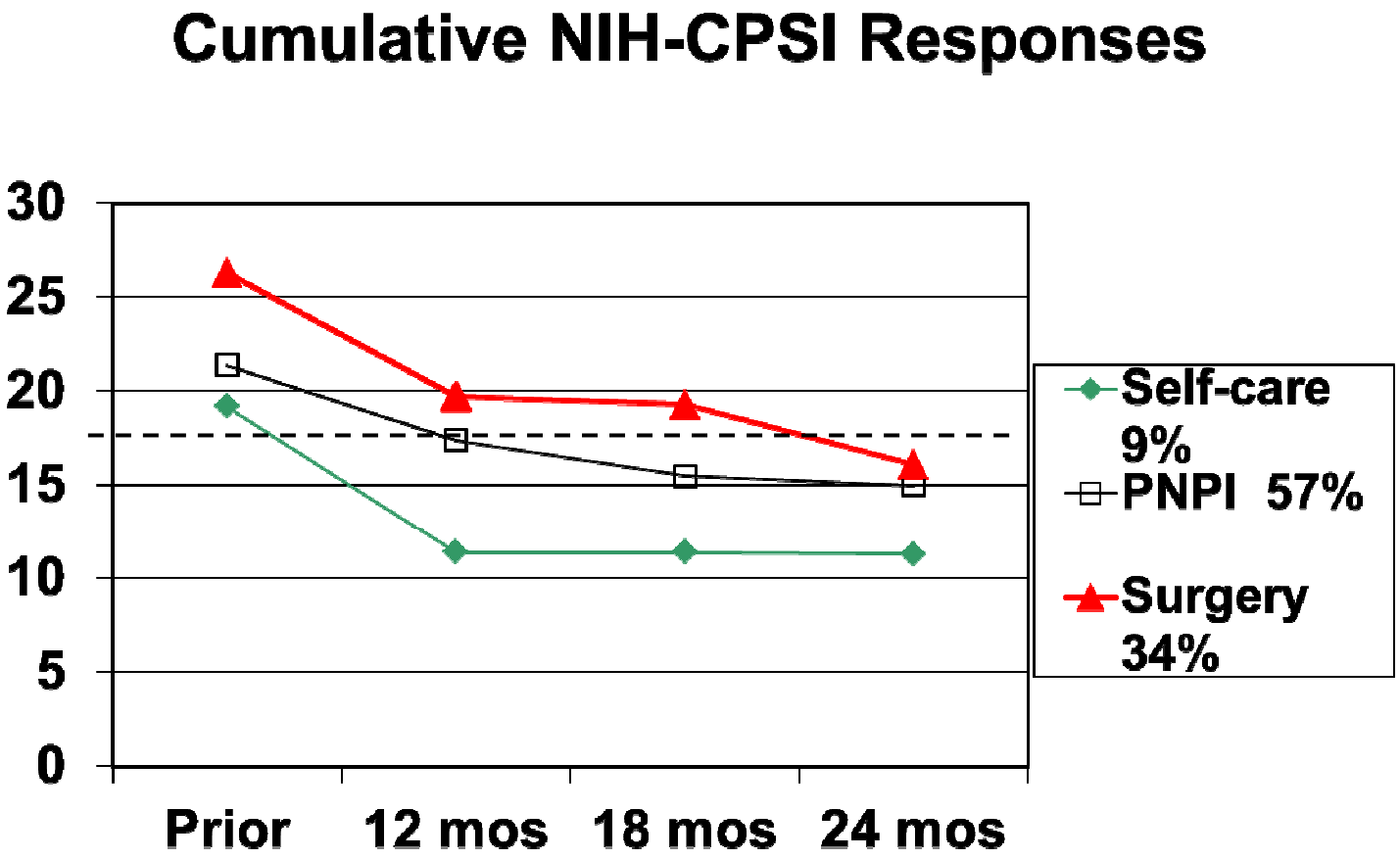
See Shafik (2007) Role of sacral ligament clamp in the pudendal neuropathy (pudendal canal syndrome): Results of clamp release. Int Surg 2007;92: 54-59.

Advantages of transgluteal approach

- Visualize entire nerve from sub-piriformis through Alcock canal.
- Identify and preserve anomalous nerve branches.
- Visualize variations in the nerve pathway and unusual compressions.
- Completely relieve compression at the superior margin of the ischial spine (a common problem).
- Ability to excise elongated ischial spine
- Retain pelvic stability and normal gait.



Pudendal Neuralgia: Treatment results. **2005**
Males; n = 47 @ 12 months, 39 @ 24 months

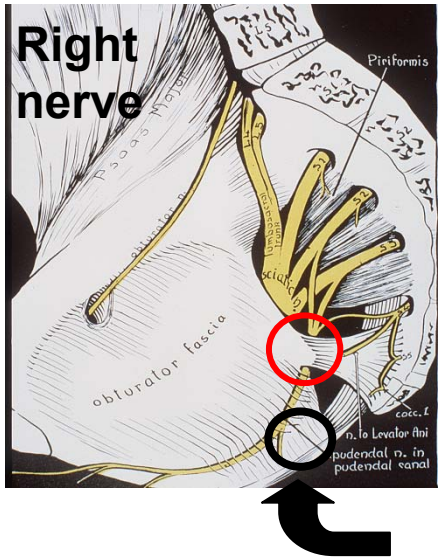


Presented May 17, 2008 at AUA Annual Meeting Orlando, Florida

Decompression surgery

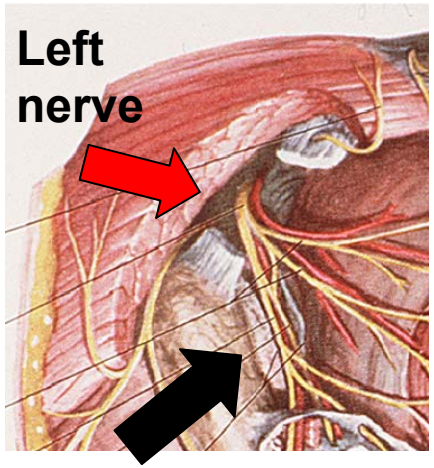
- Surgery addresses the compressed nerve fibers
  - Degree of compression varies; gross changes visible
- Healing is not consistent and may be very slow.
  - Biopsy not possible; No pathologic specimens exist.
  - Degree of fibrosis, demyelinization, not visible
  - Denervation/reinnervation can be measured clinically
- Nerve cells also must be addressed.
  - Long term post operative medications are needed.
- Additional neuropathic pain generators must be addressed.

Two major sites of nerve compression.



The “LOBSTER CLAW” or “clamp” between the sacrotuberous and sacrospinous ligaments. (>90%).

The **Alcock canal** (pudendal canal. (<10%).



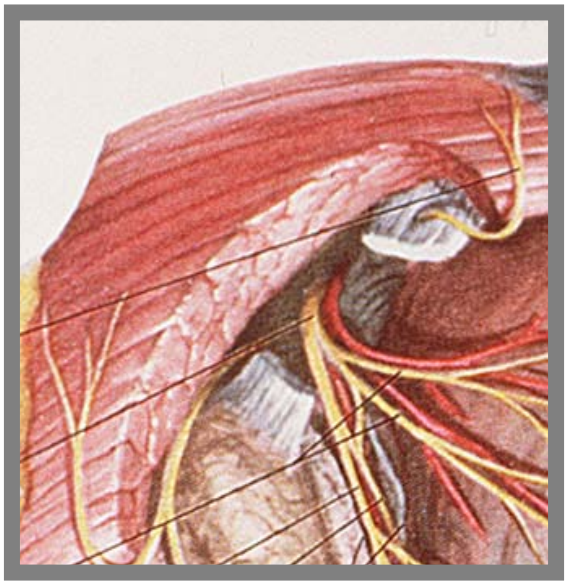
Prone view similar to transgluteal surgery

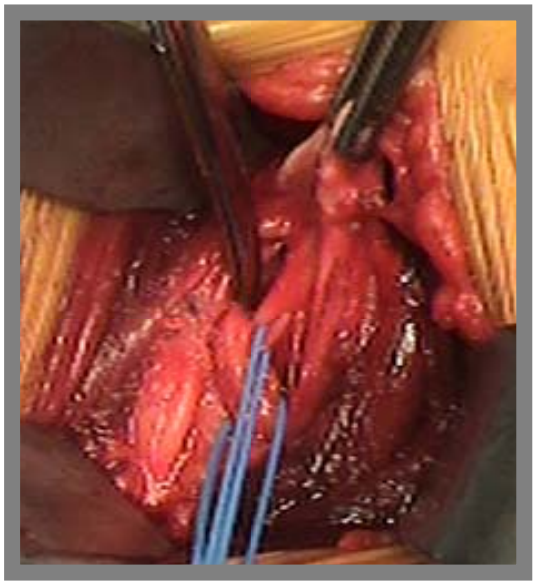
Decision for surgery (⇩) is simple.
Failure of 3 PNPI to relieve or control symptoms.

KmbrWd

Elements of Transgluteal pudendal nerve decompression (Variation of technique of Prof. Roger Robert, Nantes, France)

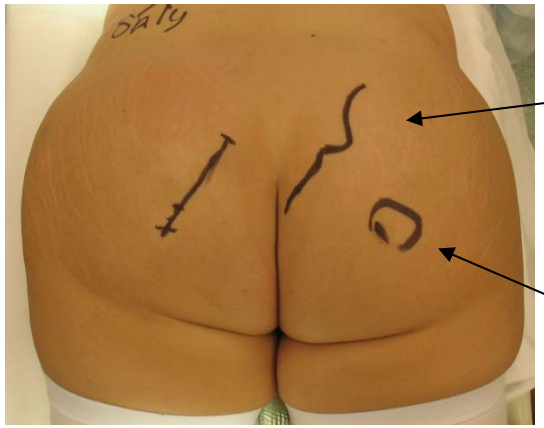
1. Incision from sacrum to ischial tuberosity (Left side below)
2. Split, to not transect, gluteus muscle bundle.
3. Incise Sacrotuberous ligament vertically in midline.*
4. Bluntly open ischiorectal fossa.
5. Compressing fascias are transected (portions may be excised).
6. Sacrospinous ligament is transected (portions may be excised).





