



## **Pudendal Neuropathy One of the Main “Defects” in Perineology**

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### **Introduction**

Most of the publications about the surgical treatment of pudendal neuropathy are only interested by pain (1,2). This point of view is too reducing for a perineologist (3,4). Indeed, the compression or the stretch of one or the two pudendal nerves can provoke, besides perineodynia (pain) classically worse in seated position, proctalgia fugax, vulvodynia, urinary incontinence, anal incontinence or even impotence in the male. Dysuria, dyschezia, painful bladder, painful ejaculation and other perineal symptoms are sometimes induced by pudendal neuropathy. It is from 1991 that Shafik (5) published how these different symptoms, forming what he calls "the pudendal canal syndrome", can be treated surgically by a simple bilateral opening of the Alcock's canal by the perineal route.

In a consultation of perineology, the estimated prevalence of pudendal neuropathy is between 15 and 20% (6). This “defect” is therefore extremely frequent and extensively underestimated.

### **How to diagnose a pudendal neuropathy?**

#### Tracking

Three clinical signs, validated in a recent publication (6), can be used to track down and to monitor easily a pudendal neuropathy:

- vulvar or para-anal pinprick hyper or hyposensibility,
- pain of one or the two pudendal nerves, provoked by palpation of the nerve under the ischial spine during rectal examination (intensity superior to 3 on a 6 levels scale taking into account the existence or not of a Tinel sign),
- painful vulvar or para-anal skin rolling test (at least at one level).

#### Confirmation of the diagnosis

Increase of the anal or perineal pudendal nerve terminal motor latencies (PNTML) with impoverishment of the tracings (often neurogenic), but without increase of the sacral latencies and central somesthetic evoked potentials, is an important diagnosis criteria. In case of

increase of these last or in case of neurological signs outside the pudendal nerve innervation territory, a more complete neurological exploration must be achieved.

Facing perineodynia, the other causes (coccygodynia, pyramidal syndrome, sciatic algia, painful puborectalis, abscess, anal fissures...) must be excluded before confirming its pudendal origin.

In case of anal incontinence, an ultrasound is done to search for a partial or total rupture of the sphincters. In the absence of lesion of the sphincters, the presence of the 3 clinical signs becomes highly suggestive of a pudendal neuropathy.

For urinary incontinence, it is too early to define the precise criterias permitting to evoke its pudendal origin. However, in case of urge incontinence not improved by the classical conservative treatments (anticholinergics, physiotherapy, electrostimulation...) or facing an atypical stress urinary incontinence (fixed bladder neck, low closure pressure, important drop of the closure pressure after the cough...), it is necessary to think about it especially if other symptoms of the pudendal canal syndrome are present.

### **Target population ?**

It is essential to check for pudendal neuropathy in patients presenting urinary incontinence, proctalgia fugax, vulvodynia, perineodynia aggravated in seated position, anal incontinence or impotence in the man. But other perineal functional symptoms without evident cause may be induced by a pudendal neuropathy.

