Approach to a woman with urinary incontinence

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INTRODUCTION

Urinary incontinence is a troublesome condition for a woman, though many times they do not seek medical assistance out of shyness. More than 50% of women suffering from urinary incontinence never seek medical treatment. Hence, while taking a history, often, it becomes necessary to put leading questions to these women to extract the information. A thorough history-taking helps us to reach the 50% of the diagnosis, next 25% reaches by physical examination, and the rest 25% comes from the investigation – thus 100% of final diagnosis reached.

HISTORY

Type of incontinence is often diagnosed by history, with confirmation by office evaluation or urodynamic testing. To take proper urinary incontinence history, many questionnaires are available. It is desirable that whichever questionnaire has been used, it should be translated to the local language and get validated before using. One validated questionnaire is described here.

The Questionnaire for female Urinary Incontinence Diagnosis [Table 1] Scoring: each item scores 0 (none
frequency of micturition may be observed in cystocele due to stimulation of stretch receptors. Space-occupying lesion and adhesions in the lower abdominal and pelvis can increase the frequency by mechanical compression on the bladder preventing its enlargement. Endometriosis of bladder, anterior vaginal wall, anterior cervix, etc., can irritate the bladder (especially trigone) and cause urinary frequency.

**Past surgical history**
Radical hysterectomy and other pelvic operations may cause detrusor dysfunction due to disturbance of the nerve supply of the bladder.

**Medications**
Urinary incontinence may be due to the adverse effects of certain drugs [Table 2].

**EXAMINATION**
A thorough general physical examination and systemic examination have to be done like any other illness with special focus on the following:

a. Body mass index – Obesity can lead to incontinence mainly SUI

### Table 1: Questionnaire for female urinary incontinence diagnosis

| Question                                                                 | None of the time | Rarely | Once in a while | Often | Most of the time | All of the time |
|--------------------------------------------------------------------------|------------------|--------|-----------------|-------|------------------|-----------------|
| when you cough or sneeze?                                               |                  |        |                 |       |                  |                 |
| when you bend down or lift something up?                                 |                  |        |                 |       |                  |                 |
| when you walk quickly, jog, or exercise?                                 |                  |        |                 |       |                  |                 |
| when you are undressing to use the toilet?                               |                  |        |                 |       |                  |                 |
| do you get such a strong and uncomfortable need to urinate that you leak urine (even small drops) or wet yourself before reaching the toilet? |                  |        |                 |       |                  |                 |
| do you have to rush to the bathroom because you get a sudden, strong need to urinate? |                  |        |                 |       |                  |                 |

Scoring: Each item scores 0 (none of the time), 1 (rarely), 2 (once in a while), 3 (often), 4 (most of the time), or 5 (all of the time). Responses to items 1, 2, and 3 are summed for the stress score, and responses to items 4, 5, and 6 are summed for the urge score. Score range: Stress – (0–15) and urge – (0–15). Larger values indicate worse urinary incontinence. Bradley et al.[3]

### Table 2: Adverse effect of medications causing urinary incontinence

| Drugs                          | Mechanism causing urinary incontinence                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------|
| Antihypertensives              | Decreases urethral closure pressure and cause SUI                                                       |
| ɑ-blockers                     | Results in chronic cough and SUI                                                                      |
| ACE inhibitors                 | Increases urinary frequency                                                                             |
| Diuretics                      | Affects the elasticity of the bladder and prevent it from contracting, ultimately resulting in chronic retention of urine |
| Antidepressant - amitriptyline, desipramine, haloperidol, etc. | Relaxes the bladder leading to chronic retention of urine; difficulty in starting, straining during voiding, and poor stream urination; constipation (side effect of the drug) desensitizes bladder and worsens urgency incontinence |
| Opioid painkillers, for example, morphine, meperidine, codeine, oxycodone, etc. | Causes relaxation of the urethra resulting in urinary frequency, SUI |
| Sedatives and muscle relaxants, for example, chlordiazepoxide, diazepam, lorazepam, etc. | Triggers and worsens SUI as well as urgency incontinence, but topical use is beneficial Causes relaxation of the bladder and chronic retention of urine |
| HRT - oral                     |                                                                                                       |
| Antihistaminics, for example, chlorpheniramine, diphenhydramine, etc. |                                                                                                       |

SUI: Stress urinary incontinence, HRT: Hormone-replacement therapy, ACE: Angiotensin converting enzyme
b. Per abdominal examination: the presence of striae may be an indication of collagen disorder. Weak collagen may reduce the strength of urethral support, thus causing stress incontinence.

c. Examination of the spine – Palpate the vertebra from top to bottom, i.e., from the neck to coccyx and look for any swelling, gap, tenderness, etc. Any doubtful finding requires further evaluation by imaging studies. Spinal cord lesion may be reflected as urinary incontinence.

d. Hypermobility of the joints: it may cause urinary incontinence. Suspicion of this problem is more in case of nulliparous unexplained SUI. Hypermobility is caused by collagen disorder. The Brighton criteria diagnose hypermobility syndrome. Disorders that may present as hypermobility syndrome are benign joint hypermobility syndrome (BJHS), Marfan’s syndrome, Ehlers–Danlos syndrome, and osteogenesis imperfecta. In BJHS, many joints get involved with chronic pain. In addition to generalized joint hypermobility, Marfan’s syndrome patient has other marfanoid features (tall, thin body, arachnodactyly, myopia, and dislocation of lens) also. There is an increase degree of wrist dorsiflexion and palmar flexion in Ehlers–Danlos syndrome. Woman with osteogenesis imperfecta has thin blue sclera and fragile bone, leading to multiple fracture and deformity, along with joint hypermobility.