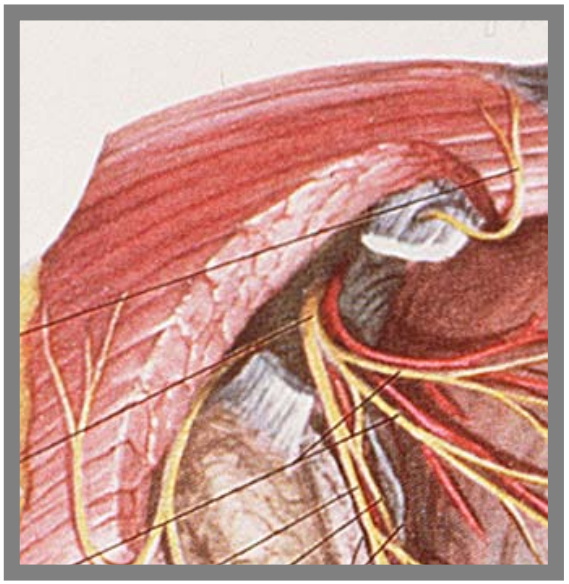
Landmarks for left transgluteal decompression. Prone position; flexed at hips.

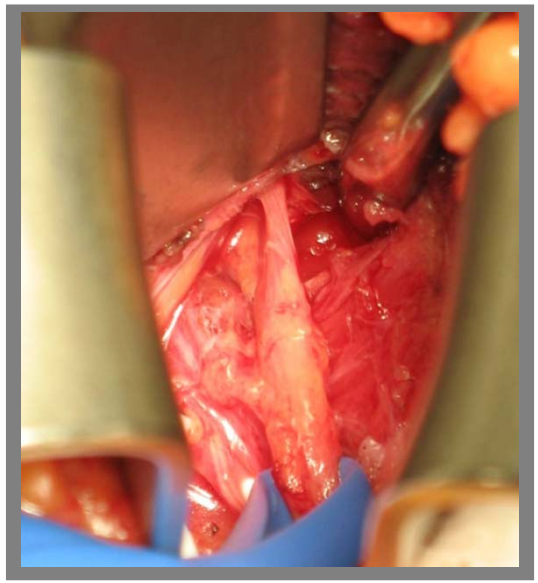
Incision site marked

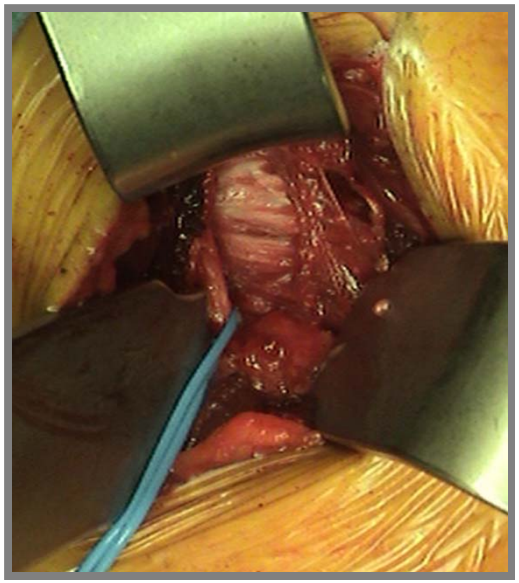


Sacrum with prominent inferior lateral angle

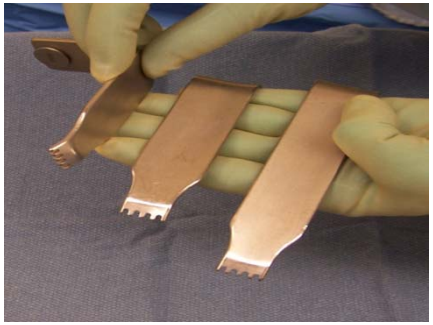
Ischial tuberosity



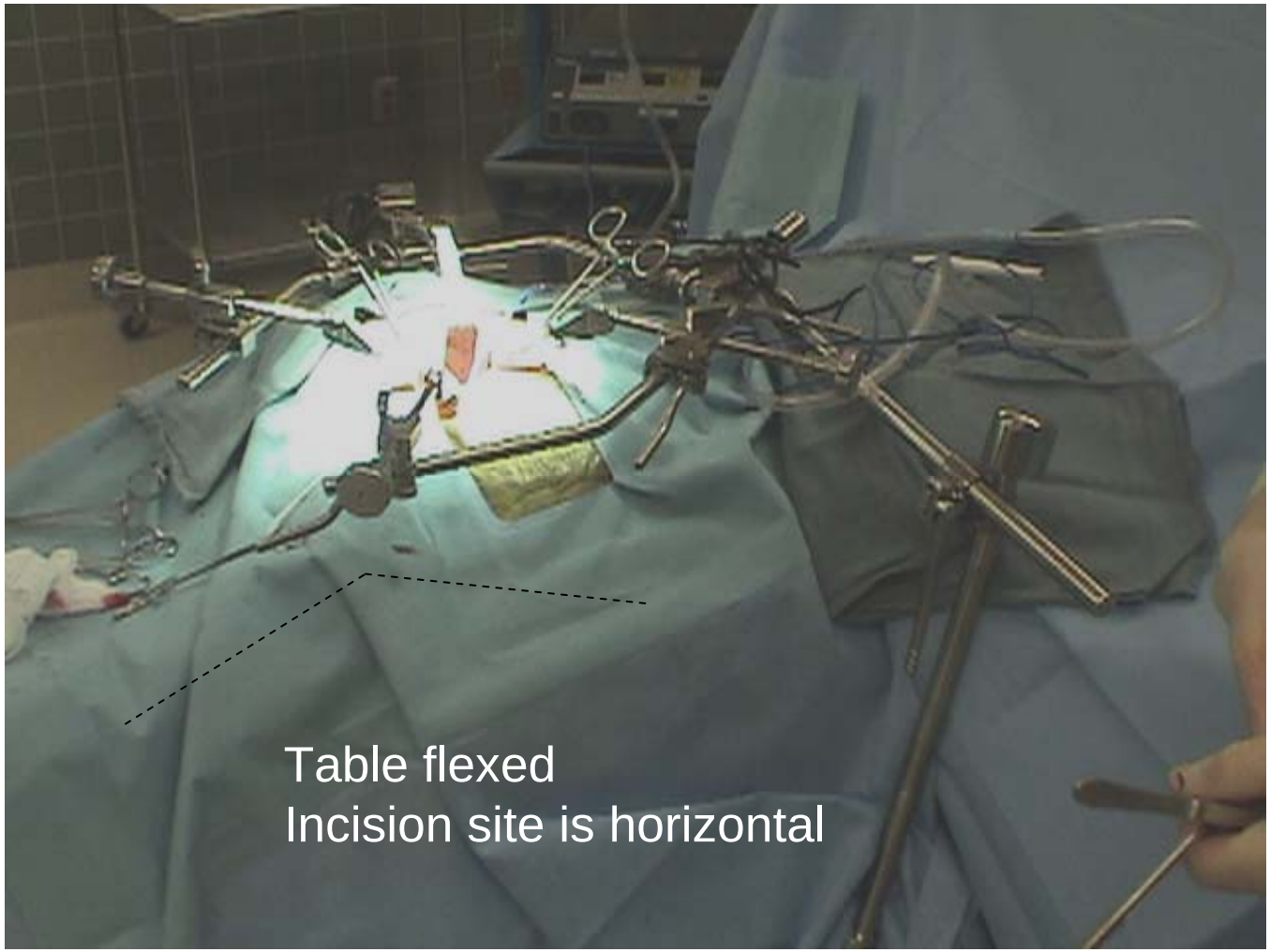




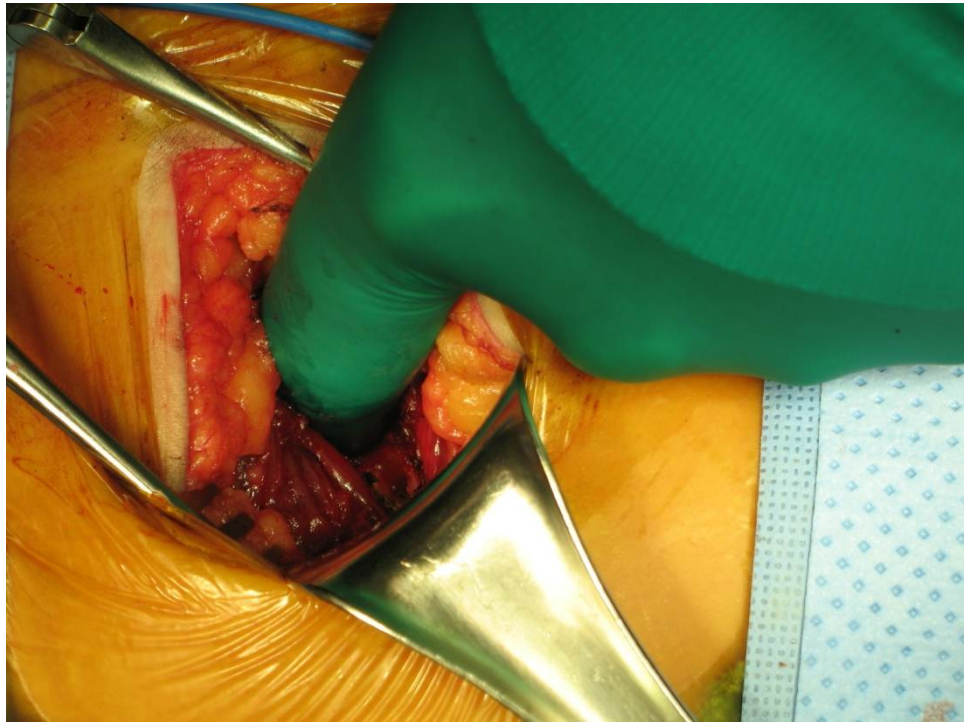
Self-retaining retractor



Omni-tract Retractor®
Use Keggi curved retractor blades

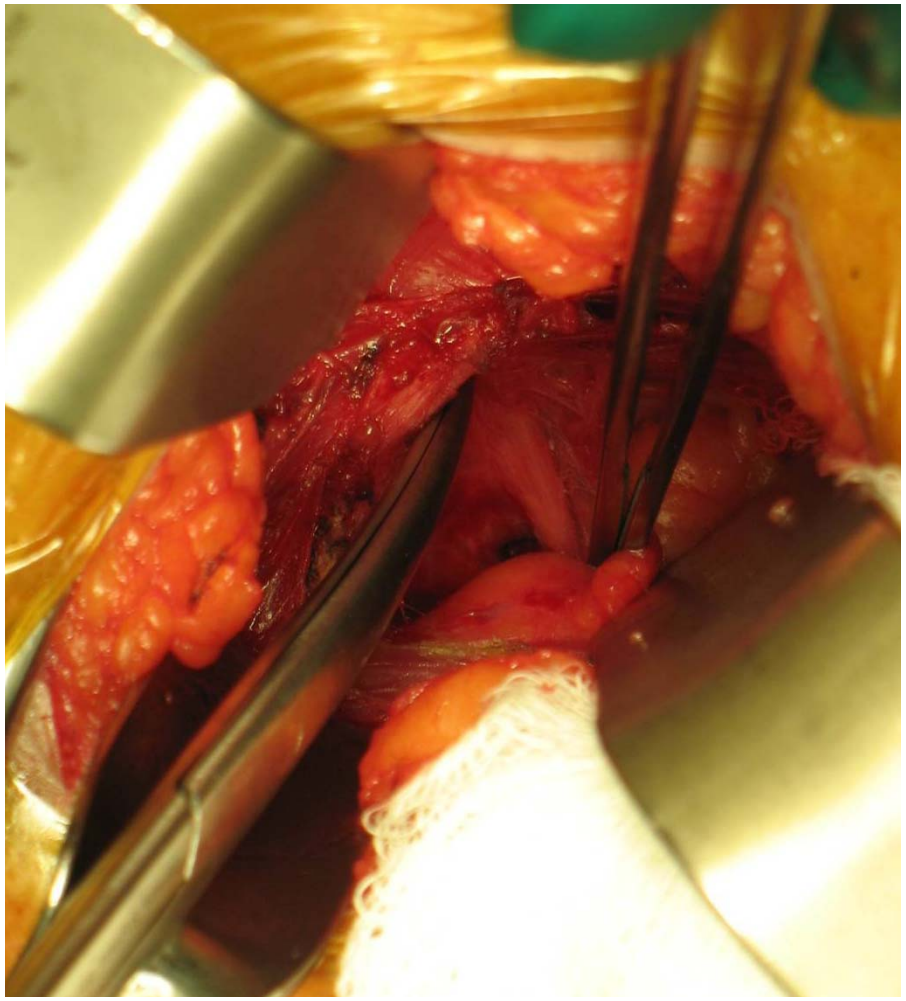


