

# FEASIBILITY AND RESULTS OF INTRAOPERATIVE NEURONAVIGATION FOR LAPAROSCOPIC PUDENDAL NEUROTOMY

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## Abstract

Pudendal nerve entrapment (PNE) is an uncommon source of chronic pelvic pain. The pudendal neurolysis is an accepted treatment for this disease.

The pudendal nerve anatomy is very variable, up to 48,5% may not be presented as a single trunk and 57,7% of the rectal nerve would not enter the Alcock's\*.

This issue could make the surgical neurolysis challenging, but laparoscopic intraoperative neuronavigation (LIN) could help to identify the pudendal nerve (PN) and to ensure its integrity.

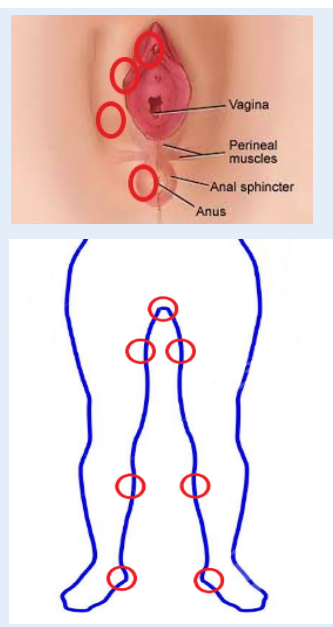
## Methods and Materials

•Eleven women with PNE diagnosis and without response to other treatments underwent a laparoscopic neurolysis with LIN.

•Electrodes were allocated as showed on the images.

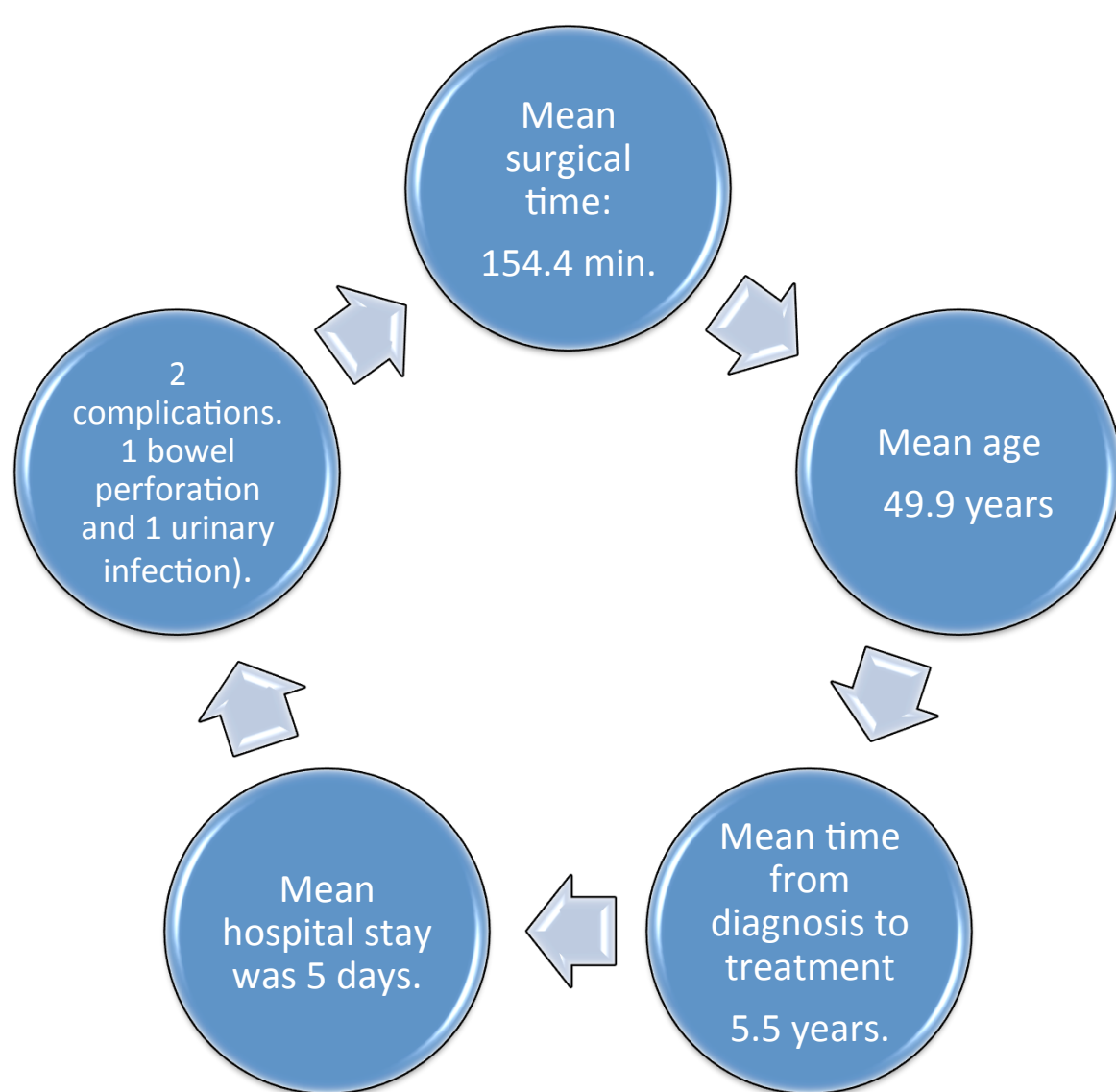
•No muscle relaxation was used.

