A Novel and Original Method to Target the Bladder Trigone with Transvaginal Ultrasound Injection under Transabdominal Cystoscopic Guidance – Technical Proof of Feasibility Study in the Cadaver

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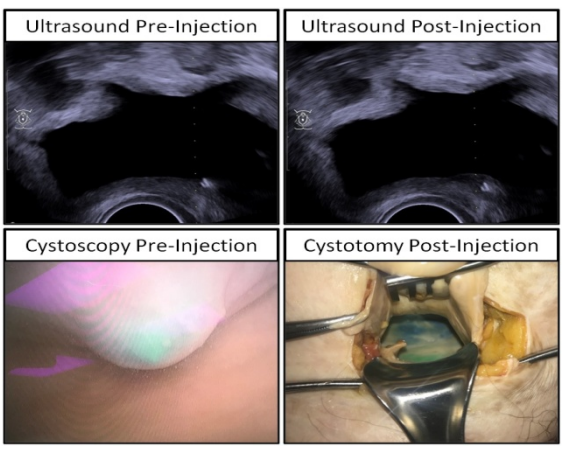
OBJECTIVES

- Overactive bladder (OAB) is a highly prevalent
- In OAB refractory to oral medications, **onabotulinumtoxinA (BTX) detrusor chemodenervation** has been shown to **be safe and efficacious**
- **Inclusion of bladder trigone alone is equally efficacious in symptom improvement**
- **Cystoscopic route** is associated with 22% **risk of urinary tract infection and is cumbersome**
- We sought to assess the **feasibility of the transvaginal route of injection under ultrasound guidance** in the pre-clinical stage of investigation using cadaveric specimens
- We hypothesize that the transvaginal route will be feasible to perform.

METHODS

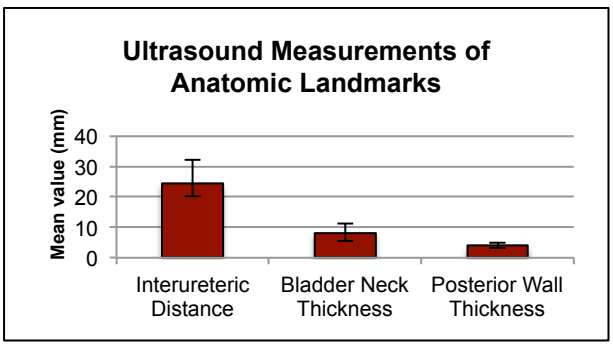
- Eight de-identified anonymous fresh female deceased donor cadaver pelvises were used
- **Inclusion criteria**: being of female gender, patent vagina, and no prior pelvic surgery
- **Procedure**:
  - Cadaver was placed in a supine, split-leg position
  - 16 Fr foley placed, bladder back filled with 300 cc water
  - A suprapubic laparoscopic trochar was placed into the bladder dome and a zero degree lens was used to visualize transvaginal injections
  - An end-fire transvaginal probe was placed into the vagina
  - The bladder trigone was injected in three sites with blue India ink, and the posterior wall in two sites with green India ink
  - Once injection was complete, a suprapubic cystotomy was performed and full thickness biopsies of the bladder trigone and posterior wall was obtained
  - Histologic analysis was performed to confirm presence of India ink in the detrusor layer

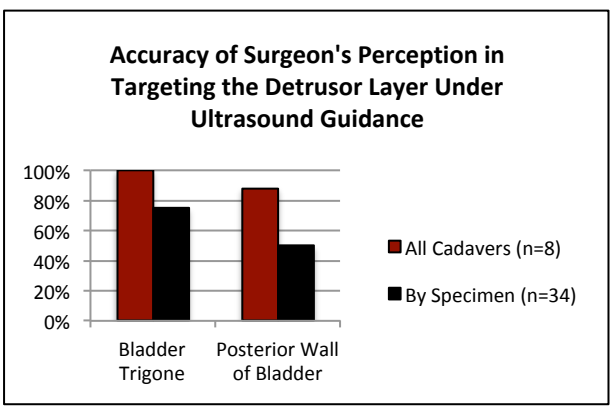


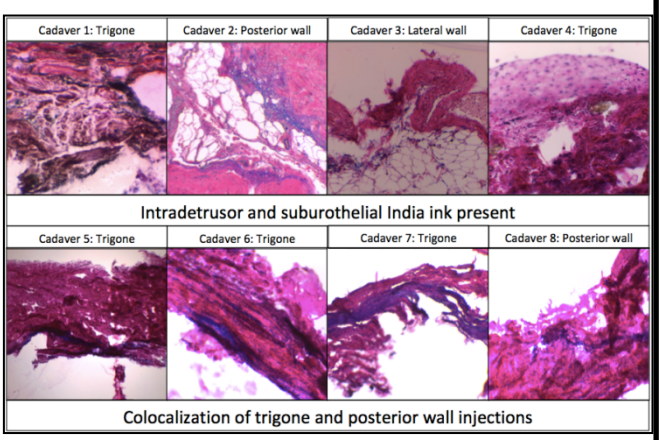
RESULTS

Table 1: Cadaveric Characteristics and Anatomic Variability

	Mean	Range
Time from Day of Death to Day of Procedure (days)	11	4-23
Interureteric Distance (mm)	24.4	20.2-32.3
Bladder Neck Thickness (mm)	8.2	5.42-11.2
Posterior Wall Thickness (mm)	4.0	3.1-4.9







CONCLUSIONS

- Intradetrusor injection of the bladder trigone and posterior wall under transvaginal ultrasound guidance is feasible and has acceptable accuracy.
- Our next step is to perform a randomized placebo controlled clinical trial of transvaginal intradetrusor BTX injection under ultrasound guidance in women with refractory OAB

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