Opening the left ischiorectal fossa



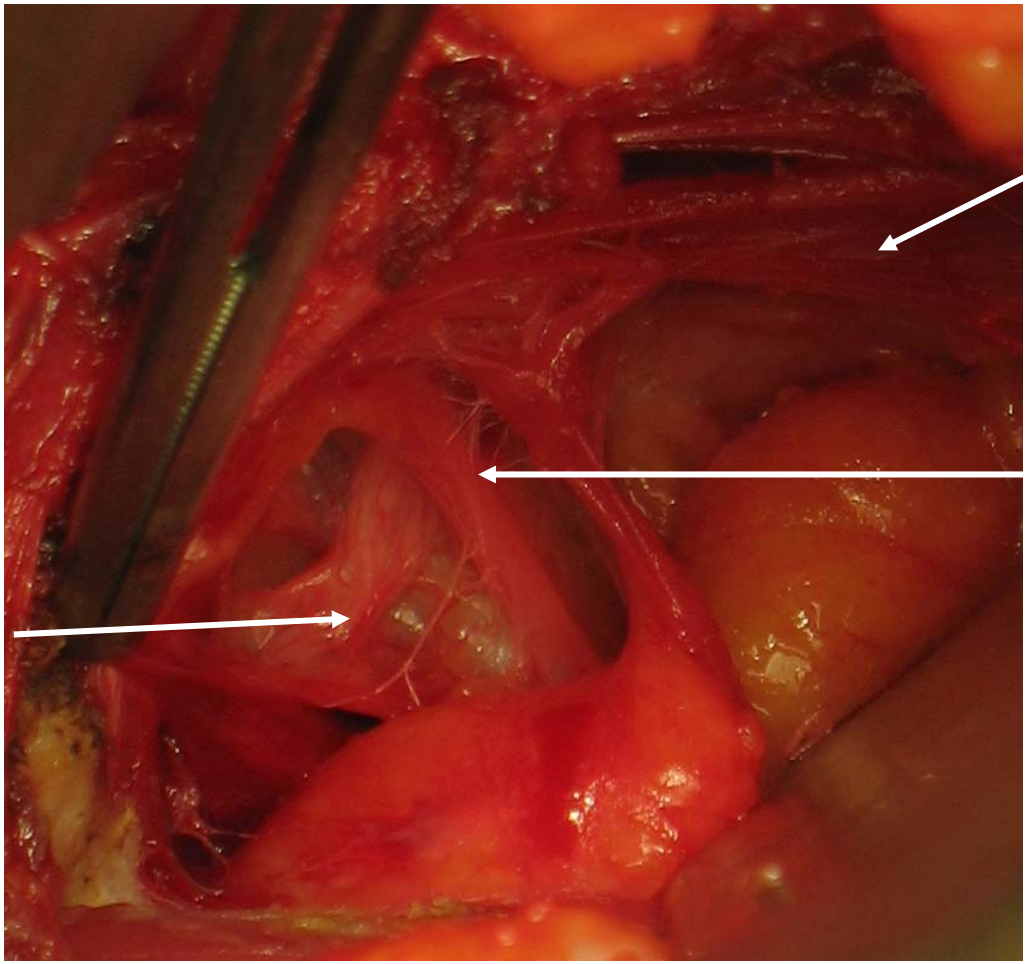
- Blunt dissection of pelvic planes.
- Pararectal fat is separated from lateral pelvic wall.
- Often, the inferior rectal nerve can be palpated as it traverses from lateral to medial.

Exposure of the left pudendal nerve.

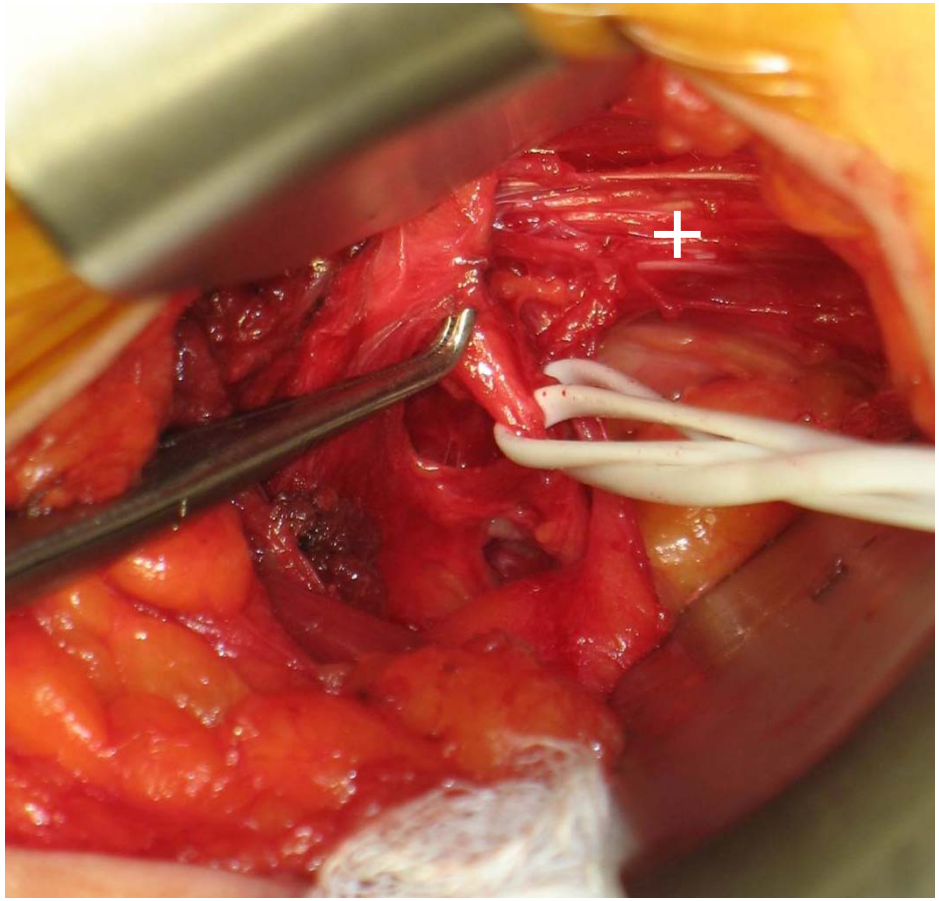


- Inferior rectal nerve
- Scissors at ischial spine
- Anterior to scissors is fascia of the pudendal canal
- Sacrospinous ligament is a fibro-muscular structure.