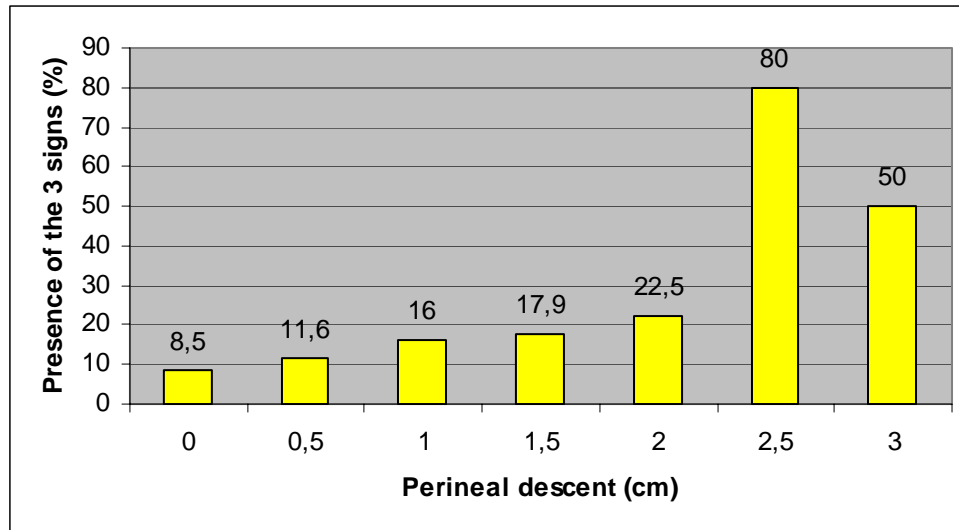
The presence of a descending perineum syndrome is another important element that must attract the attention on the pudendal nerve. The measure of perineal descent (position of the anal margin in relation to the ischiurs at rest and during push) with the help of a Perineocaliper™ (Fig. 1) is an important part of our routine exam. This perineal descent is induced by the levator plate sagging.

Figure 1 : Perineocaliper™ (Duchateau SA, Liège, Belgium)



According to Henry and coll. (7), the risk of pudendal neuropathy induced by stretch is very important if the perineal descent is superior to 2 cm, what would correspond to a 20 % nerve stretch. We found the same threshold of 2 cm, while searching for the frequency of the 3 clinical signs of pudendal neuropathy according to the perineal descent (Table I).

Table I: Frequency of the 3 clinical signs of the pudendal canal syndrome according to the perineal descent (n= 377)



## Treatments

### Conservative treatments

The classic conservative treatments can be used in case of urinary or anal incontinence.

If the perineal descent is important, an intensive rehabilitation (perineal and abdominal hypopressive) is indispensable to try to reduce the stretch of the nerves. In the same goal, the patient must treat her/his dyschezia efficiently (suppositories of glycerin or freeing gas, adapted diet, soft laxative), to avoid the long stays in the toilet (reading of the newspaper!) and must move back as much as possible on the toilet seat to support her/his posterior perineum during defecation.

In case of pudendal neuralgia, bicycle and prolonged seated station must be avoided (special seats or cushions if necessary). The other sources of pain must be treated efficiently (coccyx manipulation, stretch of the pyramidal or of the pubo-rectalis, school of the back...). A CT Scan guided infiltration with local anaesthetic and corticoids or heparin, can be tried.

The long term results remain however disappointing. The help of an algologist is often necessary in case of surgical failure or contra-indication. He has to choose the best analgesic treatment available for neuropathic pains (Neurontin, Lyrica, Redomex, Magnesium, TENS...).

## Surgery

### 1. Classic techniques:

Three surgical techniques can be used:

- transgluteal from Robert (1),
- transischioirectal from Baurtant (2),
- transperineal from Shafik (5).

In term of results on the pain, no randomized controlled trial comparing these three techniques exists. The published results appear very similar (50 to 60% of cure) but the studied populations are maybe very different.

In a recent publication (6) based on 74 patients operated (between 1995 and 2002) according to the transperineal technique of Shafik (bilateral opening of the Alcock's canal without opening of the "clamp" between the two ligaments), we showed (like Shafik) that this intervention can cure or improve 71% of perineal pains (proctalgia fugax and perineodynia aggravated in seated position), 80% of anal incontinences and 80% of urinary incontinences. The anal and perineal PNTML as well as the richness of the tracings of the anal sphincter and bulbocavernosus muscles were significantly improved by surgery (6).

According to its detractors, the two weak spots of the Shafik's technique are on the one hand its blind character (all the intervention takes place under the control of the finger that often assures, by itself, the dissection) and on the other hand the absence of opening of the "clamp" between the two ligaments, that would be important in the treatment of pain. In the transischioirectal and transgluteal techniques, this opening is obtained thanks to the partial (2) or complete section (1) of the sacrospinal ligament and sometimes of sacro-tuberous ligament.

