

# Pudendal nerve decompression (PND) in the treatment of overactive bladder (OAB)

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<http://www.pudendal.com>

# PND in the treatment of stress urinary incontinence



Shafik, A., *Pudendal canal decompression in the treatment of urinary stress incontinence.*

Int Urogynecol J Pelvic Floor Dysfunct, 1994. **5**: p. 215-220.

⇒ Our first contact with Professor Ahmed Shafik in France and the beginning of a friendship around perineology

# PND in the treatment of OAB

## Case report

- 38 years old, female patient
- severe urge incontinence since 2 years
- 4 big pads per day
- ICIQ-SF: 13/21
- frequency: voiding every 60 minutes
- nocturia: 4 times/night

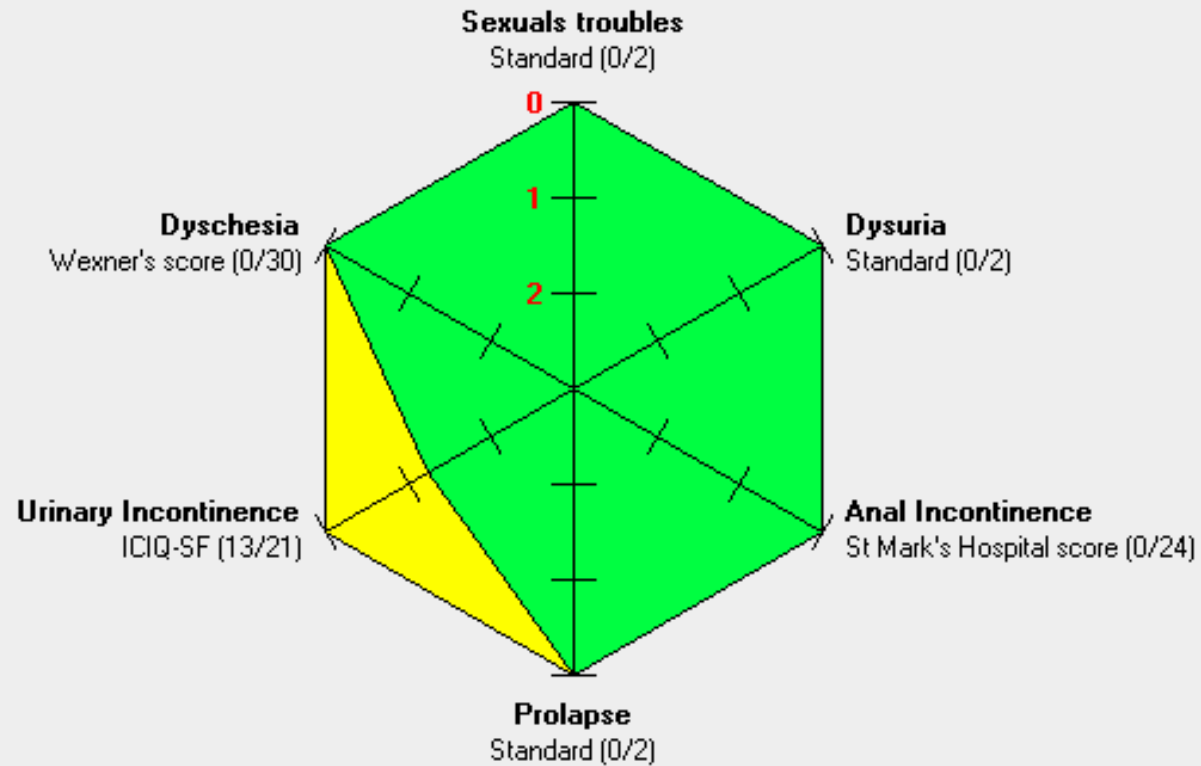
# PND in the treatment of OAB

Case report: other symptoms

- right perineodynia increased while sitting
- 2 or 3 days after biking: VAS 8/10 since 8 years
- no anal incontinence, no dychesia, no dysuria, no prolapse and no dyspareunia

# TAPE of this patient

## Three Axis Perineal Evaluation (TAPE)



TAPE freeware soon available on [www.pelviperrineology.org](http://www.pelviperrineology.org)

