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**Title:** A Comparison of urethral Closure Profilometry Using Microtip and Double-lumen perfusion Catheters

**Aims of study:**

To compare urethral profilometry measurements using the microtip and the double-lumen perfusion catheter.

**Methods:**

Multichannel urodynamic investigations were performed initially with double-lumen perfusion catheters on the 392 non-pregnant women with various lower urinary tract symptoms. For those 301 (76.8%) diagnosed as having genuine stress incontinence, an investigation with micro-transducer catheters followed immediately.

**Results:**

Of the 301 women with genuine stress incontinence, 272 were eligible for this study. In resting status, the differences between microtip and double –lumen catheters were statistically significant ( $p=0.0001$ ) in the measurement of maximum urethral closure pressure after adjusting for age. The younger group was found to have higher maximum urethral closure pressure. In coughing status, similar results were obtained. The relationship between the two measurements with the microtip and perfusion catheter was positively correlated (Person’s correlation coefficient = 0.53,  $p=0.0001$ ). A cut-off interval of 50-65 cm H<sub>2</sub>O was found to have 66-78% sensitivity and 63-78% specificity for diagnosing the low-pressure urethra when double-lumen catheter was used to measure the maximum urethral closure pressure.

**Conclusions:**

The maximum urethral closure pressure obtained from the double-lumen catheter was significantly higher than that obtained from the microtip catheter. Use of the double-lumen catheter for the measurement of maximum urethral closure pressure can be considered a reliable technique since its reproducibility is as good as that of the microtip catheter. Therefore, it is necessary to use a new standard for diagnosing the low-pressure urethra when the double-lumen catheter is applied in clinical practice.

**Table 1. Mean MUCP in five age strata and catheters for resting and Coughing status using mixed-effects model**

Resting		Coughing	
Mean(range)	p-value	Mean(range)	p-value

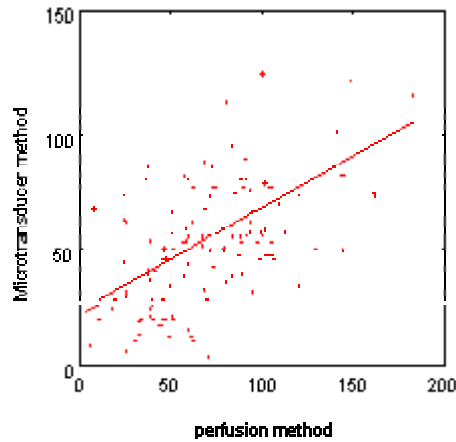
Catheter				
Microtip	48.91 (4 - 149)		42.70 (-34 - 151)	
2-lumen	73.37 (15 - 184)	0.0001 <sup>a</sup>	64.57 (14 - 195)	0.0001 <sup>a</sup>
Age				
Age < 50	70.71 (6 - 176)		62.03 (-10 - 195)	
Age 50-59	60.94 (6 - 184)	0.0048 <sup>b</sup>	50.97 (5 - 128)	0.0012 <sup>b</sup>
Age 60-69	48.73 (4 - 134)	0.0001	44.29 (0 - 171)	0.0001
Age 70-79	44.85 (4 - 124)	0.0001	44.80 (-34 - 151)	0.0017
Age 80+	24.38 (14 - 41)	0.0069	27.00 (11 - 44)	0.0366

<sup>a</sup>: comparison between catheters.

<sup>b</sup>: comparison to baseline group (age < 50).

**Table 2. Sensitivity and specificity for MUCP (measured by perfusion method) in detecting a low-pressure urethra among all study patients (n=272) Omit**

**Figure 1. The measurement in MUCP using perfusion method against that using microtransducer method**



MUCP: maximum urethral closure pressure