

PELVIC FLOOR MUSCLE THICKNESS IN WOMEN WITH SEVERE DEEP INFILTRATING ENDOMETRIOSIS AND VOIDING DYSFUNCTION.

Hypothesis / aims of study

The resection of deep infiltrating endometriosis (DIE) at the level of the uterosacral ligaments or the rectovaginal space seems to favour the occurrence of voiding bladder dysfunction due to damage of the supplying autonomic nerve fibers (1). Nevertheless, a spastic activity of the pelvic floor muscles (PFM) may have a role in the urinary voiding dysfunction described among these patients (2). Chronic spasticity of a muscle could be objectively demonstrated by a wider thickness using imaging techniques. Thus, our objective was to investigate the PFM morphology, measured by ultrasound, in patients with DIE and voiding symptoms, compared with a group of healthy continent women with normal bladder function.

Study design, materials and methods

An observational pilot study was designed including two groups of patients. The study group included patients with DIE (Group DIE), who had undergone a complete laparoscopic resection of endometriotic implants, with symptoms of voiding dysfunction. Patients with urinary tract endometriotic involvement were excluded. The control group included healthy patients with normal pelvic floor muscles tone at rest and normal voiding function, matched for parity, age, body mass index and ethnicity with Group DIE.

Voiding dysfunction was objectively demonstrated by urodynamic investigations in accordance with the ICS definitions in all patients of Group DIE. PFM tone and strength was evaluated by digital palpation. Patients with DIE and controls were evaluated with a pelvic floor transvaginal ultrasound (360° rotational probe 2052, BK Medical). Thickness of the pubovisceral muscle and levator ani hiatus area were measured from the three-dimensional static volumes captured in lithotomy position. These measurements were analysed in the axial plane of minimal hiatal dimensions (area bordered by the puborectalis muscle, symphysis pubis and inferior pubic ramus). Thickness of the pubovisceral muscle was defined as the most medial part of the levator ani complex bordering the levator hiatus, and it was measured right and left side (Fig 1).

Results

Nine patients were analyzed in each group. Mean age (years): Group DIE: 39 ± 6.8 and Group Control: 40 ± 6.2 (NS). Oxford score evaluated by digital palpation was ≥ 3 in both groups. Additionally, 6 out of 9 patients of the Group DIE presented nonrelaxing pelvic floor at rest.

Group DIE patients bore statistically wider left levator ani muscles (8.5 ± 1.3 mm) compared with controls (6.7 ± 0.9 mm; p=0.004) in a U-Mann Whitney test. Right levator ani muscle was also wider on average in Group DIE, although differences were not statistically significant: DIE: 8.5 ± 2.3 mm and controls 6.7 ± 1.0 mm. Hiatus area was 13.3 ± 1.7 cm² in DIE group while 14.4 ± 1.9 cm² in control group (NS).

Concluding message

An association between PFM strength, pubovisceral thickness and urinary voiding dysfunction (symptoms and urodynamics) has been demonstrated in women with DIE. This observation may have clinical practical implications because patients could benefit from pelvic floor muscle relaxation. However, the small number of patients analyzed could bias the results and thus, it should be considered a pilot study and a larger sample is needed to confirm our findings.

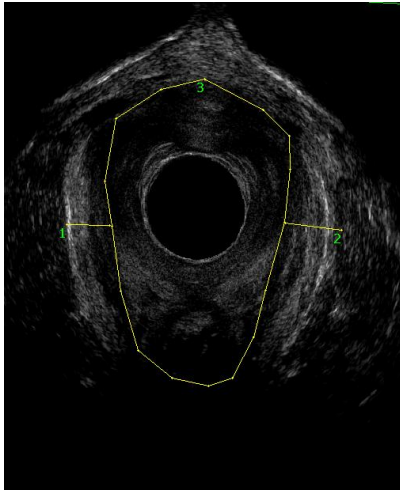


Fig. 1. Thickness of pubovisceralis muscle (1) right and 2) left side) and levator ani hiatus area (3) measured in the axial plane of the minimal hiatal dimensions, using an endovaginal 360° rotational probe (type 2052, BK Medical).

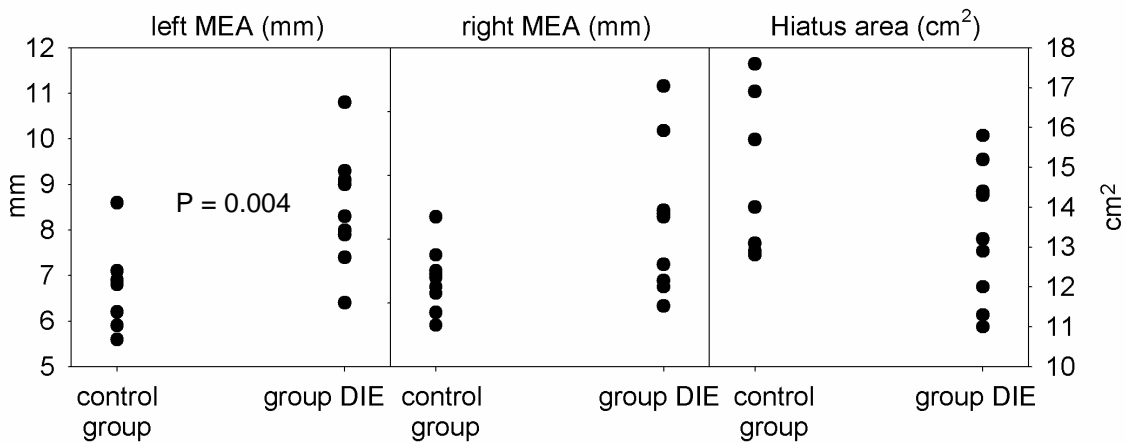


Fig 2. Scatter plot of left and right MEA width and hiatus area of group DIE and controls. Each dot represents one patient. Statistically significant differences in U-Mann-Whitney test are depicted.

References

1. Vashiht A, Gulumser C, Pandis G, Saridogan E, Cutner A. Voiding dysfunction in women undergoing laparoscopic treatment for moderate to severe endometriosis. *Fertil Steril.* 2009;92:2113-5.
2. Faubion SS, Shuster LT, Bharucha AE. Recognition and management of nonrelaxing pelvic floor dysfunction. *Mayo Clin Proc.* 2012;87:187-93

Disclosures

Funding: No funding is to be disclosed **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** CEIC Hospital Clinic de Barcelona **Helsinki:** Yes **Informed Consent:** Yes