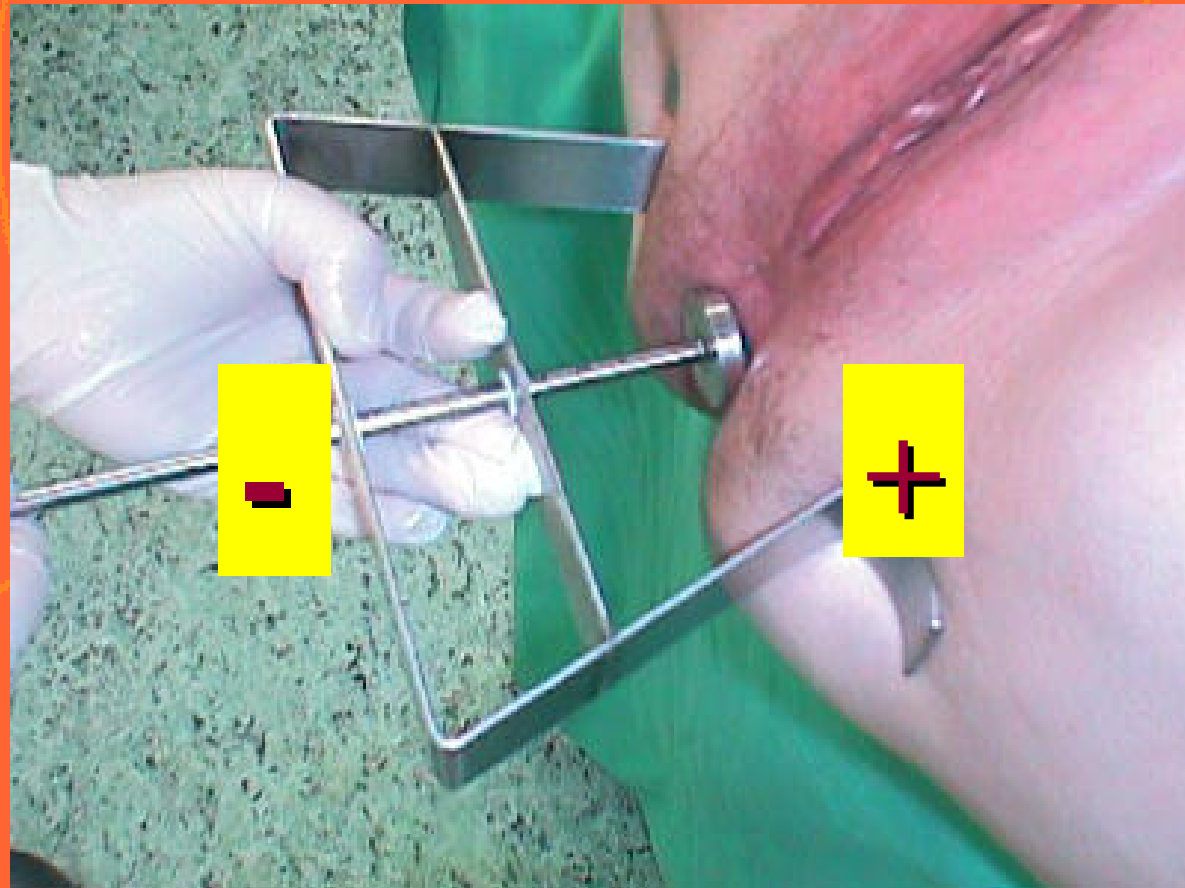
# PND in the treatment of OAB

## Case report: clinical examination

- no genital prolaps
- 3 clinical signs of pudendal neuropathy positive on the right:
  - asymetry of sensibility
  - skin rolling test positive
  - very painful PN with irradiation (6/6)
- Perineal descent measured with a Perineocaliper ®
  - at rest = 0
  - during Valsalva = 0
  - descent = 0

# Measure of perineal descent with a Perineocaliper®

[www.perineocaliper.com](http://www.perineocaliper.com)



# Test of sensibility with a needle



Vulva



Para-Anal



# **Painful Alcock's canal (rectal examination)**

1. **Mild**
2. **Mild with Tinel sign**
3. **Moderate**
4. **Moderate with Tinel sign**
5. **Severe**
6. **Severe with Tinel sign**

