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Full length article

Retrospective study on de novo postoperative urinary incontinence after pelvic organ prolapse surgery

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ABSTRACT

Objective: Reported incidences of de novo urinary incontinence (UI) following pelvic organ prolapse (POP) surgery in preoperatively continent women vary between 2% and 43%. The aim of this study was to investigate the incidence and the types of de novo UI and differences between operations in different compartments.

Study design: Retrospective study of 678 women with POP surgery using native tissue repair during a 3-year period. Patients completed three modified prolapse questions from the International Consultation on Incontinence-Vaginal Symptoms (ICIQ-VS) and the International Consultation on Incontinence Questionnaire- Urinary Incontinence Short Form (ICIQ-UI SF) before undergoing surgery and 3 months postoperatively. Patients who were totally dry and scored 0 on ICIQ-UI SF before surgery were included in the study (N = 299). The patients developing new onset UI on ICIQ-UI SF postoperatively were interviewed by telephone after median 30 months.

Results: A total of 33 patients (11%) developed subjective de novo UI at 3 months follow-up. The majority of patients (N = 16) reported stress UI. The risk of developing de novo UI increased with parity (p = 0.03). We found no difference between operations in different compartments. At long-term follow-up 12 patients became continent without incontinence surgery or medical treatment leaving only 21 patients (7%) incontinent.

Conclusion: The risk of developing de novo UI after prolapse surgery with native tissue repair is low and improves over time. Parity is significantly associated with the risk of developing de novo UI. There is no difference in the incidence of de novo incontinence between operations in different compartments.

Introduction

Pelvic organ prolapse (POP) and urinary incontinence (UI) are two common diseases in women. Eleven to 19 percent of women will undergo surgery for POP or incontinence by age 80 to 85 years [1,2]. Both conditions share risk factors such as obesity, age and mainly pelvic floor damage as a consequence of birth. POP or UI or both conditions can be present in a patient. The relationship is complex and many factors are still unknown [3].

In some cases, women who are preoperatively continent experience de novo incontinence also named occult UI or "masked incontinence" after prolapse surgery. The theory behind de novo incontinence in patients with prolapse is that the prolapse creates a mechanical kinking of the urethra or a cushion effect under the urethra [4–8]. This effect supposedly disappears when the patient is operated and the incontinence is demasked. Apart from the "demasked theory", other reasons for developing of urinary stress incontinence after prolapse surgery are not fully understood. Periurethral fibrosis, scarring and partial urethral denervation are direct consequences of anterior vaginal surgery under the urethra and the urethrovesical junction. The neuropathic effect created by the dissection under the urethra might play a role in the development of postoperative stress incontinence after prolapse surgery [9].

International Urogynecological Association (IUGA)/International Continence Society (ICS) define occult SUI as "SUI only observed after reduction of co-existent prolapse" [10]. This can be diagnosed

Abbreviation: UI, Urinary incontinence; SUI, stress urinary incontinence; POP, pelvic organ prolapse; ICIQ-VS, International Consultation on Incontinence-Vaginal Symptoms; ICIQ-UI SF, International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form.

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preoperatively using various techniques to reduce the prolapse or postoperatively after POP repair.

There is no standard definition concerning the time-span between operation and de novo UI. However, in this study, we defined it as the development of UI 3 months after POP surgery.

The incidence of de novo incontinence is unknown and the reported incidences vary between 2% and 43% [7,9,11–22]. The wide range of surgical techniques including modifications and sub-modifications together with very different ways of indicating prolapse surgery might be a reason for this difference. Most studies report only the incidence of de novo stress UI (SUI), missing data about de novo urge UI (UUI) [9,11–14,16–22].

The main purpose of this study was to investigate the incidence and the type of de novo incontinence after prolapse surgery and to investigate if any difference was found in relation to operations in different compartments. Secondarily we investigated the association between de novo incontinence and the patient reported outcome of the prolapse operation.

Material and methods

All medical case records and data from the national Danish Urogynecological Database [23] were reviewed for all patients who underwent a prolapse procedure in our department during a 3-year period between January 2012 and January 2015. A total of 678 patients were identified (Fig. 1). The indication for an operation was a symptomatic genital prolapse and Pelvic Organ Prolapse Quantification (POPQ) grade 2 or more.

All patients completed three modified prolapse questions from the International Consultation on Incontinence-Vaginal Symptoms (ICIQ-VS) [24] and the International Consultation on Incontinence – Urinary Incontinence Short Form (ICIQ-UI SF) [25,26] before surgery and 3 months postoperatively.

The three modified questions from ICIQ-VS used in our evaluation of symptomatic bulge sensation were: 1: "Do you feel a lump or bulge come out of your vagina or can you feel a lump in or outside of your vagina? " (ever (0), occasionally (1), sometimes (2), most of the time (3) or all of the time (4)) and 2: "How much does this bother you?" not at all (0), a little (1), some (2), very much (3) and 3: "How much does this affect your daily life?" (0–10). A score was constructed with 0 in an asymptomatic patient and a score of 17 in a patient with maximum bother.