Pudendal canal is open
Dissection must continue proximally to “clamp” and distally to bifurcation of main trunk.



Continuing dissection cranially toward “clamp”.

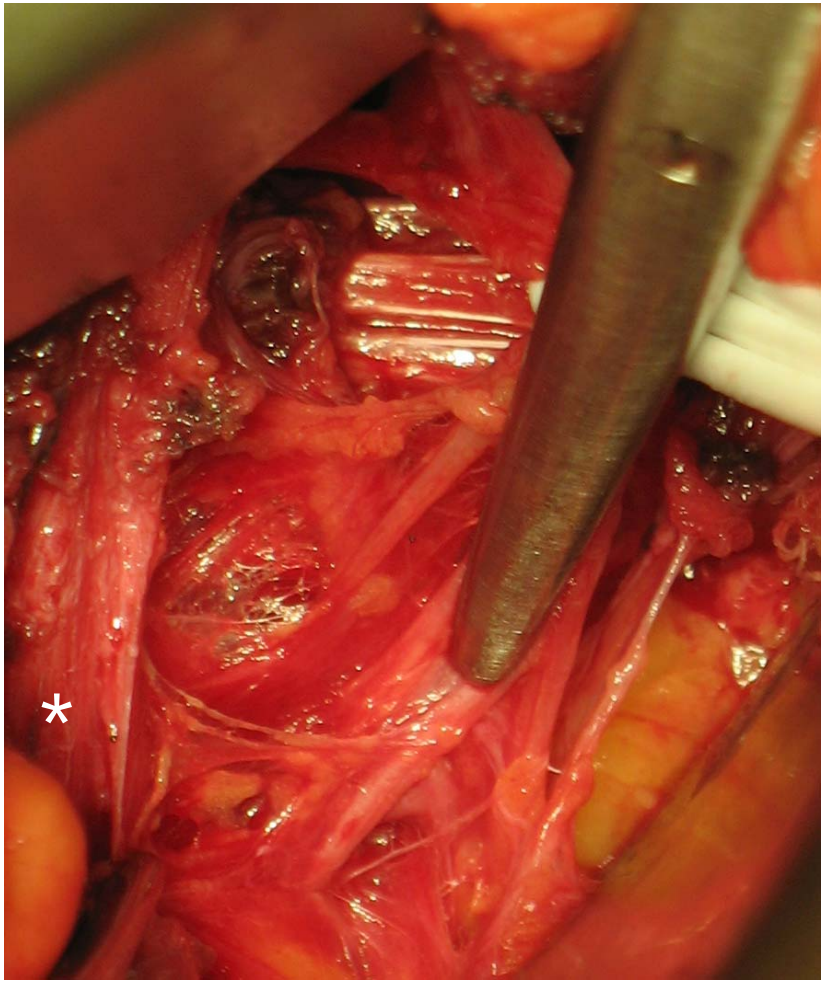


- Vessel loops in place.
  - Inferior rectal nerve is nearest you)
- Dissecting forceps under a thin fibrous compression band.
- Sacrospinous ligament evident. + Note the multiple fibrous and muscular bands.

Superior portion of sacrospinous ligament is seen (at arrow).

- Fibers will be completely transected from ischial spine.
- Note that the “main trunk” and IRN have now joined as one nerve.
- Varicose vein medial to nerve.

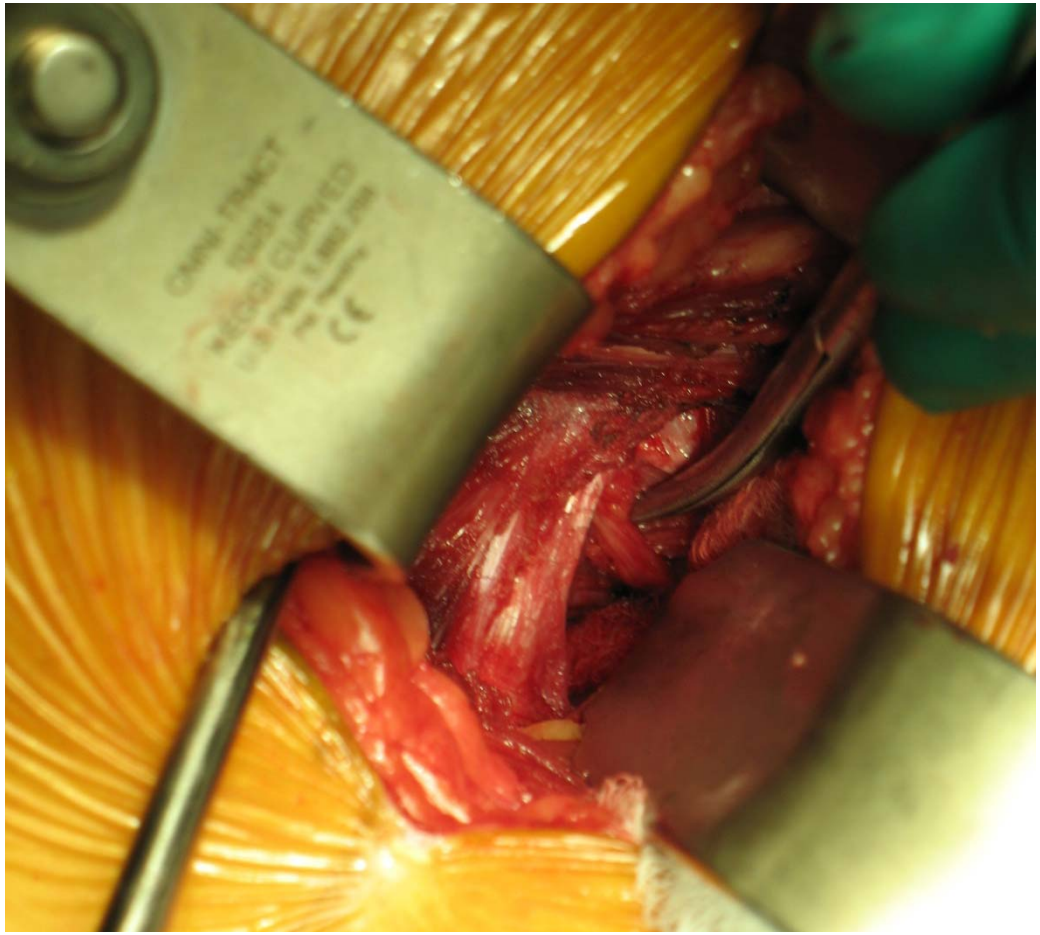
Dissecting distally in the left pudendal canal.



- Individual branches are exposed.
- Examination for compression is made.
- Fibrous bands must be completely removed.
- Falciform process (*) will be excised.

Examples of the Falciform process.

Lt. falciform process
IRN (separate from main trunk)



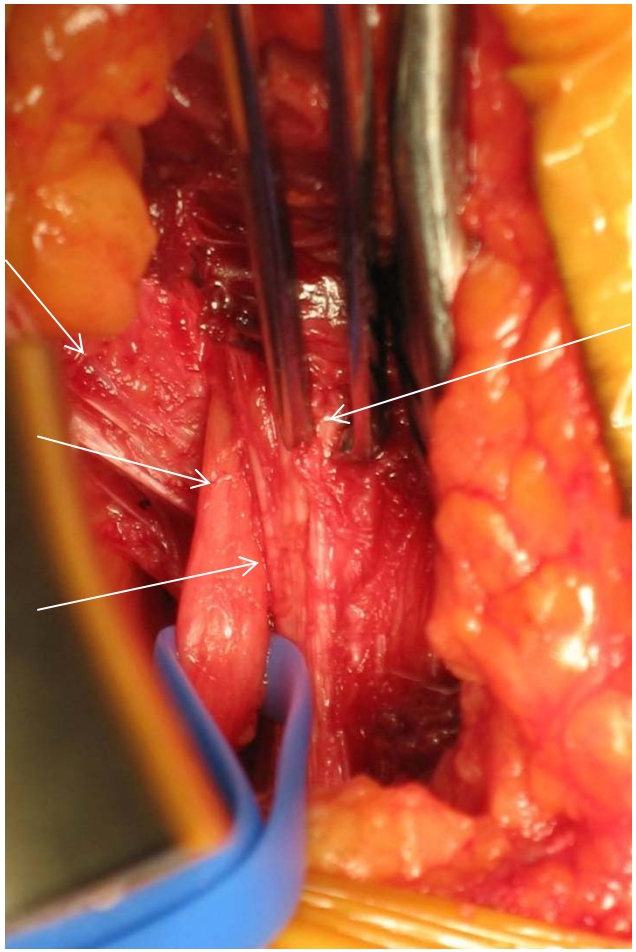
IRN demonstrated

Right falciform process. (elderly lady). Tight, sharp medial band is compressing the pudendal nerve against the sacrospinous ligament.

