



# Urologic Latency Time during Uroflow Stop Test with Electromyography: the incontinence detector after Robotic Radical Prostatectomy

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## Introduction

Robot-Assisted Radical Prostatectomy (RARP) represents the principal cause of male stress Urinary Incontinence (UI), but a post-operative non-invasive and objective test is still lacking (1).

The surgically-induced modifications on the continence mechanisms is still not completely understood, particularly in the neuro-urological relationship between internal and external sphincteric system (2).

Considering the neuro-vascular support to the interdependent striated and smooth muscles of pelvic floor system, we recently proposed Uroflow Stop Test (UST) with surface Electromyography (EMG) (3).

We provided two new clinical parameters:

- Neurologic Latency Time (NLT)
- Urologic Latency Time (ULT)

Principal aim was to evaluate their variation during one year follow-up, and ULT ability in predicting UI.

## Materials and Methods

Prospective observational study:

- High-volume tertiary institute from 2018 to 2020
- Clinically localized Prostate Cancer (PCa)
- Full nerve sparing RARP
- 60 patients were enrolled
- PFMT within the first and the third month
  - mean time 31.08 days
  - Two parts: hospital and home program
  - Hospital: internal anal biofeedback
    - Slow and fast-twitch muscle fibers

At 1-, 3-, 6- and 12-months all patients underwent :

- UST - EMG (Figure 1)
- 5-item of the EPIC-26 questionnaire
- ICIQ-UI Short Form
- IPSS

Patients were classified:

- continent ("no pads")
- incontinent ("1 pad per day", or more)

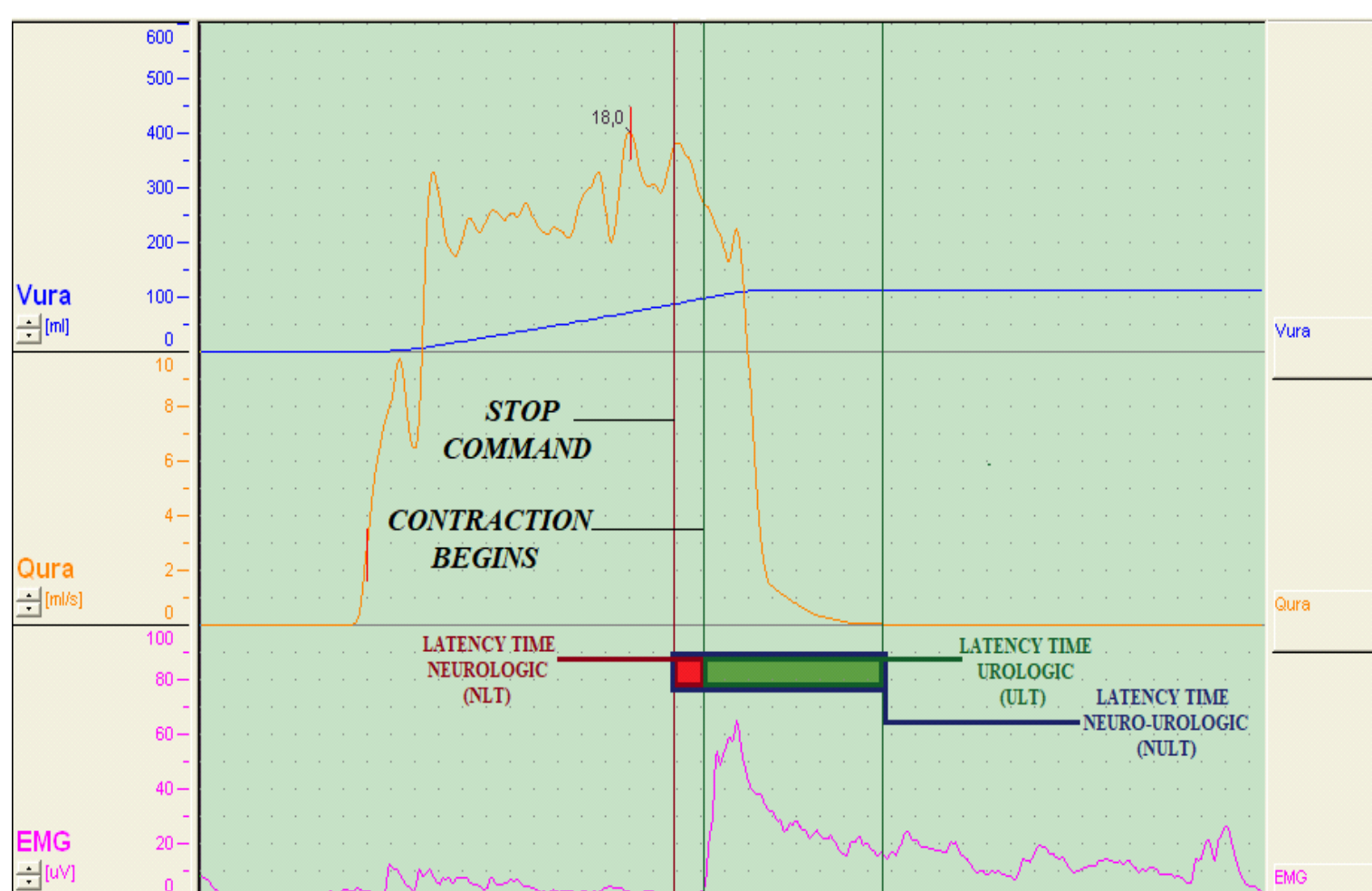


Figure 1. Example of Uroflow Stop Test with EMG with the calculation method of Urologic and Neurologic Latency Time