1. ADDUCTOR MAGNUS Ipsilateral
2. Bilateral TIBIALIS ANTERIOR
3. Bilateral MEDIAL GASTROCNEMIUS
4. Bilateral ABDUCTOR HALLUCIS
5. Bilateral EXTERNAL ANAL SPHINCTER
6. Bilateral PERINEUM



## Intraoperative Monitoring

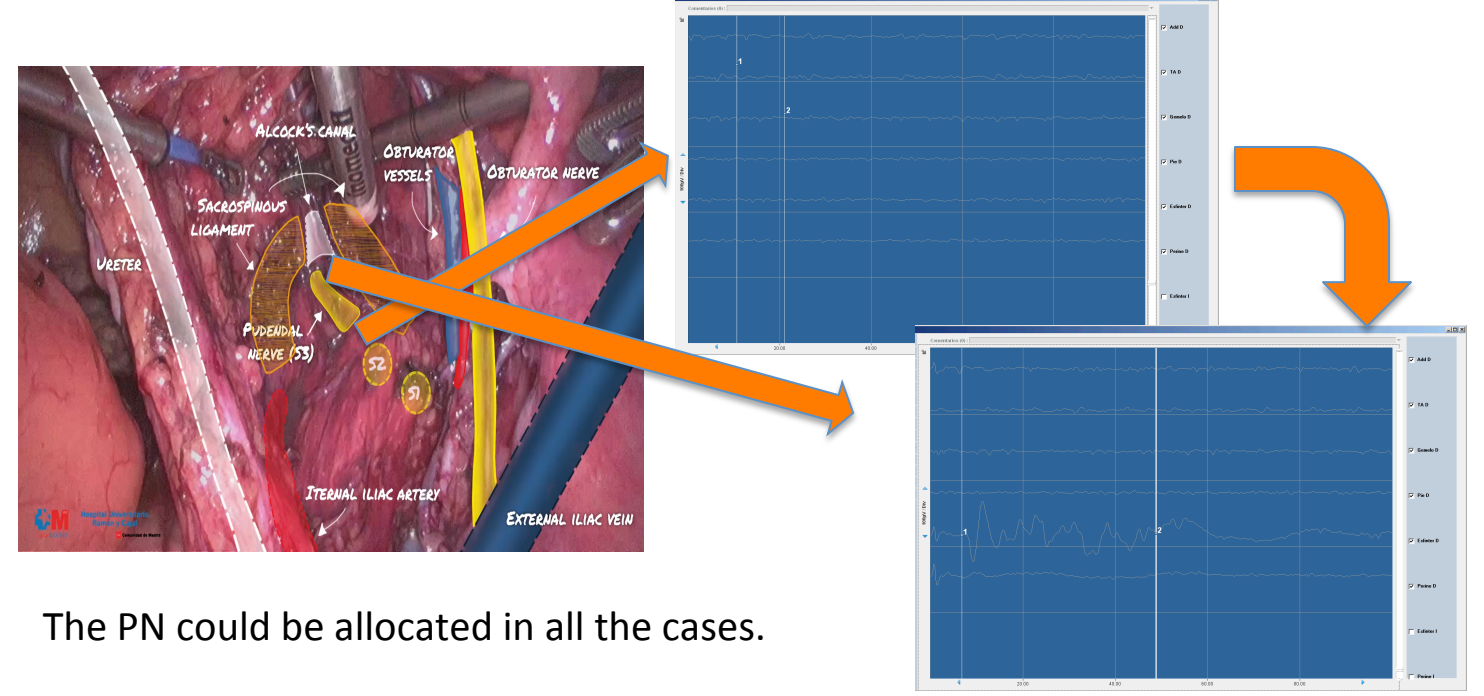
- TC MEPS**: Record of motor evoked potential (MEP) in the involved muscles
- Free Scan EMG**: Recording of resting muscle activity in muscles dependent on the bilateral L3-S3 roots.
- PESS: N. dorsal del pene/clitoris**: stimulation of the dorsal nerve of the penis / clitoris and both posterior tibial nerves. Cortical record in scalp Cz'-Fz
- Reflex bulbocavernosus**: stimulation in the dorsal nerves of the penis / clitoris and registration in perineal muscles and bilateral EAE
- Nervous Mapping**: Direct stimulation with a laparoscopic bipolar probe and registration in previously mentioned muscles



