

PUDENDAL CANAL DECOMPRESSION IN THE TREATMENT OF ERECTILE DYSFUNCTION

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- Erectile dysfunction (ED) caused by neurogenic, arterial, venous, disorders
- of 323 patients with ED, 7 had neurogenic impotence due to pudendal nerve compression

AIM: clinical picture and results of treatment

SUBJECTS

- 7 subjects: 46 - 56 y
- ED 5 - 9 y
- chronic constipation
- 5 / 7 urinary urgency
- tables

Table 1a:
Clinical and investigative findings in the 7 impotent patients with pudendal canal syndrome

Patient No.	Age (Years)	Impotence Duration (Years)	Urinary Urgency Duration (Years)	Constipation Duration (Years)	Penile, Scrotal, and Perineal Sensation
1	52	7	11	18	Hypoesthesia
2	49	5	9	10	Hypoesthesia
3	56	6	-	8	Hypoesthesia
4	50	9	10	16	Anesthesia
5	56	6	8	14	Hypoesthesia
6	48	6	8	12	Hypoesthesia
7	46	5	-	12	Hypoesthesia

- hypoesthesia
- ↓ EMG of external urethral sphincter and levator ani
- ↓ EMG of external anal sphincter in 2 / 7
- ↑ bulbocavernosus reflex latency
- ↑ PNTML

Table 1b:
Clinical and investigative findings in the 7 impotent patients with pudendal canal syndrome

Patient No.	Bulbocavernosus Reflex Latency (ms)	EMG Activity			PNTML (ms)	
		EUS	EAS	Levator	Right	Left
1	63	↓	↓	↓	3.6	3.4
2	57	↓	Normal	↓	3.1	3.2
3	44	↓	Normal	↓	2.7	3.1
4	65	↓	↓	↓	4.2	3.8
5	48	↓	Normal	↓	2.9	3.3
6	53	↓	Normal	↓	3.4	3.0
7	45	↓	Normal	↓	3.1	2.8

Note: EUS, external urethral sphincter; EAS, external anal sphincter; PNTML, pudendal nerve terminal motor latency

Erectile function tests

- normal vascular picture
 - absence of NPT
 - normal PBPI
 - response to intracavernosal injection
 - ↑ BCR latency
- all indicate **neurogenic impotence**

- ↑ PNTML indicates pudendal neuropathy as cause of neurogenic impotence which we call: **pudendal canal syndrome**

Pudendal canal syndrome

- motor changes:
 - ↓ EMG external urethral sphincter
 - + levator + 2 / 7 anal sphincter
- sensory changes:
 - hypo- or anesthesia
- ↑ PNTML

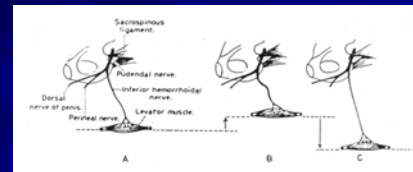


Fig. 1. Mechanism of the pudendal nerve stretch. (A) At rest: levator ani muscle is relaxed (cone-shaped). (B) On contraction at defecation: levator muscle is elevated and flattened. (C) Chronic straining at stool or difficult deliveries cause levator subluxation and sagging with a resulting pudendal nerve stretch.

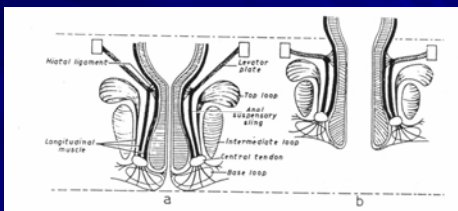


Fig. 2. Mechanism of normal defecation. (a) At rest: levator muscle is relaxed and cone-shaped. (b) During defecation: levator muscle contracts and becomes elevated and flattened.

Etiology

constipation + straining →
 levator sagging →
 pudendal nerve stretch →
 pudendal neuropathy → **PCS**
 (Shafik, Dis Colon Rectum 1979;
 Shafik, Coloproctology 1983; 1991)

Treatment

- Pudendal canal decompression
- follow up 19.6 months (14 - 24)

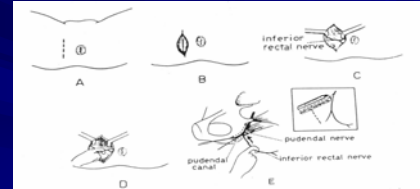


Fig. 3. Steps of the pudendal canal decompression operation: (A, B) incision; (C) inferior rectal nerve crossing ischioanal fossa; (D) inferior rectal nerve hooked with index finger; (E) inferior rectal nerve followed to pudendal nerve. *Inset*: pudendal nerve in and outside the pudendal canal.

RESULTS

- improved urine urgency
- ED improved in 6 patients:
 - 3 patients → 2 - 3 months
 - 3 patients → 4 - 6 months
- improved sensation → 3 - 6 months
- improved EMG → 6 - 9 months
- ↓ BCR latency → 6 - 9 months

Table 2
Results of the 7 impotent patients with pudendal canal syndrome 12 months after pudendal canal decompression

Patient No.	Impotence	Urinary Urgency	Penile, Scrotal, and Perineal Sensation	Bulbocavernosus Reflex Latency (ms)	PNTML (ms)	
					Right	Left
1	-	-	Normal	41*	2.7*	2.6*
2	-	-	Normal	42*	2.5*	2.6*
3	-	-	Normal	33*	2.1*	2.2*
4	+	-	Anesthesia	60**	4.0**	3.5**
5	-	-	Normal	35*	2.0*	2.3*
6	-	-	Normal	38*	2.6*	2.5*
7	-	-	Normal	32*	2.3*	2.1*

Note: PNTML, pudendal nerve terminal motor latency. *p < .05; **p > .05

COMMENT

- in PCS main brunt on :
 - dorsal nerve
 - perineal nerve
- dorsal nerve (afferent) → cerebral centers → cavernous nerve (efferent) → erection
- dorsal nerve neuropathy → ED
- perineal nerve → cavernous muscle contraction → ↑ corporeal pressure

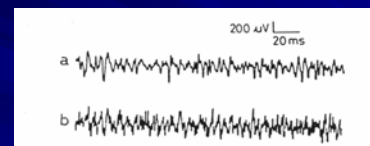


Fig. 4. EMG activity of the external urethral sphincter: (a) before pudendal canal decompression showing diminished activity; (b) six months after pudendal canal decompression showing improved activity.

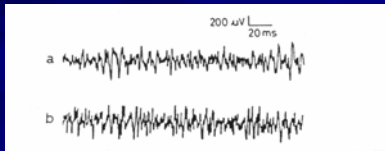


Fig. 5. EMG activity of the levator ani muscle: (a) before pudendal canal decompression showing diminished activity; (b) six months after pudendal canal decompression showing improved activity.

CONCLUSION

- PCS included as cause of neurogenic ED
- treatment : **pudendal canal decompression**
- PCD
 - ◆ simple
 - ◆ easy
 - ◆ no complications
 - ◆ outpatient