



Early pelvic floor muscle training after obstetrical anal sphincter injuries for the reduction of anal incontinence



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ABSTRACT

Objectives: Between 0.5 and 5% of vaginal deliveries involve obstetrical anal sphincter injuries (OASIS). Thirty to forty percent of patients with OASIS will suffer from anal incontinence in the subacute postpartum period.

The aim of the present study was to assess the effectiveness of early pelvic floor muscle training (PFMT) combined with standard rehabilitation on anal incontinence after vaginal deliveries complicated by OASIS.

Study design: The present work was a retrospective quantitative study performed in a tertiary-level maternity hospital. Women with 3rd or 4th degree obstetric tears were included. Women who gave birth between January 1st, 2011 and December 31st, 2012 underwent standard pelvic-perineal rehabilitation within 6–8 weeks postpartum. Women who gave birth between January 1st, 2013 and July 1st, 2014 had early rehabilitation (within 30 days after delivery) followed by the same standard rehabilitation received by the other group. Rehabilitation was performed by physiotherapists specialized in perineology. No electrostimulation was done in early rehabilitation. An in-house-validated modification of the Jorge and Wexner questionnaire was sent by mail to the patients to assess symptoms. The main judgment criterion was anal incontinence to gas, loose stools and/or solid stool.

Results: Two hundred and thirty patients were diagnosed with OASIS. Nineteen women (8.3%) were lost to follow-up. The intention-to-treat analysis included 211 patients, 109 of whom underwent standard rehabilitation and 102 early rehabilitation plus standard rehabilitation. The two groups were comparable in terms of parity, birth weight, assisted delivery, epidural anesthesia and rates of mediolateral episiotomy. Multivariate analyses adjusted for type of perineal lesion were performed. Early rehabilitation significantly reduced gas leakage: OR 0.51 [0.29–0.90] ($p = 0.02$), liquid stool leakage: OR 0.22 [0.08–0.58] ($p = 0.02$) and urinary stress incontinence: OR 0.43 [0.24–0.77] ($p = 0.004$).

Conclusions: We recommend early (during the first month postpartum) PFMT after vaginal deliveries associated with OASIS. Rehabilitation should be carried out by a physiotherapist specialized in perineology in order to prevent medium-term functional consequences. A longer follow-up may be necessary to confirm the stability of results.

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Introduction

Obstetrical anal sphincter injuries (OASIS) occur in 0.5–5% of vaginal deliveries [1,2]. The IUGA's classification standardized the different types of OASIS (Table 1). Risk factors for perineal injuries included primiparity, assisted delivery, long duration of second

stage of labor, excessive birth weight (≥ 90 th percentile) and macrosomia (≥ 4000 g)[3–5].

Anal incontinence [6,7] is reported by 30–40% of women during the subacute postpartum period, as is fecal urgency and unconscious leakage [8].

Despite specific training for and a large body of literature on the surgical repair of OASIS [9,10], this intervention often fails to prevent anal incontinence.

The literature has few articles on subacute postpartum management after OASIS. Some studies suggest that early rehabilitation [11] as an adjuvant therapy to surgical sphincter

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Table 1
Classification of OASIS (by IUGA-ICS).

First degree
Laceration of the vaginal epithelium or perineal skin only
Second degree
Laceration of the perineal muscles and fascia but no involvement of the anal sphincter
Third degree disruption of the anal sphincter muscles and this should be further subdivided into
3a
Partial tear of the external sphincter involving less than 50% of its thickness
3b
Partial tear of the external sphincter involving more than 50% of its thickness or complete tear of the external sphincter
3c
Internal sphincter is also torn
Fourth degree
A third degree tear plus disruption of the anal +/- rectal epithelium
Any involvement of the external sphincter (irrespective of depth) is a 3rd degree tear. A 4th degree tear has to involve the anal sphincter and anorectal mucosa. Isolated tears of the rectal mucosa (button hole tear)*1 should not be classified as a 4th degree tear

repair provides benefits. Boyle et al. found that muscular reinforcement during perineal rehabilitation in patients with OASIS reduced urinary stress incontinence and anal incontinence, but they did not specify when to start rehabilitation [12]. To date, there are no studies on the early rehabilitation of patients experiencing OASIS.

Expert opinion has been based on the rehabilitation processes of wounded athletes. Current treatment comprises a very rapid implementation of neuromuscular and proprioceptive training while promoting pain-free exercises to speed healing and prevent injury recurrence [13]. None of the previously described methods appeared to demonstrate superior efficacy. As concerns the perineum, this early training is monitored only manually and externally (no use of endocavitary techniques). It is focused on restoring voluntary contraction to the weakened musculature. Complementary training for the abdominal/perineal reflex and instructions for avoiding hyperpressive efforts are also included in this process.