Stress test
Observation of loss of urine with cough or Valsalva maneuver interprets the test as positive. Usually, the test is done in a dorsal position. If not demonstrable on dorsal position, then the test can be repeated in squatting position. If still not demonstrable, then in standing position asking her to keep her feet on the ground at shoulder distance, lift the saree/gown and looking for urine loss on the floor in between her feet or trickling down of urine through the thighs.

Bonney’s test
Positive stress test patient undergoes this test. The patient lies in the dorsal position. Middle and index fingers are placed in the anterior vaginal wall on either sides of the urethra and push upward and backward to restore the posterior urethra-vesical angle and stabilizing the urethra. Next, the patient is asked to cough and observed for loss of urine. If there is no urine loss, then the test is positive (that means distortion of posterior urethra-vesical angle is responsible for SUI). However, this test has limited value in stress incontinence evaluation.

Urethral hypermobility test
1. Inspection – The patient is observed while coughing or doing Valsalva maneuver. If there is urethral hypermobility, then the anterior vaginal wall will rotate outward, and external urethral meatus will rotate upward toward the ceiling.

2. Q-tip test/cotton swab test – This test is done in dorsal/dorsal lithotomy position. Sterile lubricated cotton-tipped swab is introduced per urethra to the bladder and withdrawn up to the level of urethrovesical junction. Position of the cotton swab in relation to the horizontal is seen – usually resting angle is 0° or nearer to 0°. Next, the patient is asked to cough or do Valsalva and movement of the swab stick is observed. If the straining makes an angle of 30° or more, i.e., moving away from the horizontal, it is diagnosed with hypermobile urethra. The mere presence of hypermobile urethra does not clinch the diagnosis of SUI, but this test has prognostic value if the operation is contemplated.

Vaginal discharge
Sometimes, mucoid vaginal discharge may be confused with urine and the patient complained of urinary incontinence. Inspection of the vagina with speculum will rule out such possibility.

Pelvic organ prolapse
Associated prolapse is assessed by the Pelvic Organ Prolapse Quantifications staging. The presence of occult SUI (SUI normally absent, but demonstrable once the prolapse is reduced) has to be ruled out.

Pelvic mass
Per abdominal and per vaginal examination can find out any mass in the lower abdomen or pelvis which may be responsible for urinary incontinence.

Senility
Vaginal rugosity may be absent in postmenopausal woman; even vagina may be tender during digital examination. This is due to deficiency of estrogen and may be the cause of urinary incontinence.

Levator ani muscle strength assessment (digital palpation)
In dorsal position, P/V examination fingers are placed on the posterior vagina at least 2–4 cm above the hymenal ring. Both sides of levator ani muscles are palpated to know its bulk, resting tone, and spasticity, if any. Then, the patient is asked to contract the pelvic floor muscles maximally as long as possible. Rectus abdominis, adductors...
of the thigh, and gluteus muscles are not supposed to be contracted. Now, levator ani is evaluated regarding muscle contraction (present/absent), strength and duration of contraction, and the ability to elevate the P/V fingers. Grading is done according to the modified Oxford Scale [Table 3].

**Neurological evaluation**

Sacral reflex – for the assessment of pudendal nerve integrity. Two reflexes are tested:

1. Anal reflex – Elicited by stroking the perianal skin lightly and looking for anal sphincter contraction. If the contraction is not seen, then feel it by palpation of the sphincter
2. Bulbocavernous reflex – Elicited by tapping or squeezing the clitoris lightly and looking for contraction of the bulbocavernous muscle and/or external anal sphincter.

The absence of one or both sacral reflexes signifies lower motor neuron lesion, usually resulting from trauma during delivery.

**Perineal sensation**

Evaluation of sensory function is done by assessing the discrimination capability between light touch, pinprick, and cold sensation. A cotton swab stick is broken into the middle. By the soft end, light touch sensation is tested, and by the sharp end, prick sensation is tested. Alcohol-soaked swab assesses the cold sensation.

Sensory dermatomes tested are as follows:
- Mons pubis and upper labia majora (L1-2)
- Perineal and perianal skin (S2-4)
- Front of the knees (L3-4) and
- Lateral part of the feet (S1).

**Motor function of lower extremities**

Hip, knee, and ankle joints are evaluated regarding their muscle strength according to the Oxford scale [Table 4].

The patient is asked to perform:
- Hip flexion (L2-3) and extension (L5-S1)
- Knee flexion (L5-S1) and extension (L3-4)
- Ankle dorsiflexion (L4-5) and plantar flexion (S1-2).

**INVESTIGATION**

After the completion of physical examination, different investigations are advised. First and foremost are the urine routine examination and culture and sensitivity. Pending the report, a course of antibiotic (may be norfloxacin/nitrofurantoin) can be prescribed. Once the report is available, appropriate antibiotic may be prescribed, if needed. After the infection is controlled, if the patient still complained of urinary incontinence, then only different specific investigations may be required, for example, frequency/volume diary, pad test, ultrasonography kidney, ureter, and bladder and pelvis, urodynamic study, cystourethroscopy, etc. Following this protocol will help to assess these patients easily and quickly.

**CONCLUSION**

A structured approach to a woman with urinary incontinence helps us to reach a proper diagnosis easily.

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**Conflicts of interest**

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