ICIQ-UI-SF was used to evaluate the severity of urinary incontinence and its impact on health-related quality of life. The short form contains three scored items and an un-scored self-diagnostic item. A total score for the three scored items is calculated by adding them up. A score of 0 indicates a totally continent patient. Maximum score for worst incontinence is 21. The un-scored self-diagnostic item is used to classify the type of incontinence: stress, urge, mixed or undefined incontinence. Undefined UI is described as "leaks when you have finished urinating and are dressed" and "leaks for no obvious reasons". The Danish version of the ICIQ-UI SF has been translated from English but has not been validated.

De novo incontinence was defined as an ICIQ-UI-SF >0 three months postoperatively.

Patients without urinary incontinence defined as a score of 0 on ICIQ-UI SF before surgery were included in the study population which consisted of 299 continent women.

Demographic data included age, body mass index (BMI), number of births, previous caesarean sections and previous prolapse and incontinence operations. Preoperative evaluation included medical history and physical examination including POPQ.

We chose to group all patients in three groups. Group A included all patients with an operation in the anterior compartment with and without surgery in other compartments (colporrhaphy anterior alone or with cervix amputation/vaginal hysterectomy/colporrhaphy posterior/enterocele operation). Group B included all patients with an operation in the middle compartment and no operation in the anterior compartment (cervix amputation/vaginal hysterectomy/vaginal vault suspension alone or with colporrhaphy posterior, enterocele operation). Group C included all patients with an operation only in the posterior compartment (colporrhaphy posterior, enterocele operation).

All patients were operated in our outpatient clinic using native tissue repair and site-specific repair when indicated. Recurrent cases (N = 38) were in some instances reinforced with a biological mesh (N = 7) (surgicis). No synthetic meshes were used. No concomitant incontinence procedures were performed. If a patient was not ready to go home in the evening, she was admitted until the next day.

Postoperative clinical follow-up was performed for all patients except patients who underwent simple uncomplicated colporrhaphy anterior surgery in which case a telephone interview was performed. No urine analysis was performed neither at three months nor at long-term follow-up.

In June 2016, all patients with de novo incontinence at the 3 months follow-up were interviewed by telephone in order to

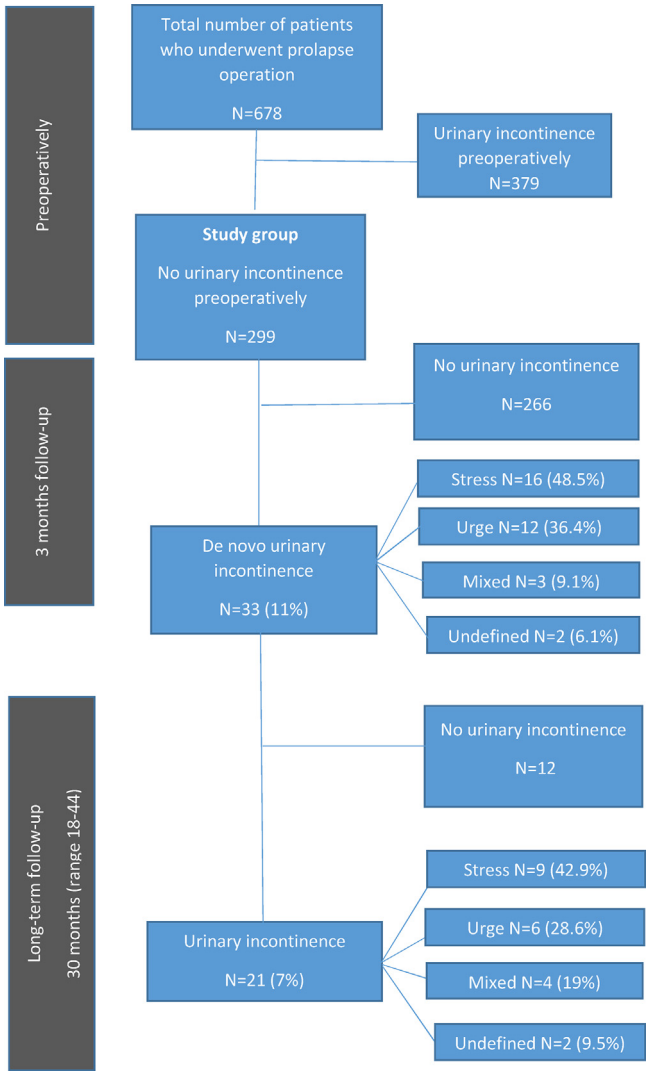

Fig. 1. Flow diagram of inclusion and follow-up.