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CO₂-laser therapy in women with severe symptoms of vaginal atrophy: a pilot histopathological study

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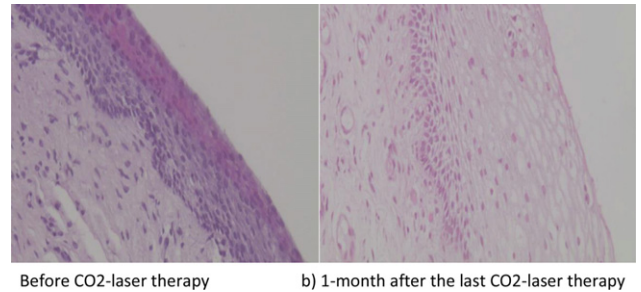
Introduction and aim of the study: CO₂-Laser therapy represents a novel proposal for the vaginal atrophy (VA) management.1-33 Nevertheless, lack of relevant histopathological studies regarding its effect on the vaginal epithelium exist. The aim of our study was to assess the alterations of vaginal epithelium thickness (VE-Thick) following CO₂-Laser therapy in postmenopausal women with severe VA-symptoms.

Materials and methods: Three-therapies/month were applied in 26 women with severe VA-symptoms. Primary outcome of the study was the evaluation of VE-Thick. Secondary outcomes involved: Vaginal Maturation Value (VMV), Vaginal Health Index Scale (VHIS), vaginal pH and 10-cm Visual Analogue Scale of symptoms' severity (overall, dyspareunia, dryness, burning, itching, dysuria). Assessment was performed at baseline and 1-month after last therapy.

Results: VE-Thick, VMV and VHIS were significantly increased, while Vaginal pH and severity of all symptoms were significantly decreased post-CO₂-Laser therapy.

Interpretation of results: CO₂-Laser may result in alleviation of VA-symptoms potentially through the restoration of local pathophysiology.

Conclusions: CO₂-Laser therapy increases significantly the VE-Thick resulting in alleviation of VA-symptoms. More studies are needed to confirm our results (Tables 1 and 2).



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Effect of episiotomy on pelvic floor injuries and urogynecological complaints

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Introduction and aim of the study: Episiotomy has proven to be a protective factor during operative vaginal delivery and restrictive use during normal vaginal delivery for developing an anal sphincter tear [1–3]. This study evaluates if an episiotomy also might reduce the risk of obtaining other pelvic floor injuries; i.e. levator avulsion (LA) and/or levator ballooning, and urogynecological complaints.

Materials and methods: A prospective observational cohort study of 204 primiparous women with a spontaneous vaginal delivery between 2012 and 2015 being delivered in a general hospital in the Netherlands. 103 of these women had undergone an episiotomy. Validated urogynecological questionnaires and transperineal 3D/4D ultrasound were completed between 6 and 33 months after delivery. Statististical analysis was performed using univariate and multiple logistic regression analysis.

Results: LA was identified in 27 (22.8%) of the 103 women whom had undergone an episiotomy and in 23 (26.2%) of the 101 women who had not (p = 0.529). There was also no significant difference in

Table 1

Baseline characteristics of the women included in the study.

Number	26
Age	56.6 ± 3.3*
Years since the last menstrual period	9.3 ± 6.1*
Body mass index	25.4 ± 3.8*
Educational level	
University	23/26 (89)*
Secondary	3/26 (11)*
Smoking	
Yes	7/26 (27)*
No	19/26 (73)*

Data are displayed as mean ± SD and as percentage.

Table 2

Changes on vaginal epithelium thickness and signs/symptoms of Vaginal Atrophy following CO₂-Laser therapy.

	Baseline	1-month after 3 CO ₂ -laser therapies	p-value
Thickness of the vaginal epithelium (µm)	125.7 ± 53.4	179.0 ± 60.8	<0.001
Vaginal Maturation Value	13.1 ± 17.0	40.6 ± 13.4	<0.001
Vaginal Health Index Scale	7.9 ± 1.8	19.4 ± 3.3	<0.001
Vaginal pH	5.4 ± 0.6	4.6 ± 0.4	<0.001
10-cm Visual Analogue Scale of the vaginal symptoms			
Overall	9.6 ± 0.8	4.0 ± 2.2	<0.001
Dyspareunia	9.6 ± 0.8	4.0 ± 2.2	<0.001
Dryness	9.1 ± 1.0	3.2 ± 1.7	<0.001
Burning (n = 6)	6.33 ± 3.4	0.7 ± 1.2	0.03
Itching (n = 5)	6.2 ± 3.8	1.8 ± 1.8	0.04
Dysuria (n = 6)	1.8 ± 0.8	0.3 ± 0.5	0.02

levator ballooning between women with or without episiotomy (20 (19.4%) versus 23 (22.8%); $p = 0.557$) Oxytocine use was found to be a protective factor for LA (OR 0.48 (95% CI 0.234–0.990) $p = 0.047$). The duration of the second stage of labour increased the risk for LA (OR 1.01 (95% CI 1.001–1.028)). Non occiput anterior fetal position increased the risk for ballooning and for pelvic floor injuries (OR 10.38 (95% CI 1.87–57.66) and OR 11.01 (95% CI 1.26–96.03). There were neither differences in urogynecological complaints between women with or without episiotomy nor between women with or without pelvic floor injuries.

