

## BRIEF COMMUNICATION



## Clinical Research

## Use of a Schelin Catheter for analgesia during Rezum treatment of the prostate

Giampaolo Siena<sup>1</sup>✉, Francesco Sessa<sup>2,3</sup> and Luca Cindolo<sup>4</sup>

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To further enhance the minimal invasiveness of Rezum treatment (RT), we sought to evaluate the advantages and feasibility of transurethral intraprostatic anesthesia (TUIA) via Schelin Catheter™ (SC). We enrolled 20 men with LUTS due to BPH, who underwent RT using TUIA via SC. Prior to the procedure, patients were asked to rate their pain on a numeric rating scale (NRS) numbered 0–10: with 0 being “No pain” and 10 being “Worst pain”. Median NRS score ranged from 0 to 3. No perioperative procedure-related complications were reported.

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The efficacy and safeness of Rezum treatment (RT) is widely described in literature for patients with moderate LUTS [1–4]. Despite initial concerns about indication in glands over 80 ml of volume and third lobe, Elterman et al. have just presented their 1-year outcomes after RT in 83 patients with median (IQR) prostate volume of 100 ml (88.5–115.0), 65% with median lobe. At 12 months IPSS, QoL and UFM improved by 59%, 70% and 59%, respectively, while erectile and ejaculatory function remained preserved, showing the efficacy of RT even in large glands without affecting sexual function, which is a relevant and desired outcome for all patients [5].

Due to these promising results, RT could stand out as the most effective and versatile minimally invasive surgical treatments procedure [6].

Contrary to the standardized technique protocol, anesthesia is performed according to surgeons' preference, ranging from general anesthesia and mild sedation to prostatic block, through a transrectal probe [7]. The first can affect operative time and it exposes patients to anesthesia-related complication, the latter has a certain discomfort due to the transrectal probe and a risk of infective complications.

To further enhance the minimal invasiveness of RT, we sought to evaluate the advantages and feasibility of local intraprostatic anesthesia delivered transurethrally (TUIA) via the Schelin Catheter™ (SC) [8].

TUIA, using topic injections of mepivacaine before TURP and high-energy microwave thermotherapy, showed less perioperative bleeding, reduced operative time and postoperative pain [9].

SC tool consists of a catheter provided with an operational channel equipped with a retractile needle and the standard drainage and balloon port (Fig. 1).

At first, the SC is inserted, and the balloon is filled with 10 cc of saline solution; the catheter is then stretched so the balloon rests against the bladder neck, allowing bladder voiding. Rotating the catheter a 20 ml of 1% anesthetic solution of mepivacaine or lidocaine is injected transurethrally into the prostate, according to the following scheme: 3–2–2 mL at 8 and 4 o'clock position; 3 ml at 10 and 2 o'clock position. After injections, the balloon can be deflated and SC removed in order to introduce the Rezūm™ device.

We enrolled 20 patients, with a median age of 67 (60–74) years. All patients had alpha-blocker therapy and were in an outpatient setting.

The median (IQR) prostate size was 75 ml (60–100), with a median Qmax 9 ml/s, median IPSS 23 (19–26) and QoL 4 (3–4).

Median TUIA and Rezūm™ operative time (range) were 3 (2–4) and 6 (5–9) min, respectively. All patients were discharged 4–6 h after the procedure.

Prior to the procedure, patients were asked to rate their pain on a numeric rating scale (NRS).

Pain scores were assessed at nine timepoints:

