# 634 Resolved stress and urge incontinence in women with MUI after mid-urethral sling surgery based on variable positioning urodynamic evaluation

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## Hypothesis / aims of study

In selected patients with mixed urinary incontinence (MUI), we observed that not only stress urinary incontinence (SUI), but also urge urinary incontinence (UUI) resolved after mid-urethral sling (MUS) operation[1]. We hypothesize that urinary leak into to the urethra could cause detrusor overactivity (DO)[2] and this can be assessed by variable positioning during urodynamic testing.
This study may help identify patients with MUI who may be appropriate candidate for surgery as initial therapy vs pharmacotherapy for overactive bladder symptoms.

## Study design, materials and methods

A prospective study was performed using preoperative urodynamic studies (UDS) for 27 consecutive SUI-dominant MUI women who received MUS operation. Sling method included tension-free vaginal tape (TVT) operation (Advantage fit™ Boston Scientific) or transobturaor tape (TOT) operation (Monarc™ AMS or Obtryx™ Ⅱ Boston Scientific), between May 2014 and September 2016.

The diagnosis of MUI was based on a history of leakage during stress, assessment of symptoms by using questionnaires ICIQ-SF and OABSS, 1-h pad test, and physical examination with a supine stress test in all patients. Cystometry was performed in the sitting position using a 7-French double lumen catheter. The bladder was filled at a constant rate of 50 ml/min by a flow restrictor using normal saline solution at room temperature.
Soon after the first cystometry, the second cystometry was performed in the supine position for the MUI patients who showed DO in the sitting position.

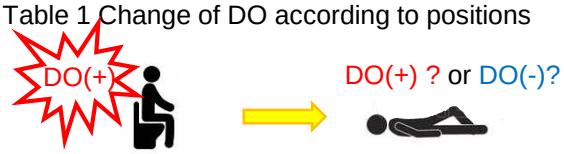
All of the tests, except for UDS, were also carried out at 3 months after surgery.

## Results

The mean age of the patients was 65.8 ± 14.4 years (range 38-86 years). The mean body mass index (BMI) was 23.1 ± 2.2 kg/m$^2$ (range 19.2-28.1 kg/m$^2$).
The result of 1-h pad test was 41.1 ± 44.9g (range 0-146 g). The maximum urethral leak point pressure (MUCP) was 29±11 cm$H_2O$ (range 15-57 cm$H_2O$).

Fifteen of 27 patients showed DO in the sitting position on cystometry. Seven of 15 patients also showed DO in the supine position (DODO group), but in 8 of 15 patients DO disappeared in the supine position on cystometry (DON group). The remaining 12 patients didn't show DO (N group) (Table 1).

Table 1 Change of DO according to positions




| Supine position \ Sitting position | + | − |
|---|---|---|
| + | 7 | 12 |
| − | 8 | |

No significant difference was found between the three groups for age, BMI, MUCP, or the result of 1-h pad test.

Nocturia in those younger than 65 years old (n=11) was 2.25 ± 0.96 times in DODO group, 0.75 ± 0.96 times in N group and 0.33 ± 0.58 times in DON group. There was a statistically significant difference between the DODO group and the DON group ($p < 0.01$), as well as between the DODO group and the DON and N groups ($p < 0.02$) (Table 2).

Table 2 Occurrences of nocturia

| | Under 65 years old | |
|---|---|---|
| DODO group (n=4) | 2.25 ± 0.96 | p < 0.02 |
| N group (n=4) | 0.75 ± 0.96 | |
| DON group (n=3) | 0.33 ± 0.58 | p < 0.01 |

＜After MUS operation＞
・All 7 patients who showed DO in both the sitting and supine position (DODO group) needed medical treatment including anticholinergic drugs
・ All 8 patients who showed DO only in the sitting position on cystometry (DON group), both UUI and urgency disappeared or decreased.
・ All 12 patients who didn't showed DO in the sitting position on cystometry (N group) didn't need medical treatment

## Interpretation of results

In 55.6% MUI, DO was observed in the sitting position on cystometry. In 53.3% (8/15) of them, involuntary detrusor contraction disappeared when the cystometric evaluation was repeated in the supine position. Both OAB symptoms and UUI disappeared in that 100% (8/8) after MUS operation.

In MUI patients under 65 years old who have DO in sitting but not supine position during urodynamic testing, nocturia averaged less than one time.

## Concludions

We hypothesize that there are two types of MUI. One is a condition that both SUI and OAB exist as separate diseases. The other is a condition that SUI induces OAB.

The results we observed suggests that **urinary leak to the urethra could cause DO**, and that variable urodynamic positioning may help to predict whether OAB symptoms remain after MUS operation. Identification of DO in women with MUI in sitting but not supine position during urodynamic testing may select patients who will benefit from MUS operation as first line therapy.

Few occurrences of nocturia in younger MUI patients might indicate they will exhibit DO in sitting but not supine position.

## References

1. Tomoe H et al. J Obstet Gynaecol Res, 2010, 36(5), 1064-1070.
2. Jung SY, Chancellor MB et al. J Urol. 1999, 162: 204-12.

## Disclosure

In connection with this presentation, there is no COI to be disclosed with any companies.