Our aim for the present study was to assess the effectiveness of early pelvic floor muscle training (PFMT) (within 30 days postpartum) combined with standard rehabilitation on anal incontinence after vaginal deliveries associated with OASIS.

Methods

We performed our study between January 1st, 2011 and July 1st, 2014 in a tertiary-level maternity hospital (Hôpital Femme Mère Enfant, Bron, France). Our work was a retrospective observational study and thus did not require formal informed consent at admission or approval by a local ethics committee. We did however include a consent letter with the questionnaire sent to the patients; they thus could refuse participation. We used the hospital's standardized care provision information system to identify all women presenting OASIS after vaginal delivery. The diagnoses of OASIS were made clinically, without ultrasound imaging, by a senior obstetrician.

Standard care included systematic stitching (overlapping or end-to-end method when the former was not possible) plus 48 hours of preventive antibiotics (amoxicillin and metronidazole). Surgeries were performed by trained senior obstetricians who followed protocols for overlap or end-to-end repair, but did not have specific training in anal sphincter repair. All interventions were performed under peridural or general anesthesia and no complementary tissue sectioning was done. Round needles and

braided absorbable 2/0 sutures were used for the external and internal anal sphincters and monofilament absorbable 3/0 sutures for the anal mucosa.

No particular diet was recommended to the patients. Advice on hygiene and the prevention of postpartum constipation was provided orally. Laxatives were given on demand.

Women who delivered between January 1st, 2011 and December 31st, 2012 underwent standard PFMT (Group S), initiated within six to eight weeks postpartum depending on the patient's symptoms, the postnatal physical examination, and the physician's habitual practices. Patients usually had ten PFMT training sessions, provided under the guidance of midwives or physiotherapists specialized in perineology, to learn correct contraction of the pelvic floor muscles. Anatomical drawings and vaginal biofeedback sensors (not to be confused with vaginal electrical stimulation) were used as supports. Contraction exercises addressed both fast and slow twitch muscle fibers. They were also concentric so as to diminish the urogenital hiatus. Electrical stimulation was only used exceptionally and obligatory no earlier than three months after childbirth and in the absence of nerve damage.

Women who delivered between January 1st, 2013 and July 1st, 2014 had early rehabilitation, i.e. within the first month after delivery (Group E). Thereafter, the Group E patients also had the standard rehabilitation described above. As concerns early rehabilitation, the prescription provided at maternity ward departure comprised pelvic-perineal protective rehabilitation, distributed over approximately four sessions. To ensure the highest possible level of standardization, the physiotherapists were both specialized in perineology and members of the SIREPP (International Society of Pelvic-Perineal Rehabilitation). The major aim of the early rehabilitation was to protect the pelvic floor during the wound healing process. It comprised four elements: contraction of the transverse abdominal muscle for abdominal-perineal reflex reeducation, perineal locking, pelvic-perineal static exercises (reduction of excessive lordosis) and management of hyperpressive efforts [14].

- The objective of the abdominal-perineal reeducation was to reestablish a normal abdominal/perineal reflex, i.e. the reflexive and synergistic contraction of the pelvic floor during a contraction of the transverse abdominal muscle. The perception of these reflex contractions makes the patient aware of the situation and permits a correction of the pelvic floor weakness. The exercise involved an expiration by the patient to bring the created pressure toward the upper airway. The physiotherapist then verified contraction only visually or by placing a finger over the perineal body if the patient was not in pain. No vaginal probes were used.
- Perineal locking was developed gradually during daily activities. It began as soon as the patient was able to contract the pelvic floor voluntarily, even if only weakly at first.
- Excessive lordosis tends to redirect the result of effort-produced pressure toward the anterior perineum and accentuate abdominal ptosis and lack of tonus. In our study, pelvic rotation was the basis of lordosis correction.
- To manage hyperpressive efforts, the patients received instructions on how to go from lying to standing, avoiding carrying heavy objects, and some forms of exercise (such as jogging) They were also provided instructions on preventing constipation.

The global early rehabilitation protocol comprised six to ten series of exercises twice daily, with the patients progressing from a horizontal to a sitting position. We note that stretch neuropathies following childbirth involve segmental demyelination without axonal damage and recovery is usually achieved in three months. The effects provided by the stimulation of innervated muscle remain controversial, as no clear improvements to recovery have

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