



# A posterior fornix ping-pong ball may be a more sensitive diagnostic test than the speculum test

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## ABSTRACT

Relief of chronic pelvic pain and urgency by a speculum test is a standard part of the Integral Theory protocol for validating the pictorial algorithm's predictions for ligament causation. Supporting the posterior vaginal fornix with a ping-pong ball relieved a 51-year-old woman's deep pelvic pain and also improved her symptoms of frequent urination and night urination. A posterior fornix ping-pong ball would more directly support the uterosacral ligaments to relieve the tension on the visceral plexuses. As such it would appear to be a more direct test than the speculum test.

**Keywords:** Integral theory; diagnostic test; overactive bladder; pelvic floor; speculum test

## INTRODUCTION

In 2013 Wu et al.<sup>1</sup> published a report of relief of chronic pelvic pain (CPP) and urgency by a speculum test which is part of the Integral Theory protocol for validating the pictorial algorithm's predictions for ligament causation. Wu et al.<sup>1</sup> stated "During vaginal examination, extreme tenderness was noted in the suburethral area of vagina immediately below the urethra. There was no hypersensitivity in the hymenal area on testing for vulvodynia. Gentle insertion of the posterior blade of a Cusco speculum into the posterior fornix relieved the feeling of urgency and the suburethral tenderness. The test was repeated twice, each time with the same findings".<sup>1</sup>

## CASE REPORT

We describe a case report of 51-year-old woman whose main symptom was deep pelvic pain when urinating for one year, with frequent urination and night urination. The pain was irregular. It usually happened when she was "holding on" to her urine.

### Main Symptoms

Deep CPP when urinating for one year, with frequent day and night urination. The pain was irregular. It usually happened when she was holding on to her urine. On testing with the validated integral theory system questionnaire (ITSQ), she had some urgency, frequency mean 15 times/day (range 10-18) and nocturia mean 3/night (range 2-5). She had tenderness at the

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entrance to the vagina consistent with vulvodynia. Her POP-Q score Table 1, showed cystocele but no uterine prolapse. Her flow test Table 2, showed slow flow. However, the patient had no symptoms of obstructive micturition. Urinalysis and cystoscopic examination were both clear. The patient was monitored by 5 consecutives 24-hour urinary diaries.

Despite the strong indications from the ITSQ questions indicating uterosacral origins of her CPP, the speculum test did not relieve the pelvic pain as per Wu et al.<sup>1</sup> We inserted a ping-pong ball and monitored the patient over a 24-hour period with diary. There was total relief of the micturition pain. We have since used the ping-pong ball as an objective test in women with CPP, but also, with overactive bladder (OAB) (urgency, frequency and nocturia).

## Discussion

We have found the ping-pong ball was a more sensitive test for confirming uterosacral ligament (USL) origin for CPP and OAB than the speculum test.

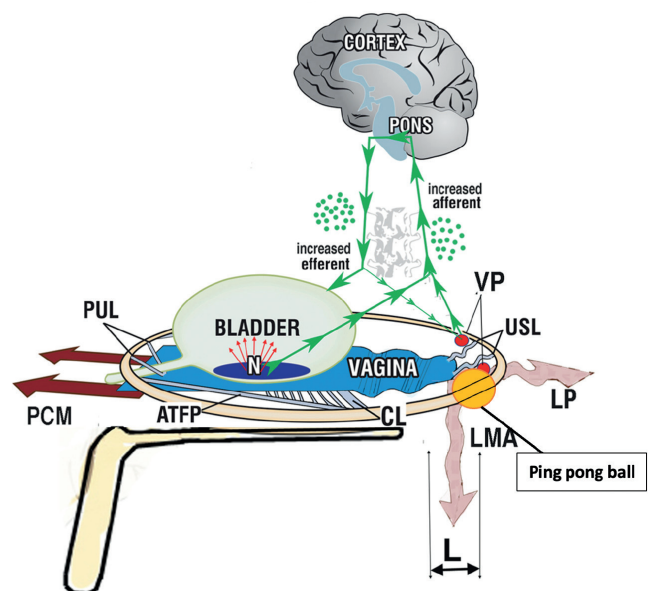
The speculum test is well known as a test for the urge and CPP components of the posterior fornix syndrome (PFS). PFS consists of predictably co-occurring symptoms of urge, frequency, nocturia, CPP, abnormal emptying/urinary retention, caused by weak or lax USLs and cured or improved by USL repair.<sup>2</sup> The ITSQ is the only questionnaire which can directly diagnose PFS. Our patient, Mrs. Lu had all the PFS symptoms except for abnormal emptying. However, urodynamic testing showed a maximal flow rate of 15 mL/sec, which is considered borderline for obstructed micturition.

The speculum test was used by Goeschen et al.<sup>3</sup> as a screening test for CPP and also by Scheffler for his seminal paper on

interstitial cystitis/Hunner's ulcer cure.<sup>4</sup> However, Scheffler, also used a probe in the posterior fornix as a predictive test for cure of urge and CPP.<sup>4</sup> Our ping-pong ball is not so different to the probe of Scheffler and roll gauze of Shkarupa et al.<sup>5</sup> who found relief of OAB symptoms (urge, frequency, nocturia) by applying a roll gauze in the posterior vaginal fornix. Shkarupa (personal communication to Dr. Petros), like us, found the gauze more diagnostic than the speculum test. With reference to Figure 1, a 4 cm round ping-pong ball would clearly provide more support for the USLs than a speculum test.

## CONCLUSION

Analysing Figure 1 from a mechanical perspective, it is evident that a pingpong ball would more directly support the USLs "USL" to relieve the tension on the visceral plexuses "VP".