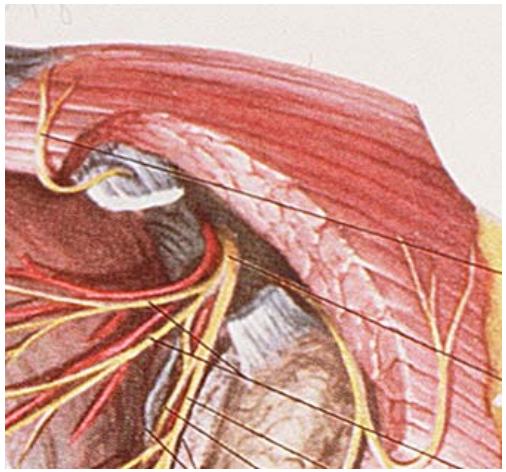
Sacrospinous ligament

Pudendal nerve

Lateral edge of falciform process



Forceps at edge of opened sacrotuberous ligament.



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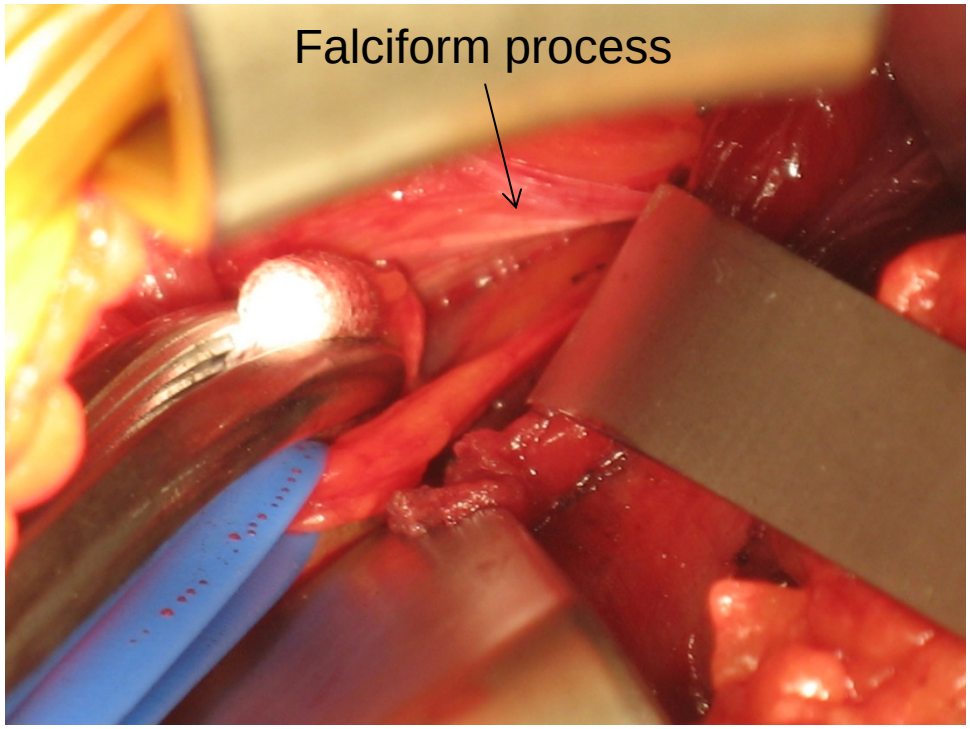
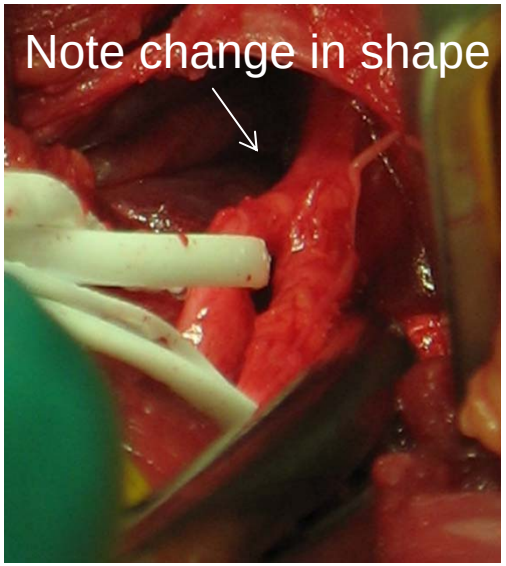
Right side: Nerve in vessel loop

Nerve is flattened cranially between fibrous Ssp Ligament/ischial spine anteriorly and Falciform process posteriorly. FP is elevated by Kuettner.



Recall that when approaching from posteriorly, the FP must be split in order to gain access to nerve pathway that lies anterior to the falciform process.

Physicians with decompression surgery

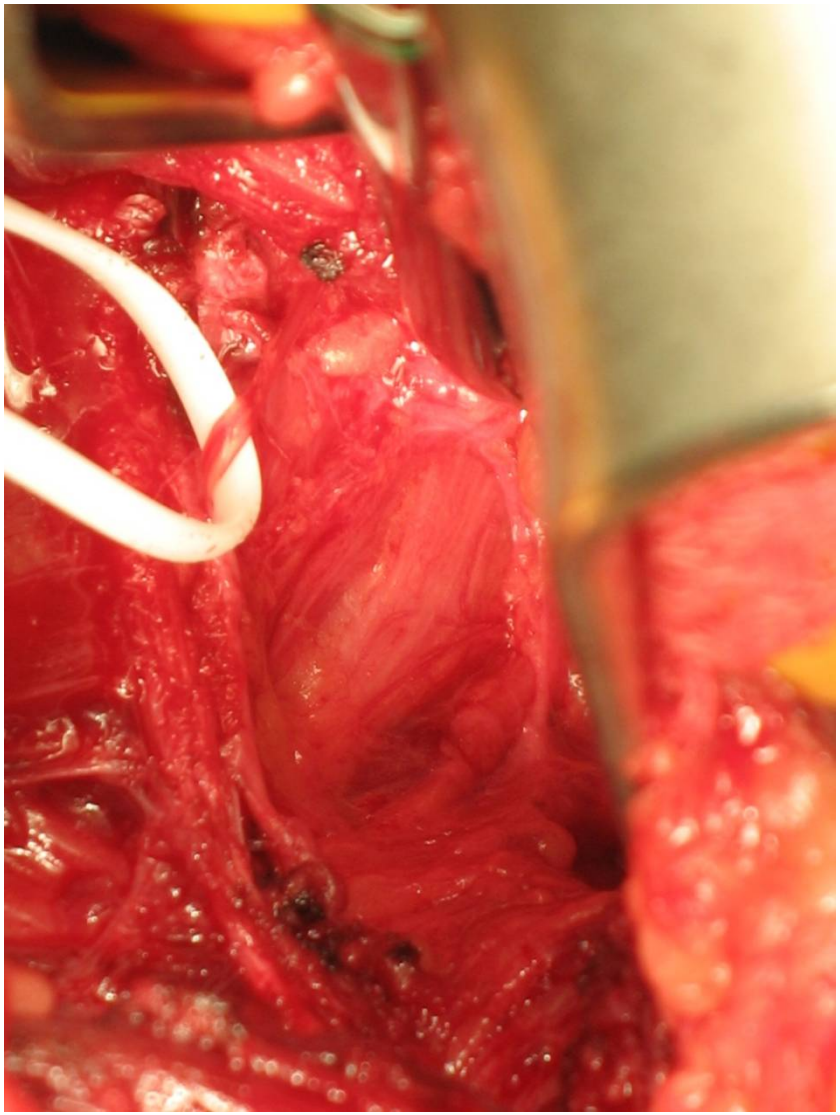


Neurosurgeon

Mayo Clinic physician

Pathologist

Nerve splayed: note individual fascicles



Repetitive flexion of the obturator internus muscle.

Forces the nerve against the dense obturator fascia.

Nerve is compressed and flattened.

Dorsal nerve of penis in loop

Ty Nyh010311

Post operative care

- In hospital
  - Catheter over night
    - Marcaine bladder instillations if overactive bladder
  - Standard care (opioid analgesia IV, ketorolac IV)
  - Walk day of surgery
  - Begin gliding exercises the morning after surgery
    - Flexion of hip followed by abduction and adduction.
- Home care
  - Ambulation is not restricted
  - Avoid sitting/driving automobile for one month
  - Gliding exercises b.i.d. for several months
  - Slow return to normal activities
    - Avoid excessive exercise and for several months

Post operative problems

- Transient: neuropraxia days to weeks
- Urine retention first day (< 1%) [usually males]
- Persistent post operative pain
  - May require additional treatments in < 10% of surgeries.
  - Be alert to concurrent peripheral neuropathies
- Post operative treatments (begin after 4 to 5 months)
  - Perineural injections of steroid and/or heparin (two levels)
  - Intravenous ketamine for spinal cord wind-up
  - Epidural anesthesia
  - At Hotel Dieux in Nantes, France, an effective post operative treatment program uses five days in hospital for this care.