### 2. Complete transperineal pudendal nerve decompression:

Since 2002, to try to improve our results, notably in the treatment of pain, we have decided to complete the Shafik's operation by opening the "clamp" between the sacro-spinal and the sacro-tuberous ligaments in addition to the Alcock's canal.

The intervention consists of the following steps:

- 4 cm length para-anal skin incision
- search of the rectal nerve by the index
- the rectal nerve is followed up to the opening of the Alcock's canal
- opening of the Alcock's canal by the tip of the finger (sometimes assisted by scissors)
- small opening of the fascia linking the sacro-spinal and the sacro-tuberous ligaments with the tip of scissors under finger control.
- the opening is widened by the index which split the fascia between the coccyx and the ischium.
- the pudendal nerve is separated from the posterior face of the sacro-spinal ligament and from the anterior edge of the falciform process of the sacro-tuberous ligament.

The studied population comprised 34 patients (31 women, 3 men; mean age: 54 years, extremes 34-77) suffering from a pudendal canal syndrome confirmed by EMG and/or clinical examination. 27 patients were operated on both sides. The complete transperineal

PND was an isolated procedure in 14 patients. The mean follow-up was 11 months (extremes 1-29 months, 11 patients less than 12 months).

A large opening of the “clamp” permitting the easy passage of the index in the abdomen was obtained in the 34 patients (61 nerves) operated according to this method. We have had no major bleeding.

The preliminary results of this technique are presented in table II.

Complete transperineal PND  
Effect on the symptoms (n =34)  
Mean follow-up 11 months.

Parameters	Pain All	Pain Isolated	Anal Inc All	Anal Inc Isolated	SUI All	SUI Isolated	Urge inc All	Urge inc Isolated
Number 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 liquid)	0	1 (5,3%)	0	1 (5,2%)	0

Isolated : PND only ; All : PND with other surgical procedures.  
SUI: stress urinary incontinence

This study shows the feasibility of a complete pudendal nerve decompression without section of the ligaments and by a short para-anal incision. We didn't find a real “clamp” between the two ligaments but rather a very strong fascia uniting them. It could be the fascia lunata (8) or merely fibers of the two ligaments that intersect (9). After opening of this fascia, the space between the ligaments permits the easy passage of the index and is therefore largely sufficient to avoid compression of the nerve.

The three main symptoms of the pudendal canal syndrome can be cured or improved by this operation. Because the follow-up is insufficient for 12 patients (less than 12 months), the results presented in table II must be considered as temporary.

From a theoretical point of view, the more the nerve is freed, the more the result should be satisfactory. However, a more complete decompression can increase the risk of devascularisation of the nerve and can aggravate fibrosis induced by surgery. By comparing these preliminary data to those obtained in our first study, it seems that the opening of the “clamp” improves the results obtained on pain without modifying those on anal or urinary incontinences.

To prove the clinical interest of this more complete approach in relation to the Shafik's technique, a prospective randomized controlled trial should be done.

The absence of section of one or the two ligaments of the “clamp” (indispensable in Robert's technique) with its risk to destabilize the sacro-iliac joints (10) or to wound a nerve in the ligament (11) and the absence of retraction of the levator plate (necessary in the transischioirectal procedure to reach the Alcock's canal) that could damage this muscle, represent the two major assets of our approach. Its weak spot being its blind character, making it not easily reproducible.

## Conclusion

Pudendal neuropathy is a frequent « defect » in perineology. It is essential to check for it by using our 3 clinical signs. For the perineologist, it seems aberrant to be interested by the pudendal nerve only for pain. Many cases of urinary or anal incontinences (and maybe of impotence and other symptoms) can be healed by a surgical decompression of the nerve. This intervention, done by the perineal route, is part of the 7 basic surgical procedures permitting to correct the main perineal "defects" and their associated symptoms (4).

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