**Painful Alcock's canal if at least 4/6**

# Skin Rolling Test



## Validation of the 3 clinical signs of the pudendal canal syndrome (prevalence 20%)

Test	Sens	Spec	PPV	NPV	OR	95%CI OR
Abnormal sensibility	0.57	0.77	0.38	0.88	4.42	1.99 - 9.82
Painful Alcock's canal	<b>0.70</b>	0.71	0.37	0.90	5.52	2.51 – 12.15
Painful skin rolling test	0.55	<b>0.84</b>	0.47	0.89	6.56	2.74 – 15.68
The 3 (3 neg versus 3 pos)	0.68	<b>0.89</b>	0.60	0.92	16,97	4.68 – 61.51

Beco J, Climov D, Bex M

**Pudendal nerve decompression in perineology : a case series.**

*BMC Surg* 2004, 4(1):15.

# PND in the treatment of OAB

## Case report: complementary exams

	Left	Right
BC EMG	N1	Polyphasic
Anal EMG	N1	Polyphasic
Perineal PNTML	5.8 msec	8.5 msec
Anal PNTML	2.3 msec	4.5 msec
BC Reflex	35 msec	34.7 msec

Urodynamics: reduced bladder capacity (245 ml) without bladder instability

# PND in the treatment of OAB

Case report: first line treatment

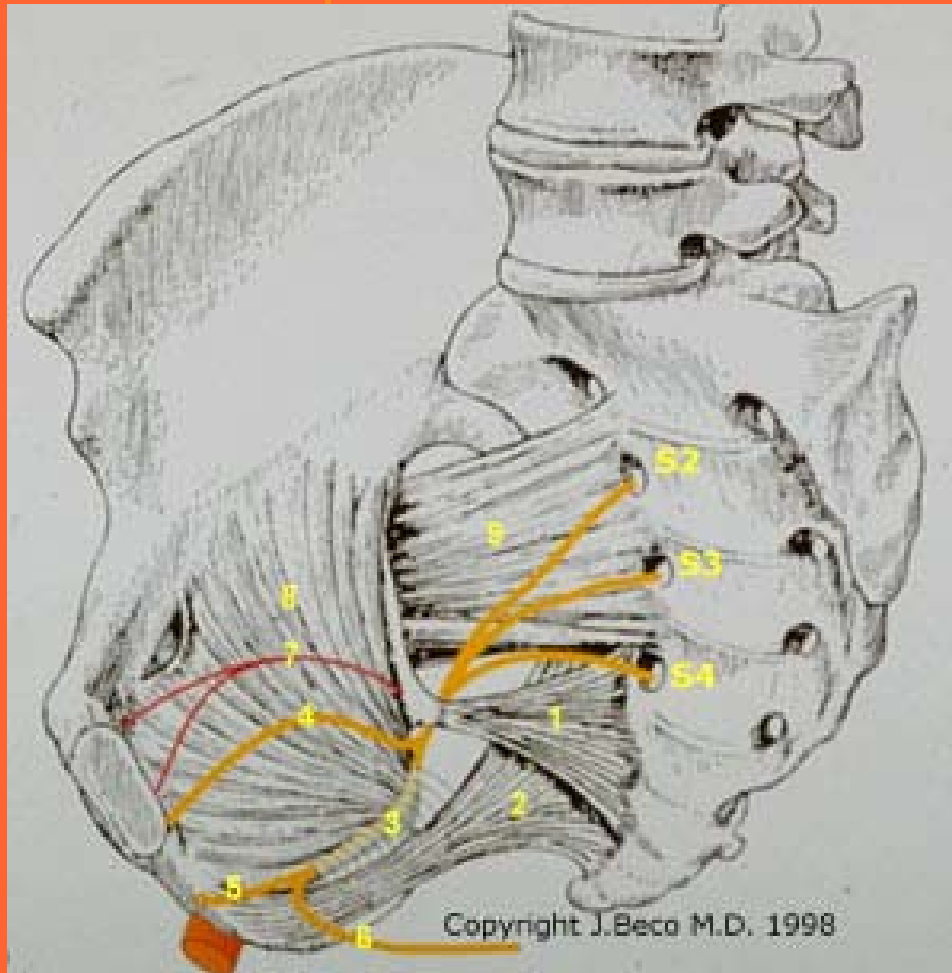
Failure of :

- **hyperprotection of the PN** : stop biking and avoiding sitting without an U-shapped cushion during 6 months.