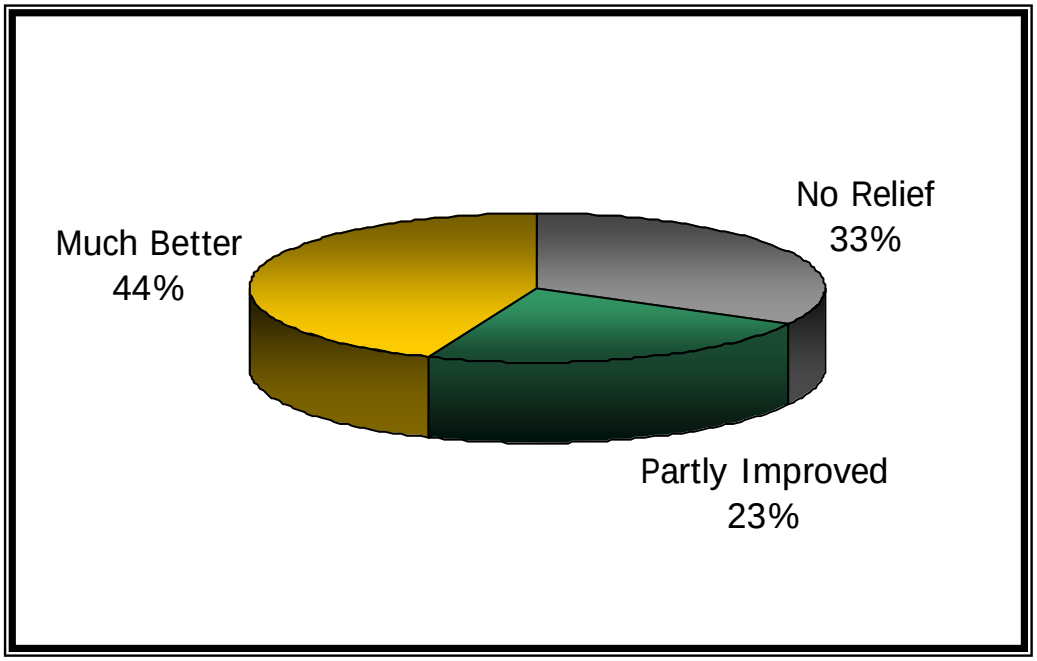
Advantages of transgluteal approach

- Visualize entire nerve
- Identify anomalous nerve branching
  - Preserve anomalous branches
- Visualize variations in the nerve pathway and unusual compressions.
- Completely relieve compression at the superior margin of the ischial spine (a common problem).
- Ability to excise elongated ischial spine
- Retain pelvic stability and normal gait.

Results

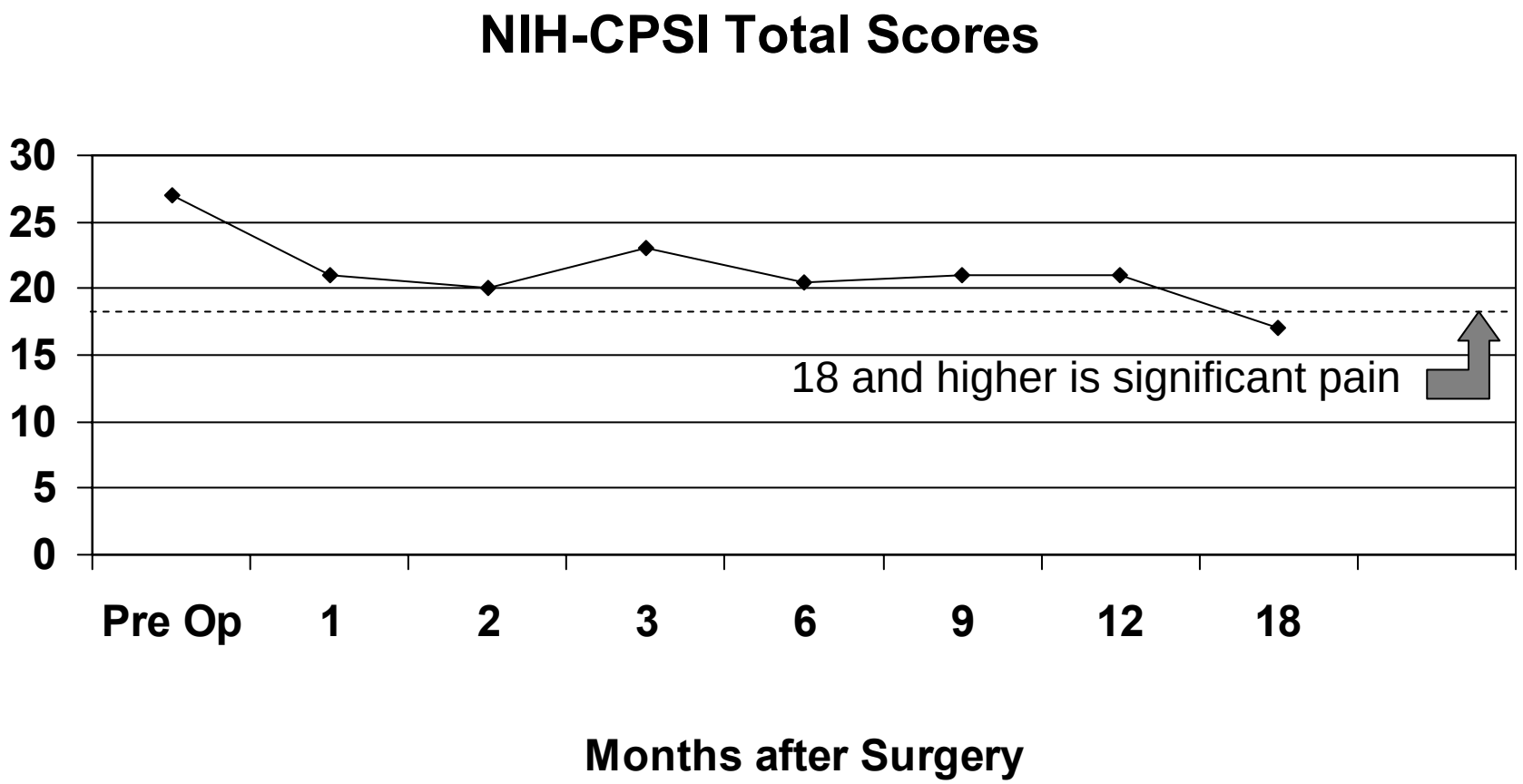
OUTCOME OF SURGERY,
Dr Lee Ansell, Houston, Texas

Retrospective / 170 patients / ≥ 1 year

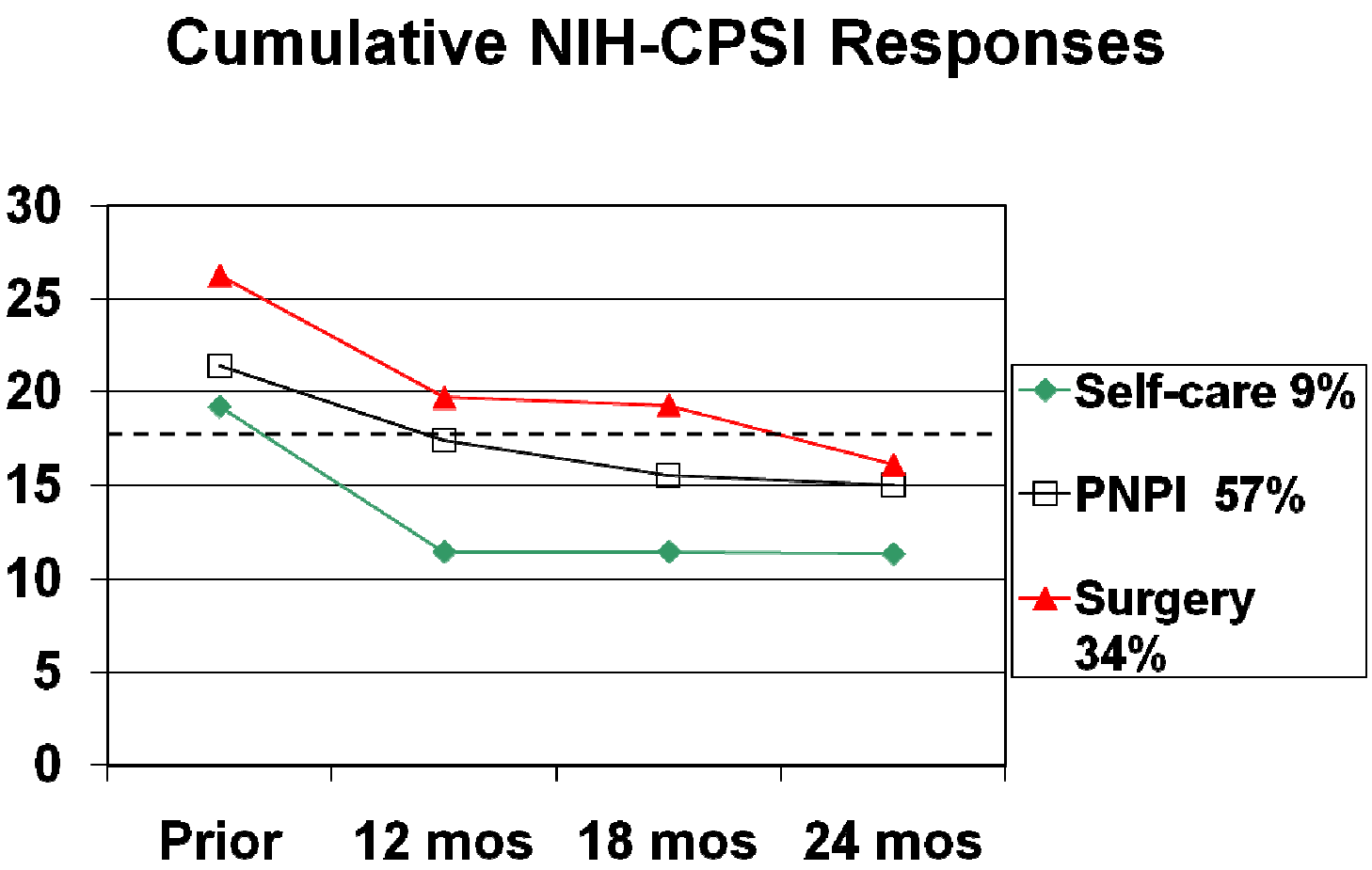


Robert 70%; Amarenco 65%; Shafik; Mauillon Bautrant 62%

CUPP Post operative Results from 2004
@18 months; n=42



Pudendal Neuralgia: Treatment results. **2005**
65% cured or significantly improved.