	Right	Left	Bilateral
Perineal Branch	5	2	2
Hole Nerve	2	0	0

## Results

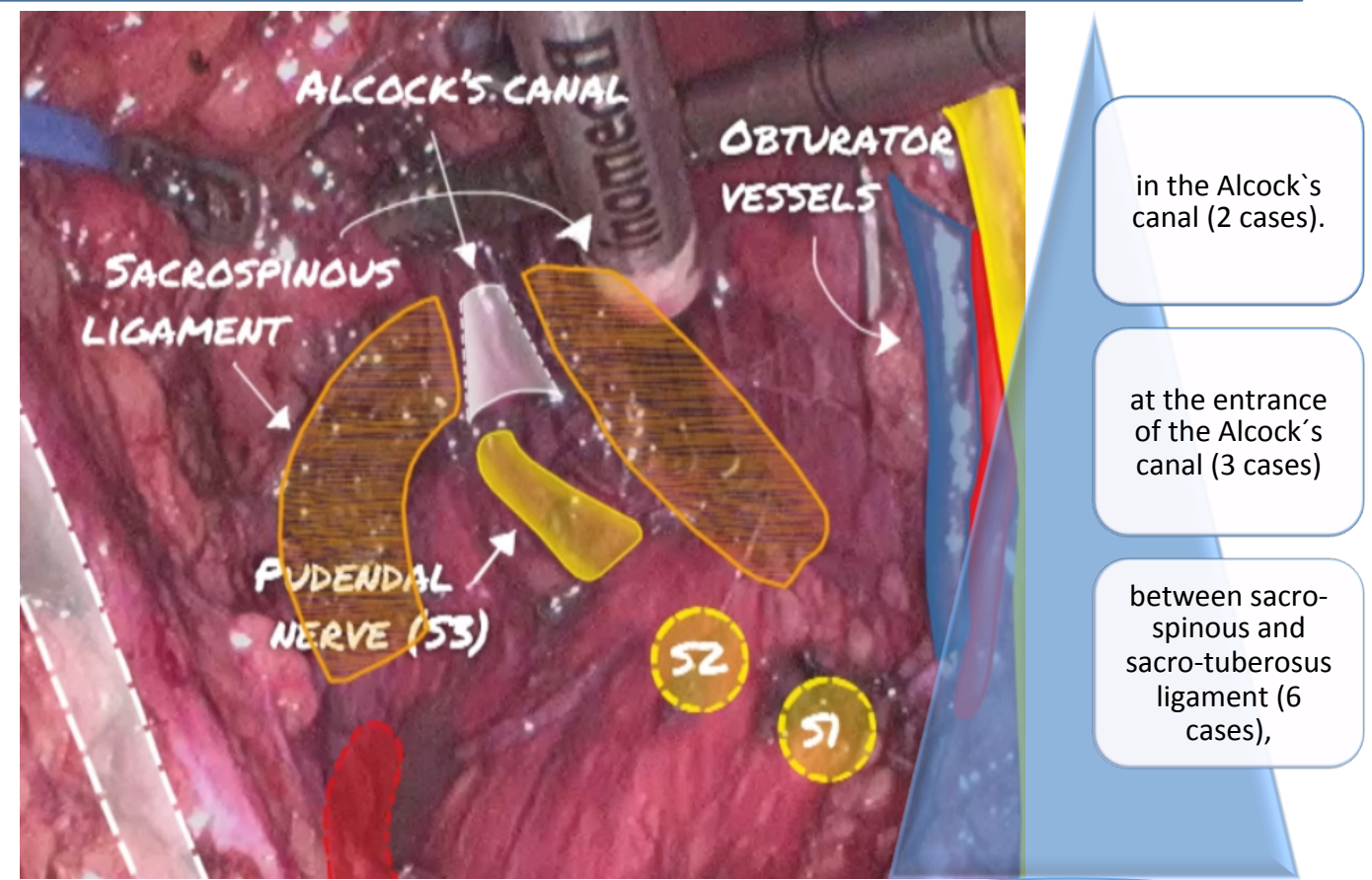
The PN integrity could be assessed after the surgery in all the cases