- **2 infiltrations of PN** improved the symptoms only one hour

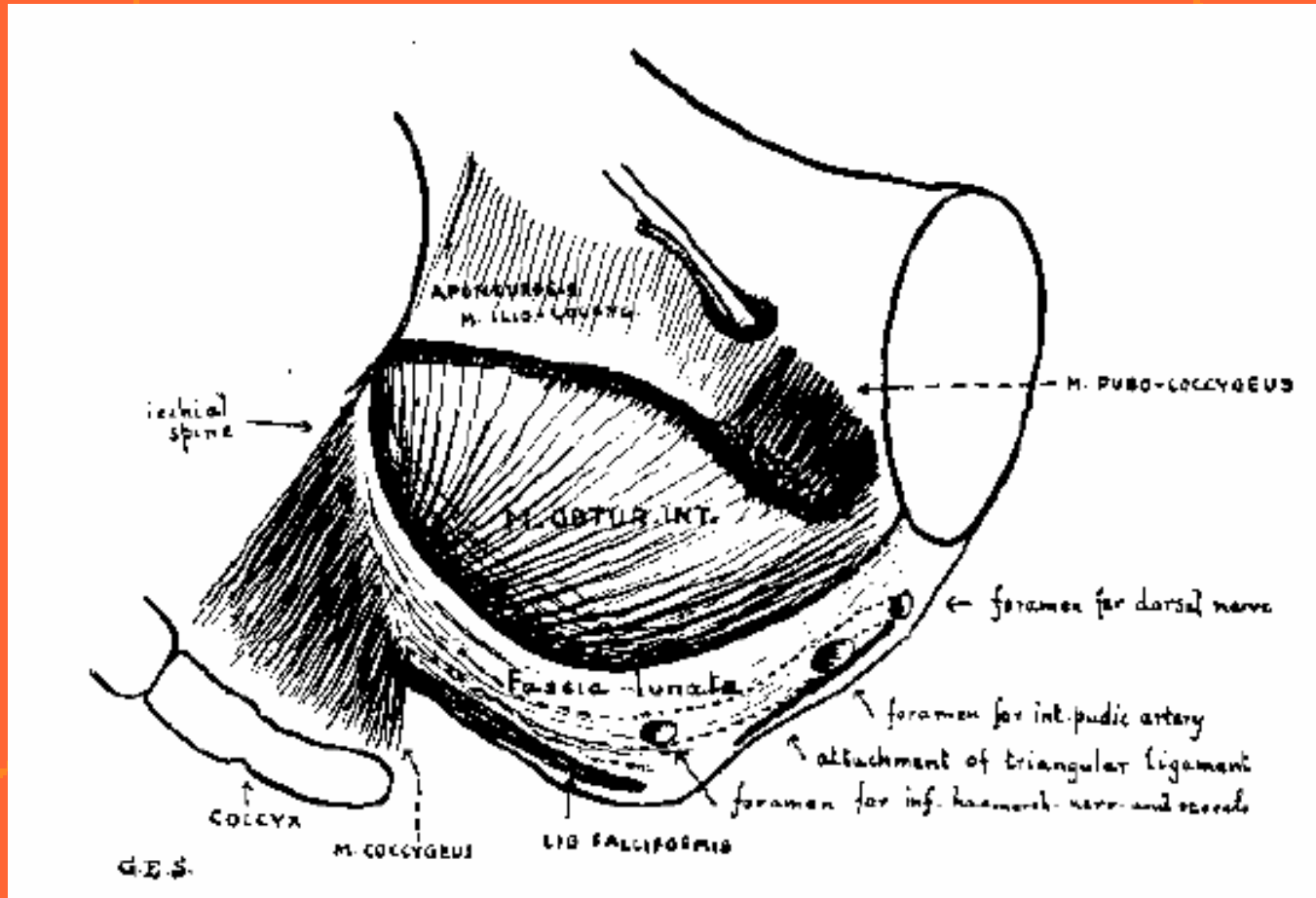
=> Complete transperineal PND

# Anatomy of the pudendal nerve



1. **Sacro-spinal ligament**
2. **Sacro-tuberous ligament**
3. **Alcock's canal (pudendal canal)**
4. **Nerve of the Clitoris**
5. **Perineal nerve**
6. **Inferior rectal nerve**
7. **Arcus tendineus fascia pelvis**
8. **Obturator muscle**
9. **Piriformis muscle**

# Fascia lunata



Derry DE: Pelvic muscles and fasciae. *Journal of Anatomy and Physiology* 1907, 42:107-111.

# Complete trans-perineal decompression





# Complete trans-perineal decompression



- With opening of the fascia lunata between the 2 ligaments
- Without section of the ligaments

# PND in the treatment of OAB

	Pre-op	2 months after	6 months after
ICIQ-SF	13/21	10/21	0/21
Frequency	60 min	60 min	180 min
Nocturia	4/night	0/night	0/night
Perineodynia	Vas 8/10	Vas 4/10	Vas 0/10
Clin. Signs	3 positive	1 positive	3 negative

# Overactive bladder

## The symptoms

### Classical:

- Frequency
- Nocturia
- Urgency
- Urge incontinence

### Others:

- « non bacterial prostatitis »
- « interstitial cystitis » or « painful bladder syndrome »

# Overactive bladder

## The treatments

### Classical:

- Exclusion of an organic cause (infection, cancer...)
- Anticholinergics
- Pelvic floor reeducation and electrostimulation
- Classical prolapse treatment
- Botox
- Neuromodulation
- Cystoplasty

### Others:

- retro-anal levator plate myorrhaphy (in case of DPS)