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Planning surgery? Have a post op plan!

Why little boys need mothers.

1. Treat concurrent neuropathies
    1. **Maigne syndrome (TLJ syndrome)*****
    2. Middle cluneal neuropathies
    3. I-I and I-H
    4. ACNE
2. Address windup / sensitization
    1. Multiple medications
    2. IV Ketamine*****
    3. Epidural anesthesia

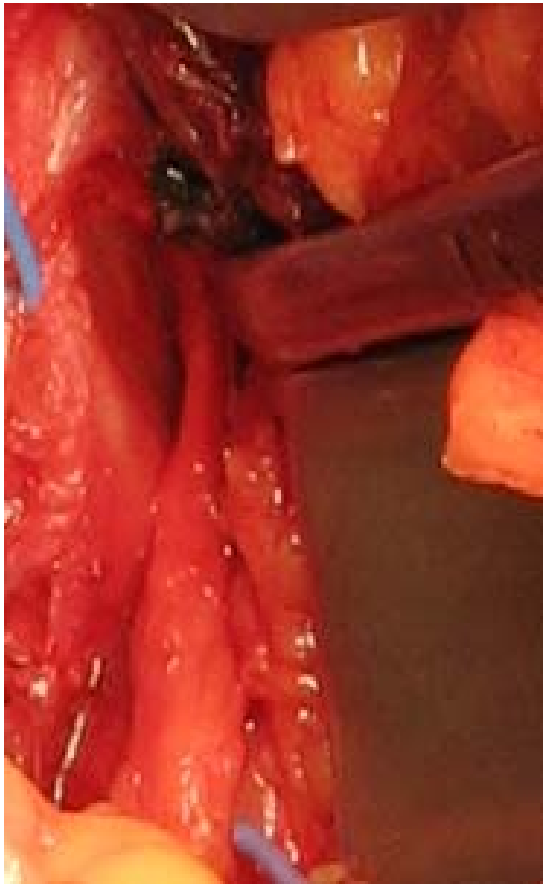
3. Perineural blockades
    1. Steroids/heparin/ marcaine

4. Spinal cord stimulator-at what time? 4-5 years?

Persistent post operative pelvic pain

- Nerve damage may be irreversible and cause persistent pain.
- Irreversible damage is more likely seen in patients with previous pelvic surgeries, especially with urine leak after bladder perforation or radical prostatectomy.
  - Atretic nerves
  - Discoloration (yellow, brown, red)
  - Pallor, suggesting vascular impairment
  - Necrosis (gelatinous, translucent appearance)
    - Cyclist from Canada cycled 5000km to Mexico)

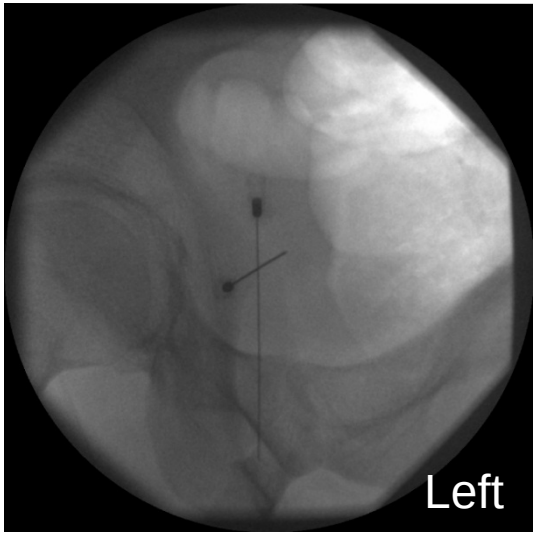
Failure of surgery to control pain
Receiving **ketamine infusions** with pain reduction

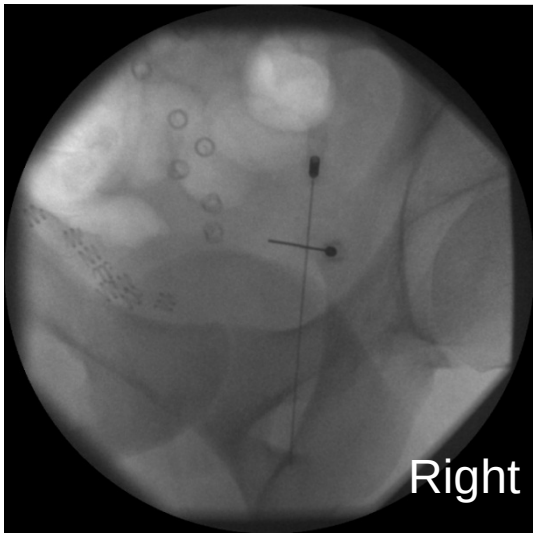


- Severe compression.
- IV ketamine 20 mg over 20 minutes.
  - Initially < 1 week of pain control
  - Now, ketamine at 3 to 6 month intervals.
- She is still limited in activities but **"life is now worth living".**
- No longer suicidal. Can drive auto
- Able to fly from California to Caribbean islands although travel aggravates her pain.

Persistent post operative pelvic pain

Initially use pudendal nerve blocks

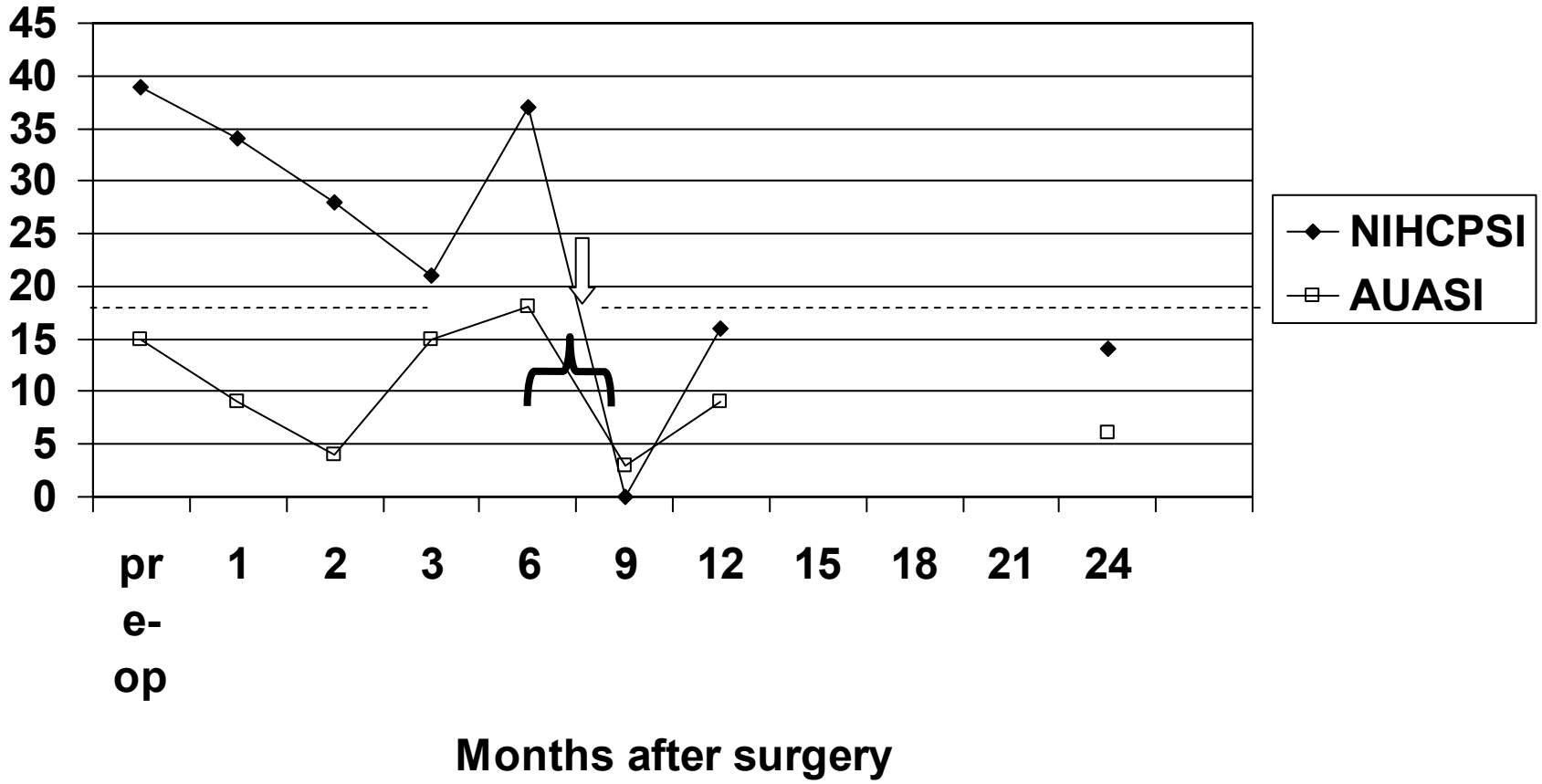




- Use two level blocks bilaterally.
  - The entire length of pudendal nerve can be treated.
  - The pudendal canal is opened. The fascia has been removed.
- 6 mL bupivacaine and steroids proximally.
- 9 mL bupivacaine and 4000 units heparin distally.