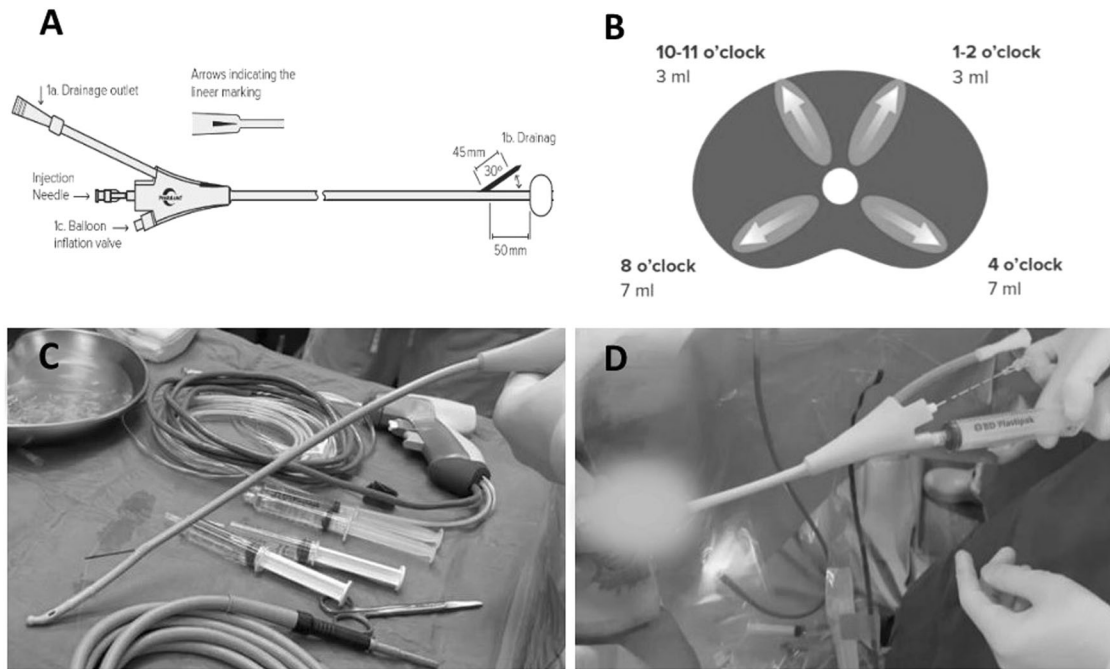
1. Preoperatively
2. Schelin Catheter insertion
3. LA infiltration
4. Rezūm™ probe insertion
5. Water Vapor Treatment (WVT)
6. Catheter insertion
7. Day 1
8. Day 7 catheter removal
9. Day 30 follow-up visit

Questionnaires were administered on the day of surgery as well as on 1st, 7th and 30th postoperative days to rate NRS of pain.

<sup>1</sup>Unit of Oncologic Minimally Invasive Urology and Andrology, Careggi University Hospital, Florence, Italy. <sup>2</sup>Unit of Urological Robotic Surgery and Renal Transplantation, Careggi University Hospital, Florence, Italy. <sup>3</sup>Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy. <sup>4</sup>Department of Urology, Villa Stuart Private Hospital, Rome, Italy. ✉email: giampaolo.siena@gmail.com

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**Fig. 1 Technical description.** **A** Schelin Catheter™. **B** Site of injections of anesthetic. The major dose should be addressed to caudal lobe because of the adenoma anatomy. **C** Procedure equipment. Note the detail of the needle tip protruding from the catheter body. **D** Instrument insertion.

Median NRS reported was 1.5 at each time point except at points 1, 2, 3 and 5. Median NRS of pain was: 0 at preoperative stage; 2 during catheter insertion; 2.5 during LA infiltration; 3 during WVT. One out of 20 patients reported a NRS of 6 during WVT. No perioperative anesthesiologic and procedure-related complications were reported.

Median catheterization time was 7 days. No cases of AUR or UTI at 30 days postoperatively were recorded.

Our data reports for the first time in literature the use of TUIA using SC to improve pain control during RT.

Along with other technique refinements we have already described, such as postprocedure urethral stent, TUIA allows a further step forward towards micro-invasiveness [10].

This simple and effective approach showed several significant advantages from no or minimal patient discomfort to less theater and faster recovery time.

The latter is of paramount importance both during the COVID-19 pandemic and even in a desirable postpandemic era where both availability of theater resources are scarce and waiting lists overloaded. Furthermore, utilization of theater and recovery time can be considered a surrogate marker for cost.

Another potential advantage is also the use of RT for patients not suitable for general anesthesia.

An interesting finding is that a low NRS of pain was observed at points 6–8, since in the early postoperative phase patients did not report catheter-related pain or discomfort. This can probably be explained by the preemptive analgesic effect that minimizes sensitization induced by noxious stimuli arising throughout the water vapor injections.

Limitations of our experience are related to the small sample size that may underpower the conclusions. Furthermore, patients were not randomly assigned to a control arm or placebo.

However, this is the first series of TUIA before RT was reported in literature. In our experience, this type of local anesthesia was safe and feasible. It shows full operative and postoperative pain control. Moreover, it allows a further shortening of hospitalization and treatment time.

#### DATA AVAILABILITY

The original contributions presented in the study are included in the article. Further inquiries can be directed to the corresponding author.

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**AUTHOR CONTRIBUTIONS**

GS: project development, data collection, drafting of the manuscript. FS: critical revision of the manuscript, data collection. LC: critical revision of the manuscript, data collection.

**COMPETING INTERESTS**

The authors declare no competing interests.

**ADDITIONAL INFORMATION**

**Correspondence** and requests for materials should be addressed to Giampaolo Siena.

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