Relevant Anatomy Of Pudendal Nerve And Etiological Factors of Pudendal Neuropathies

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www.pudendal.com

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Anatomy of the pudendal nerve

Lesser sciatic foramen

SS = Sacro-spinal ligament
ST = Sacro-tuberous ligament
O = Obturator muscle between the 2 ligaments (lesser sciatic foramen)
P = Piriformis muscle (greater sciatic foramen)
Anatomy of the pudendal nerve

Fascia lunata

FL = The fascia lunata closes the lesser sciatic foramen (space between the 2 ligaments)


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Anatomy of the pudendal nerve

Pudendal nerve

NC = Nerve of the clitoris or penis
RN = Rectal nerve sometimes in the sacro-spinal ligament
PerN = Perineal nerve: 3 branches
PN = Typical fascicular disposition of the pudendal nerve

Gustafson KJ, Zelkovic PF, Feng AH, Draper CE, Bodner DR, Grill WM:
Fascicular anatomy and surgical access of the human pudendal nerve.
Anatomy of the pudendal nerve

Alcock’s or pudendal canal

NC = Nerve of the clitoris or penis NOT in the Alcock’s canal (AC)
Rectal nerve passing through the sacro-spinal ligament in 11% of the cases

Mahakkanukrauh P, Surin P, Vaidhayakarn P
Anatomical study of the pudendal nerve adjacent to the sacrospinous ligament.
Anatomy of the pudendal nerve

90% of the pudendal nerve is under the levator plate (LP)

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Which name??

Pudendal neuropathy

Pudendal nerve entrapment (entrapment only)

Pudendal canal syndrome (Alcock’s canal only)

Pudendal neuralgia (pain only)
The symptoms

Pee pee,

Poo poo,

Sex,

Think « pudendal nerve »
Pudendal neuropathy

Three clinical signs

1. Perineal hypo or hyperesthesia (pinprick)
2. Painful pudendal nerve during rectal examination
3. Painful « skin rolling test » of the perineal skin

Neurological troubles + Gynaecological position
=> very late diagnosis !!!!!
Pinprick sensibility test

Vulvar

Para-Anal
Painful pudendal nerve
Skin Rolling Test
Validation of the 3 clinical signs of pudendal neuropathy (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</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 pudendal nerve</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.

<table>
<thead>
<tr>
<th>Etiology</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Distortion of the « chassis »</strong></td>
<td><strong>Repetitive trauma</strong></td>
</tr>
<tr>
<td>1. Fall on the coccyx</td>
<td>1. Job with long time sitting or wrong sitting position (pianist, programmer…)</td>
</tr>
<tr>
<td>2. Impact on the spine or on the pelvis (car or motorbike accident…)</td>
<td>2. Biking</td>
</tr>
<tr>
<td>3. Heavy lifting in squatting position</td>
<td>3. Long car or airplane travels</td>
</tr>
<tr>
<td>4. Heavy osteopathic manipulation</td>
<td></td>
</tr>
<tr>
<td>5. Traction for lower limbs during orthopedic surgery</td>
<td></td>
</tr>
<tr>
<td><strong>Traction on the nerves</strong></td>
<td><strong>Muscles, surgeons and others</strong></td>
</tr>
<tr>
<td>1. Dyschesia and DPS</td>
<td>1. Obturator or piriformis compression</td>
</tr>
<tr>
<td>2. Childbirth</td>
<td>2. Direct lesion: prolapse surgery, trauma…</td>
</tr>
<tr>
<td>3. Vaginal surgery (retractors)</td>
<td>3. Polyneuropathy (diabetes, alcool..)</td>
</tr>
</tbody>
</table>
Pudendal neuropathy and Descending Perineum Syndrome

Normal Descending Perineum

1 = pudendal nerve

Descending Perineum
Perineocaliper
Measure of perineal descent with the Perineocaliper®

1 = anal margin
2 = ischial tuberosity
3 = reference level

Frequency of the 3 clinical signs of pudendal neuropathy according to the perineal descent measured with a perineocaliper (n=820)
Pudendal neuropathy and pelvic trauma

Studied population: 576 patients from the perineology consultation

Groupe 1: 291 patients with an history of fall on the coccyx or pelvic trauma (car accident…). Most of them without any visible lesion on imaging.

Groupe 2: 285 patients without any history of trauma
<table>
<thead>
<tr>
<th></th>
<th>Without pelvic trauma</th>
<th>Percentages</th>
<th>With pelvic trauma</th>
<th>Percentages</th>
<th>Z-test (p values)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dysuria</strong></td>
<td>90/268</td>
<td>33.58</td>
<td>114/282</td>
<td>40.42</td>
<td>0.0483</td>
</tr>
<tr>
<td><strong>Stress incontinence</strong></td>
<td>85/269</td>
<td>31.59</td>
<td>110/286</td>
<td>38.46</td>
<td>0.0453</td>
</tr>
<tr>
<td><strong>Dyspareunia</strong></td>
<td>91/285</td>
<td>31.92</td>
<td>113/291</td>
<td>38.83</td>
<td>0.0417</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>67/267</td>
<td>25.09</td>
<td>92/285</td>
<td>32.28</td>
<td>0.0312</td>
</tr>
<tr>
<td><strong>Anal Incontinence</strong></td>
<td>75/268</td>
<td>27.98</td>
<td>106/284</td>
<td>37.32</td>
<td>0.0097</td>
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<tr>
<td><strong>Cystalgia</strong></td>
<td>64/276</td>
<td>23.18</td>
<td>94/288</td>
<td>32.63</td>
<td>0.0062</td>
</tr>
<tr>
<td><strong>Perineal pain</strong></td>
<td>178/261</td>
<td>68.19</td>
<td>222/283</td>
<td>78.44</td>
<td>0.0034</td>
</tr>
<tr>
<td><strong>Urge incontinence</strong></td>
<td>52/267</td>
<td>19.47</td>
<td>88/286</td>
<td>30.07</td>
<td>0.001</td>
</tr>
<tr>
<td><strong>Positive skin rolling</strong></td>
<td>134/285</td>
<td>47.01</td>
<td>182/291</td>
<td>62.54</td>
<td>0.0001</td>
</tr>
<tr>
<td><strong>Proctalgia fugax</strong></td>
<td>49/274</td>
<td>17.88</td>
<td>93/283</td>
<td>32.86</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td><strong>3 POSITIVE clinical signs</strong></td>
<td>73/285</td>
<td>25.61</td>
<td>128/291</td>
<td>43.98</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td><strong>3 NEGATIVE clinical signs</strong></td>
<td>87/285</td>
<td>30.52</td>
<td>35/291</td>
<td>12.02</td>
<td>&lt;0.0001</td>
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