NLT: Neurologic Latency Time; ULT: Urologic Latency Time; NuLT: Neuro-Urologic Latency Time

## Discussion and Results

If we consider EUS contraction to be contemporary with PFMs system, we speculated that patient's continence capacity could be indirectly estimated with ULT.

Incontinence was reported by:

- 36 patients (60%) in the first month after surgery
- almost half patients (32) after three months
- incontinence stabilized around 40% (25 patients after six and 24 after 12 months)

Overall IPSS, NLT and ULT had similar trends: progressive decrease until the six month after surgery to plateau thereafter.

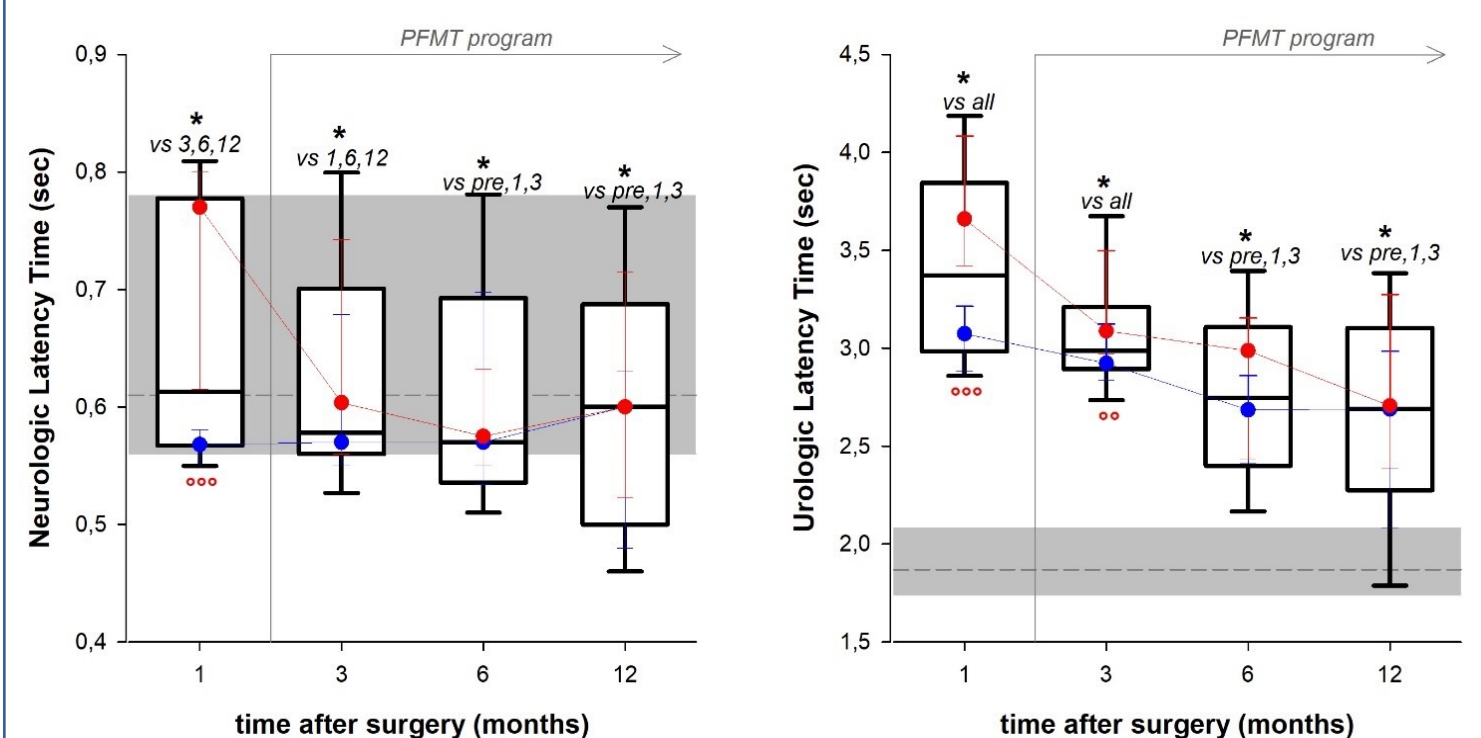


Figure 2. NLT and ULT trends

When considering the two group of patients:

- IPSS and NLT were higher in the incontinent group only at 1 month
- ULT became similar between the two groups at 6 months therefore confirming the recovery from neuropraxia enhancing the functional adaptation of the remaining sphincter.