**Figure 1.** Speculum test: Supporting the posterior vaginal fornix and the urothelial stretch receptors "N" with a speculum blade. "L" indicates uterosacral ligament (USL) laxity. PUL: pubourethral ligament; CL: cardinal ligament; PCM: m. pubococcygeus; LP: m. levator plate; LMA: conjoint longitudinal muscle of the anus. Ping-pong ball supports USLs directly.

**Table 1. The POP-Q score of patient**

POP-Q					
Aa	0	Ba	0	C	0
gh	5	Pb	3	TvL	6
Ap	-3	Bp	-3	D	-3
POP-Q: pelvic organ prolapse-quantification					

**Table 2. The urine flow test of patient**

Maximum urinary flow rate, MFR↓	15 mL/s
Voided volume	211 mL
Residual volume	0 mL
Maximum uroflow rate time	4.35 s
Average urinary flow rate, AFR↓	7 mL/s
Urine flow time	27.60 s
Voiding time	28.65 s

## ETHICS

**Informed Consent:** Obtained for identified publication of her data.

**Peer-review:** Externally peer-reviewed.

## Contributions

Surgical and Medical Practices: L.Y.R.; Concept: L.Y.R., L.L.B.; Design: L.Y.R., L.L.B.; Data Collection or Processing: L.Y.R., Analysis or Interpretation: L.Y.R., P.P.; Literature Search: L.Y.R., P.P.; Writing: L.Y.R., L.L.B., P.P.

## DISCLOSURES

**Conflict of Interest:** No conflict of interest was declared by the authors.

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**PELVIC FLOOR SYMPTOM QUESTIONNAIRE**

DATE: 2022-04-19

NAME : LU [REDACTED] DATE OF BIRTH : [REDACTED]  
 ADDRESS : Changshou District, Chongqing, China WEIGHT : 64kg  
 TELEPHONE : [REDACTED] NO. OF VAGINAL DELIVERIES ( 1 )  
 NO. OF CAESAREAN SECTIONS ( 0 )

**DESCRIBE IN YOUR OWN WORDS YOUR MAIN SYMPTOMS AND DURATION:**

Pelvic pain began to appear in June last year, from mild to severe.

**ALL SECTIONS: MARK APPROPRIATE SQUARE ( ) ; if YES/NO circle or mark with colour. Write extra details if you wish**

**(A) S.I. SYMPTOMS**

	NO	YES some- times	YES 50%or more
(A) DO YOU LOSE URINE DURING: SNEEZING, COUGHING OR EXERCISE WALKING	( * )	( )	( )
(A) DURING INTERCOURSE	( * )	( )	( )
(A,TV) STOOPING, SQUATTING OR GETTING UP OFF A CHAIR	( * )	( )	( )

**(M,P) SYMPTOMS OF DEFICIENT EMPTYING**

DO YOU FEEL THAT YOUR BLADDER ISN'T EMPTYING PROPERLY?	( * )	( )	( )
DO YOU EVER HAVE DIFFICULTY STARTING OFF YOUR STREAM?	( * )	( )	( )
IS IT A SLOW STREAM?	( * )	( )	( )
DOES IT STOP AND START INVOLUNTARILY?	( * )	( )	( )

**(A,M,P) URGE SYMPTOMS:**

DO YOU EVER HAVE AN UNCONTROLLABLE DESIRE TO PASS URINE? ( ) ( \* ) ( )  
 IF SO, DO YOU WET BEFORE ARRIVING AT TOILET YES/NO (circle)  
 If so, how many times a day do you wet? ? AVERAGE DAY ( ) GOOD DAY ( ) BAD DAY ( )  
 How much? a few drops ( ) teaspoon ( ) tablespoon or more ( )

**(A,M,P) FREQUENCY SYMPTOMS:**

HOW MANY TIMES DO YOU PASS URINE DURING THE DAY? write number  
 AVERAGE DAY ( 15 ) GOOD DAY ( 10 ) BAD DAY ( 18 )

(P) HOW MANY TIMES DURING THE NIGHT DO YOU GET UP TO PASS URINE write number  
 AVERAGE NIGHT ( 3 ) GOOD NIGHT ( 2 ) BAD NIGHT ( 4 ) write number

(P) ARE YOUR URGE /NOCTURIA SYMPTOMS WORSE BEFORE A PERIOD ? YES / NO (circle)

**INFECTION** DO YOU HAVE PAIN WHILE PASSING URINE? YES / NO (circle)

**(TV) SUSPECT TETHERED VAGINA**

PREVIOUS VAGINAL SURGERY OR BURCH OPERATION-. YES / NO (circle)  
 What operation? When?

In the morning do you wet uncontrollably immediately on getting out of bed? YES / NO (circle)

**CONGENITAL**

(A) DID YOU WET THE BED AS A CHILD BUT NOT AFTER PUBERTY? YES / NO (circle)

(P) DID YOUR PROBLEMS BEGIN SOON AFTER PUBERTY? YES / NO (circle)

**BOWEL SYMPTOMS:**

(P) DO YOU HAVE DIFFICULTY EVACUATING YOUR FAECES? YES / NO (circle)

(PB) DO YOU HAVE TO MANUALLY ASSIST DEFECATION YES / NO (circle)

(A,B) DO YOU EVER SOIL YOURSELF (FAECES)? YES / NO (circle)  
 wind ( ) liquid faeces ( ) solid faeces ( ) write number  
 each day ( ) each week ( ) each month ( ) write number

**A.M.P.** on the left indicate zone of vagina in the algorithm Anterior; Middle; Posterior;  
 TV=exclude tethered vagina syndrome