Results

Surgical “failure”
RX Post op PNPI, Kenalog/Heparin ⇩
post-op months 7 and 8; n=2



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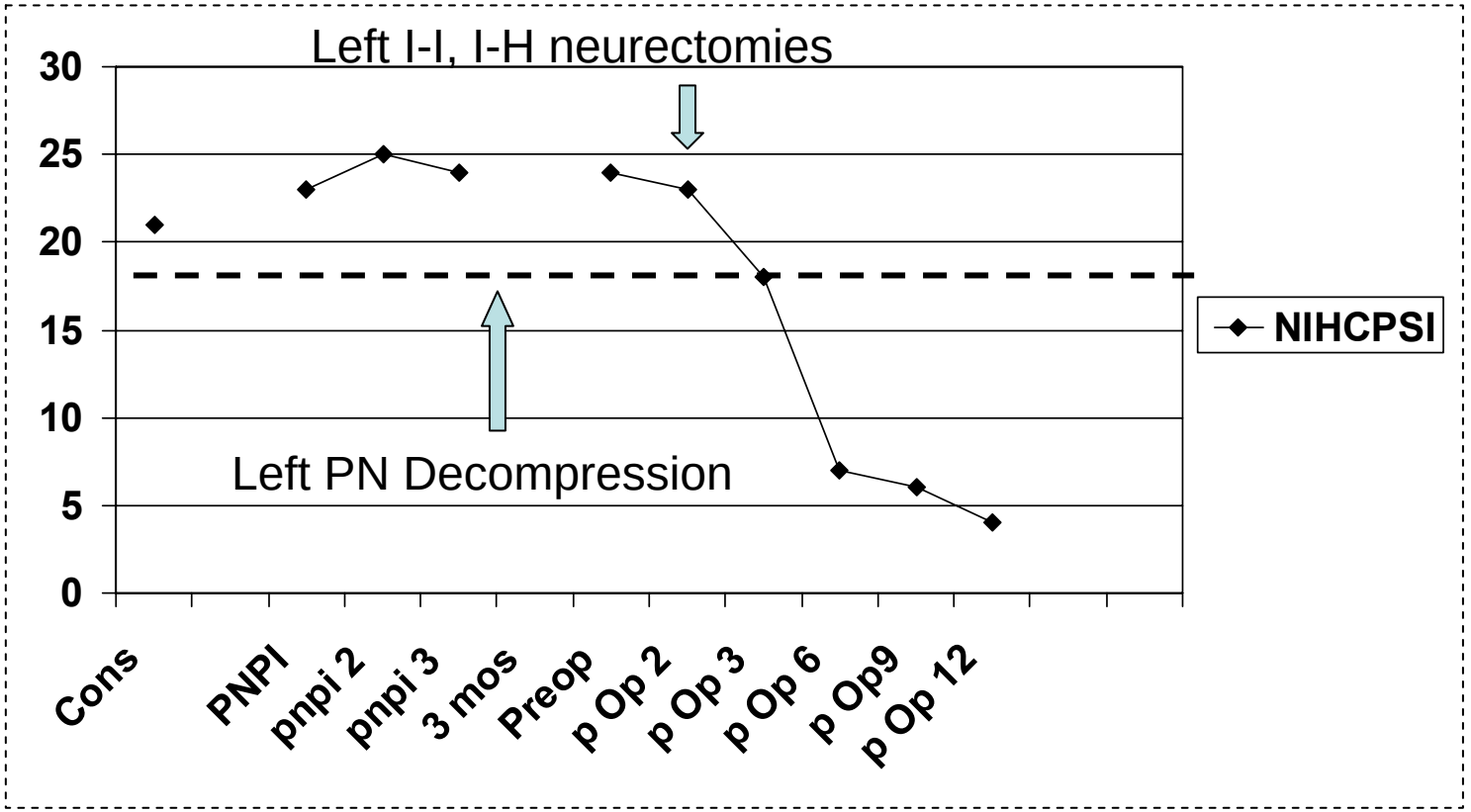
Results

28 y/o male: Pudendal neuropathy and concurrent ilioinguinal and iliohypogastric neuropathies. Pre-op: PNPI reduced pain; I-I, I-H blocks relieved pain



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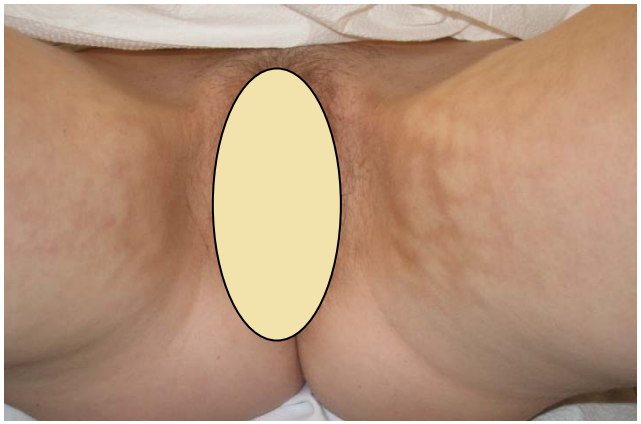
Persistent post operative pelvic pain

- Spinal cord windup is a serious problem in some patients (chronic regional pain syndrome).
- Treatment options include;
  - Epidural infusion of bupivacaine
  - Intravenous ketamine
  - PO Clonidine in this lady



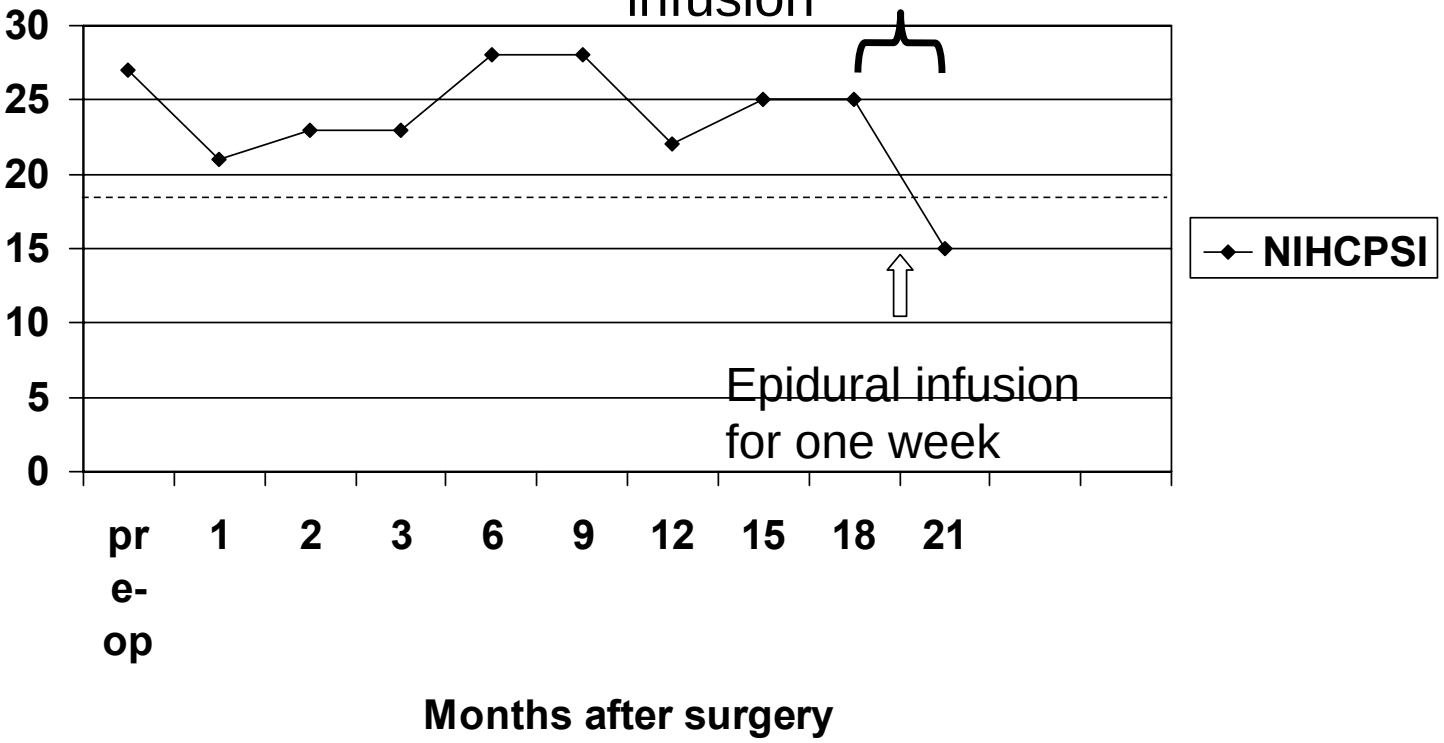
9/14/09

10/8/09

Surgical “failure”

RX **Epidural infusion bupivacaine**

Pain score 2 days after completion of infusion



Pain <u>relief</u> 10 days after #1; 10 weeks after # 2 and 3;

Pain free after 26 years using acupuncture (unsuccessful pre-op).

GarCip

Summary of transgluteal decompression of the pudendal nerve

- Incise, do not transect sacrotuberous ligament.
- Identify nerve or inferior rectal nerve in ischiorectal fossa.
- Dissect cranially and identify all compression bands.
- Transpose nerve medial to the ischial spine.
- Adhesion barrier…any advantage?
- Gliding exercises…any advantage?
- World wide about 65% of surgical patients improve.
  - Operate only failures of extensive conservative treatments (self-care and PNPI).

Summary

- Pudendal neuropathy is a tunnel syndrome.
- Diagnosis is easy using pinprick.
- Treatment can be successful
  - Self –care
  - Pudendal nerve perineural injections
  - Decompression surgery
- Physicians need to take responsibility for all aspects of care, including recommendation for decompression surgery and emotional care.
- Serious damage may never heal.
- Significant post operative care may be required.


WHAT ARE YOU DOING?
I'M SEEING IF I CAN READ YOUR THOUGHTS WITH MY STETHOSCOPE
YOU THINK I'M AN IDIOT, DON'T YOU?
AMAZING!