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


⇒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)

- Sexuals troubles
  - Standard (0/2)

- Dyschesia
  - Wexner's score (0/30)

- Dysuria
  - Standard (0/2)

- Urinary Incontinence
  - ICIQ-SF (13/21)

- Anal Incontinence
  - St Mark's Hospital score (0/24)

- Prolapse
  - Standard (0/2)

TAPE freeware soon available on www.pelviperineology.org
PND in the treatment of OAB

Case report: clinical examination

- no genital prolaps

- 3 clinical signs of pudendal neuropathy positive on the right:
  - asymmetry 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
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%)

<table>
<thead>
<tr>
<th>Test</th>
<th>Sens</th>
<th>Spec</th>
<th>PPV</th>
<th>NPV</th>
<th>OR</th>
<th>95% CI OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal sensibility</td>
<td>0.57</td>
<td>0.77</td>
<td>0.38</td>
<td>0.88</td>
<td>4.42</td>
<td>1.99 - 9.82</td>
</tr>
<tr>
<td>Painful Alcock’s canal</td>
<td>0.70</td>
<td>0.71</td>
<td>0.37</td>
<td>0.90</td>
<td>5.52</td>
<td>2.51 – 12.15</td>
</tr>
<tr>
<td>Painful skin rolling test</td>
<td>0.55</td>
<td>0.84</td>
<td>0.47</td>
<td>0.89</td>
<td>6.56</td>
<td>2.74 – 15.68</td>
</tr>
<tr>
<td>The 3 (3 neg versus 3 pos)</td>
<td>0.68</td>
<td>0.89</td>
<td>0.60</td>
<td>0.92</td>
<td>16.97</td>
<td>4.68 – 61.51</td>
</tr>
</tbody>
</table>

Beco J, Climov D, Bex M

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

PND in the treatment of OAB

Case report: complementary exams

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC EMG</td>
<td>Nl</td>
<td>Polyphasic</td>
</tr>
<tr>
<td>Anal EMG</td>
<td>Nl</td>
<td>Polyphasic</td>
</tr>
<tr>
<td>Perineal PNTML</td>
<td>5.8 msec</td>
<td>8.5 msec</td>
</tr>
<tr>
<td>Anal PNTML</td>
<td>2.3 msec</td>
<td>4.5 msec</td>
</tr>
<tr>
<td>BC Reflex</td>
<td>35 msec</td>
<td>34.7 msec</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>Pre-op</th>
<th>2 months after</th>
<th>6 months after</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICIQ-SF</td>
<td>13/21</td>
<td>10/21</td>
<td>0/21</td>
</tr>
<tr>
<td>Frequency</td>
<td>60 min</td>
<td>60 min</td>
<td>180 min</td>
</tr>
<tr>
<td>Nocturia</td>
<td>4/night</td>
<td>0/night</td>
<td>0/night</td>
</tr>
<tr>
<td>Perineodynia</td>
<td>Vas 8/10</td>
<td>Vas 4/10</td>
<td>Vas 0/10</td>
</tr>
<tr>
<td>Clin. Signs</td>
<td>3 positive</td>
<td>1 positive</td>
<td>3 negative</td>
</tr>
</tbody>
</table>
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 myorraphy (in case of DPS)
- treatments of pudendal neuropathy
Effect of the Shafik’s technic on the symptoms of the pudendal canal syndrome

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

## Complete Trans-Perineal Decompression

### Effect on the symptoms (n = 34)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pain All</th>
<th>Pain Isolated</th>
<th>Anal Inc All</th>
<th>Anal Inc Isolated</th>
<th>SUI All</th>
<th>SUI Isolated</th>
<th>Urge inc All</th>
<th>Urge inc Isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr of cases</td>
<td>27</td>
<td>12</td>
<td>15</td>
<td>4</td>
<td>19</td>
<td>5</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Cured</td>
<td>12 (44.4%)</td>
<td>6 (50%)</td>
<td>8 (53.3%)</td>
<td>2 (50%)</td>
<td>14 (73.7%)</td>
<td>2 (40%)</td>
<td>9 (47.3%)</td>
<td>3 (50%)</td>
</tr>
<tr>
<td>Improved</td>
<td>9 (33.3%)</td>
<td>5 (41.6%)</td>
<td>1 (6.6%)</td>
<td>0</td>
<td>1 (5.3%)</td>
<td>1 (20%)</td>
<td>6 (31.5%)</td>
<td>1 (16.6%)</td>
</tr>
<tr>
<td>No change</td>
<td>6 (22.2%)</td>
<td>1 (8.3%)</td>
<td>6 (40%)</td>
<td>2 (50%)</td>
<td>3 (15.8%)</td>
<td>2 (40%)</td>
<td>3 (15.8%)</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>Worse</td>
<td>0</td>
<td>0</td>
<td>3 de novo (2 gas, 1 liquids)</td>
<td>0</td>
<td>1 (5.3%)</td>
<td>0</td>
<td>1 (5.2%)</td>
<td>0</td>
</tr>
</tbody>
</table>

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

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:

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:
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

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