- treatments of pudendal neuropathy

# Effect of the Shafik's technic on the symptoms of the pudendal canal syndrome

Parameters	Pain All	Pain Isolated	Anal Inc All	Ana Inc Isolated	SUI All	SUI Isolated	Urge inc All	Urge inc Isolated
Nr of cases	18	14	36	5	37	1	27	4
Follow-up	22,2	24,5	26,4	17,2	32	12	26,7	18,5
Cured	11 (61,1%)	8 (57,1%)	23 (63,9%)	4 (80%)	26 (70%)	0	17 (62,9%)	3 (75%)
Improved	3 (16,6%)	2 (14,3%)	7 (19,4%)	1 (20%)	7 (18%)	1	6 (22,2%)	0
Unchanged	4 (22,2%)	4 (28,6 %)	4 (11,1%)	0	4 (10,8 %)	0	3 (11,1%)	0
Worse	0	0	2 (5,5 %)	0	0	0	1 (3,7 %)	1 (25%)

Beco J, Climov D, Bex M: **Pudendal nerve decompression in perineology : a case series.** *BMC Surg* 2004, **4**(1):15.

# Complete Trans-Perineal Decompression

## Effect on the symptoms (n = 34)

Parameters	Pain All	Pain Isolated	Anal Inc All	Anal Inc Isolated	SUI All	SUI Isolated	Urge inc All	Urge inc Isolated
Nr of cases	27	12	15	4	19	5	19	6
Cured	12 (44,4%)	6 (50%)	8 (53,3%)	2 (50%)	14 (73,7%)	2 (40%)	9 (47,3%)	3 (50%)
Improved	9 (33,3%)	5 (41,6%)	1 (6,6%)	0	1 (5,3%)	1 (20%)	6 (31,5%)	1 (16,6%)
No change	6 (22,2%)	1 (8,3%)	6 (40%)	2 (50%)	3 (15,8%)	2 (40%)	3 (15,8%)	2 (33,3%)
Worse	0	0	3 de novo (2 gas, 1 liquids)	0	1 (5,3%)	0	1 (5,2%)	0

**Beco J: Transperineal pudendal nerve decompression with opening of the fascia linking the sacro-spinal and the sacro-tuberous ligament. Feasibility study and first results. *Int Urogynecol J Pelvic Floor Dysfunct* 2006, 17 (suppl. 2):S183-S184.**