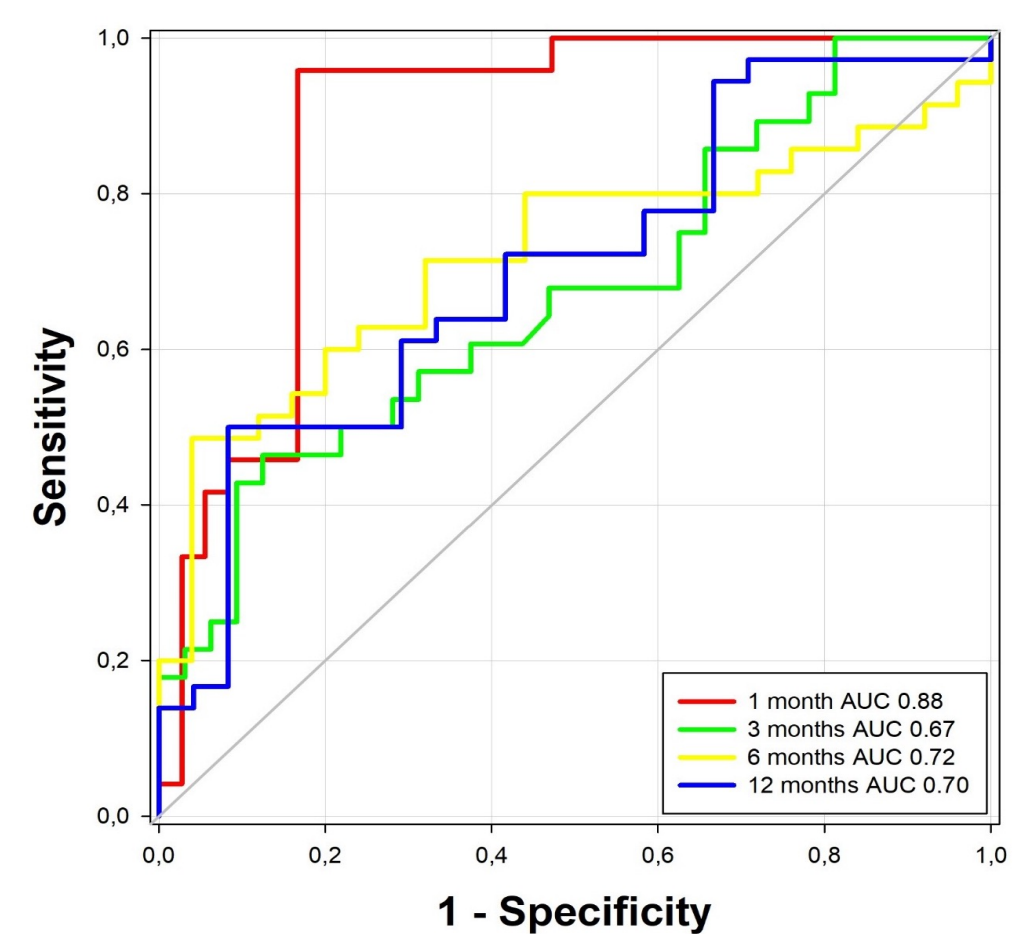


Figure 3. ROC curve showing AUC

To evaluate the diagnostic ability of 1-month post-surgery ULT to diagnose the presence of post-operative urinary incontinence, we examined the Area Under Curve (AUC) together with the optimal cut-off values were computed.

The value of 3.13 seconds at 1 post-operative month may help us in select patients who will need a more intensive PFMT program in order to raise their 1- year continence rate.

This value may be considered a reliable cut-off of ULT at 1-month (before PFMT) to predict incontinence at 12 months post-surgery.

## Conclusions

- UST with EMG confirms to represent an excellent test to globally assess continence status and to potentially individualize neuro-rehabilitation program.
- ULT and NLT may be useful tools to monitor the continence progressive recovery after RARP and they may help physician to evaluate the global rehabilitation efficacy during follow-up.
- In a clinical setting, a ULT value > 3,13 sec at 1-month after RARP can predict 1-year continence with high accuracy level and it may be used in counselling with patient to improve motivation and/or to intensify in PFMT program.

## References

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3. Boni A, Cochetti G, Del Zingaro M, Paladini A, Turco M, Rossi de Vermandois JA, Mearini E: Uroflow stop test with electromyography: a novel index of urinary continence recovery after RARP. International urology and nephrology 2019.

Resource: <https://www.urotoday.com/recent-abstracts/pelvic-health-reconstruction/post-prostatectomy-incontinence/111439-uroflow-stop-test-with-electromyography-a-novel-index-of-urinary-continence-recovery-after-rarp-beyond-the-abstract.html>