Interpretation of results: Pelvic floor injury is related with a prolonged second stage of labor, but not with episiotomy.

Conclusions: Episiotomy has no influence in developing pelvic floor injuries or urogynecological complaints.

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Is evacuation proctography still the gold standard for the diagnosis of posterior compartment pelvic floor disorders?

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Introduction and aim of the study: Evacuation proctography (EP) has been regarded as the gold standard for the diagnosis of posterior pelvic floor disorders. Magnetic Resonance Imaging (MRI), transperineal ultrasound (TPUS) and endovaginal Ultrasound (EVUS) are less invasive, avoid ionizing radiation and provide a three compartment assessment. Our aim was to establish the accuracy of four imaging techniques and determine if ultrasound/MRI could substitute EP.

Materials and methods: Prospectively, 131 women with symptoms of obstructed defecation syndrome underwent all four imaging techniques. Target conditions under evaluation were rectocele, enterocele, intussusception, anismus and pelvic floor descent. Findings were dichotomised into present or absent. Images were assessed independently by two observers blinded to clinical and other imaging findings. Discrepancies were resolved by a tertiary observer. EP was assumed to be an imperfect gold standard. Latent Class Analysis was used as is regarded the best statistical test in the absence of a gold standard [1].

Results: MRI and TPUS were better in diagnosing rectocele compared to EP (sensitivity 1.00; 0.92 vs. 0.50). All four were equally good in diagnosing enterocele (sensitivity 0.43;0.38; 0.47;0.79). EP was best in diagnosing intussusception (sensitivity 0.67 vs. 0.14;0.07;0.34). EVUS was best in diagnosing anismus (sensitivity

1.00 vs. 0.33;0.34;0.61). MRI and EP were equally good in diagnosing pelvic floor descent (sensitivity 0.95;0.92 vs. 0.35;0.20).

Interpretation of results: MRI could substitute EP for the diagnosis of rectocele, enterocele and pelvic floor descent, due to its excellent tissue discrimination. EP remains the preferred technique to diagnose intussusception. EVUS is a valuable tool for diagnosis of anismus.

Conclusions: This is the first study to assess the accuracy of four imaging techniques, showing EP is no longer the best available. MRI and ultrasound could to substitute EP for specific conditions and therefore the best imaging modality for each patient should be selected based on symptoms and suspected condition.

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Pelvic floor muscle strength in the postpartum period of women with history of obstetric anal sphincter injuries

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Introduction and aim of the study: According with the Green Top Guidelines of the RCOG [1], women with history of obstetric anal sphincter injuries (OASIS) should be advised that physiotherapy could be beneficial.

The aim of the study was to evaluate the pelvic floor muscles (PFM) strength in the postpartum period of a cohort of women with history of OASIS.

Materials and methods: Voluntary PFM contraction and relaxation was evaluated at 6 months postpartum by vaginal palpation, and scored according to the Modified Oxford Grading Scale (MOS) [2]. Additionally, MOS score was dichotomized in $MOS \leq 2$ (underactive/non-functioning) and $MOS \geq 3$ (normal).

Results: 95 females with OASIS identified and repaired intrapartum were included. 56 women (59%) presented an underactive/non-functioning PFM. No statistically significant differences were found between these patients and patients with normal PFM, considering newborn weight or degree of OASIS. A higher percentage of patients who delivered with forceps, showed a weak PFM strength, compared with women who delivered spontaneously ($p = 0.04$). Furthermore, participants who delivered spontaneously presented a higher MOS than those who delivered with forceps (mean value 2.4 ± 1.3 versus 1.9 ± 1.1 , respectively; $p = 0.04$). Considering age, there was a statistically significant negative correlation between ages and MOS score ($p = 0.04$, Spearman's correlation). No statistically significant differences were observed in MOS when comparing to different degrees of OASIS. Mean and SD for 3a, 3b, 3c and 4 were 2.0 ± 1.3 ; 2.3 ± 1.2 ; 2.6 ± 0.9 ; 2.0 ± 1.4 , respectively.