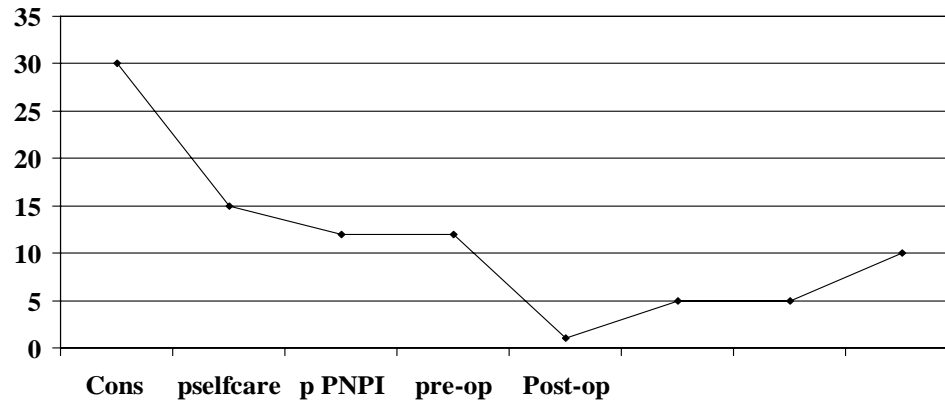
# Interstitial cystitis in a 49 year old male. 15 year history of bladder pain and voiding sx. Responses to sequential treatments

Self-care

Pudendal nerve blocks (PNPI)

Decompression surgery

AUASI Urinary symptoms (range 0 to 35)



Multiple prior treatments  
DMSO, TUR-BN  
InterStim 1998  
Pudendal lead 2004  
aggravated bladder sx.  
Exam:  
Pressure at right ischial  
spine reproduced bladder  
pain

Abnormal PNTMLT and warm detection threshold (WDT).  
PNTMLT stimulus increased his suprapubic pain and size of “softball” in bladder.

# Don't put current on a damaged cable !

## Hypothesis:

J. Beco: *BMC Surg* 2004, 4(1):15

The results of the pudendal nerve decompression seem to be equivalent to these of neuromodulation [39] and the procedure is far less expensive because there is no need for a special material. If this study is confirmed by others, the treatment of the neuropathy should be done before any trial of neuromodulation. In fact it is logical to repair the electric cable before enabling the current to pass.

## Confirmation:

Antolak SJ, Jr., Antolak CM: **Failed Sacral Neuromodulation: Simple Tests Demonstrate Pudendal Neuropathy. A Case Series.** *J Pelvic Med Surg* 2006, 12:35-40.



# OAB and pudendal neuropathy

In the rat, ligation of pudendal nerve:

- ⇒ SUI and OAB conditions
- ⇒ Increases sensibility of **capsaicin-sensitive C-fibers afferents**
- ⇒ Increases in **NGF** (nerve growth factor) in bladder
- ⇒ Enhances **alpha 1-adrenoreceptor-mediated contractile responses** of the detrusor

Furuta A, Kita M, Suzuki Y, Egawa S, Chancellor MB, de Groat WC, Yoshimura N:

**Association of overactive bladder and stress urinary incontinence in rats with pudendal nerve ligation injury.**

*Am J Physiol Regul Integr Comp Physiol* 2008.

# Conclusions

**1. OAB may be one of the « symptoms » of PNE or of Descending Perineum Syndrome**

=> search for the 3 clinical signs and perineal descent (Perineocaliper®).

**2. Pudendal neuropathy should be treated step by step by:**

- hyperprotection of the nerve
- infiltrations, trigger points treatment, laser...
- pudendal nerve decompression

**3. Pudendal nerve decompression do not treat only perineodynia but also many other symptoms (including the symptoms of overactive bladder)**

**4. The « clamp » between the 2 ligaments (fascia) can be open by the perineal approach without cutting the ligaments (no risk to damage a nerve included in the ligament or to create a sacro-iliac joint instability).**

**More informations :**

<http://www.pudendal.com>

<http://www.perineology.com>