The PN could be allocated in all the cases.

- In 2 cases an increase of the response of the EMG could be observed,
- In other 2 the EMG response decreased and remaining unchanged in the other patients.

## Pudendal Neurofibrosis



After the surgery  
 4 (36%) of the patients had a complete resolution of the pain  
 5 (45%) a huge improve  
 2 (18%) a mild improve of the pain.

	NFS preoperatoria	MNI	EVOLUTION	
1	Right pudendal (perineal branch)	Decrease in the amplitude of the PEM pudendo right after direct stimulation in its most proximal portion	Partial	Weakness MID
2	Right pudendal (perineal branch)	Slight decrease in amplitude and increase in latency in right RBC during surgery	Great	
3	Bilateral pudendal (perineal branch)	Sin alteraciones	Great	
4	Right pudenda (Inferior rectal branch)	Instability of the RBC right during surgery	Partial.	Weakness MID
5	Right pudendal (perineal branch)	Without modifications	Weak	Urinary retention due to failure in detrusor contractility
6	Left pudendal (perineal branch)	Without modifications	Partial/Weak	Mixed urinary incontinence
7	S1 injury. No pudendal.	Without modifications	Partial	
8	Right S2 injury. No pudendal	Without modifications	Great	
9	Right pudendal (perineal branch)	Intraoperative improvement of the RBC right	Partial	
10	Right pudendal (perineal branch)	Slight decrease in RBC right at the end of surgery	Great	
11	Right pudendal (perineal branch)	Without modifications	Partial	

## Conclusions

The laparoscopic neurolysis of the pudendal nerve is a therapeutic option for the pudendal nerve entrapment.

The most common place of pudendal nerve entrapment is between the sacrospinous and sacrotuberous ligament.

The laparoscopic intraoperative neuronavigation is feasible and allows the surgeon to allocate the pudendal nerve and to ensure its integrity after the procedure.

It is feasible and must be performed in all the procedures.

## References

- 1- Robert R, Labat JJ, Bensignor M, Glemain P, Deschamps C, Raoul S, Hamel O. Decompression and transposition of the pudendal nerve in pudendal neuralgia: a randomized controlled trial and long-term evaluation. *Eur Urol.* 2005 Mar;47(3):403-8.
- 2- Maldonado PA, Chin K, Garcia AA, Corton MM. Anatomic variations of pudendal nerve within pelvis and pudendal canal: clinical applications. *Am J Obstet Gynecol.* 2015. 2015 Nov; 213(5):727