



## Acute Urinary Retention and Menstrual Cup Use: Case Report

### Retenção Urinária Aguda e Uso de Copo Menstrual: Caso Clínico

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#### Abstract

This case report of acute urinary retention describes a triggered by lower urinary tract infection and simultaneous menstrual cup use and the need to specifically question the use of a menstrual cup in women of childbearing age.

The anatomical proximity of the bladder and ureters, combined with the thinness and plasticity of the vaginal wall caused the bladder of the patient to become entrapped in the menstrual cup. The menstrual cup compressed the urethra/bladder neck and, aggravated by a lower urinary tract infection, caused acute urinary retention. Symptom relief upon removal of the menstrual cup supports this reasoning.

In case of a urinary tract infection, question the use of a menstrual cup in women of childbearing age and menstrual cup use should be deferred until symptom improvement, to decrease the risk of acute urinary retention.

**Keywords:** Menstrual Hygiene Products/adverse effects; Urinary Retention; Urinary Tract Infections

#### Resumo

*Este caso clínico de retenção urinária aguda descreve um quadro desencadeado por uma infeção do trato urinário inferior e o uso simultâneo de copo menstrual e a necessidade de questionar especificamente o uso de copo menstrual em mulheres em idade fértil.*

*A proximidade anatómica da bexiga e dos ureteres, combinada com a espessura e plasticidade da parede vaginal, fez com que a bexiga da utente ficasse presa no copo menstrual.*

*A compressão exercida pelo copo menstrual no colo da uretra/bexiga associada à infeção do trato urinário inferior, provocou uma retenção urinária aguda.*

*O alívio dos sintomas após a remoção do copo menstrual apoia este raciocínio.*

*Em caso de infeção urinária, torna-se pertinente questionar, em mulheres em idade fértil, o uso do copo menstrual e, o seu uso deve ser adiado até existir melhoria dos sintomas, para diminuir o risco de retenção urinária aguda.*

**Palavras-chave:** Infecções Urinárias; Produtos de Higiene Menstrual/efeitos adversos; Retenção Urinária

#### Introduction

Defined as the sudden inability to void urine voluntarily, acute urinary retention (AUR) is a urological emergency often associated with suprapubic pain and a palpable or percussable bladder.<sup>1</sup>

The etiology of acute urinary retention is not fully understood, but it is likely multifactorial. The four main causes are obstructive, inflammatory, iatrogenic and neurogenic.<sup>1</sup> Lower urinary tract infections, such as cystitis, can result in urethral edema and subsequent obstruction.<sup>1,2</sup>

Treatment of AUR aims to relieve the obstruction and mitigate the underlying cause of retention. Prompt bladder decompression is the mainstay of treatment for nearly all etiologies of AUR. This can be accomplished by urethral or suprapubic catheterization.<sup>3</sup>

Vaginal or menstrual cups (MC) are an environmentally friendly and sustainable alternative to tampons and sanitary pads. MCs are inserted into the vagina to collect menstrual fluid. Very few side effects have been reported.<sup>4</sup>

The authors describe a case report of AUR triggered by lower urinary tract infection and simultaneous MC use. As far as the authors are aware, there are no case reports of AUR that correlate with MC use.

#### Case Report

A 44-year-old Caucasian female, G2 P2 A0 (2 cesarean delivery), on day 4 of her menses, presented to our health care unit reporting a 12-hour history of dysuria and pressure on the lower abdomen and an inability to pass urine.

The personal and family history of this patient were unremarkable. Physical examination of the abdomen showed lower quadrant tenderness and a distended bladder was palpable above the pubic symphysis. Urinary catheterization was suggested and accepted by the patient, who asked to remove her MC (Fig. 1) before catheter insertion.

After the removal of the MC, the patient's symptoms improved significantly, and she was able to void normally, which prompted rapid relief from her bladder discomfort.

A urinary test strip was performed, which tested positive for leukocytes and nitrites. The patient was treated with a single dose of fosfomicin 3000 mg for urinary tract infection (UTI).

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**Figure 1** – Original MC used by the woman

### Discussion

MC use is increasingly gaining acceptance among women, especially those who care most about the environmental burden of disposable pads and tampons. The most popular brands of these cups have two different sizes: a smaller one (~40 mm diameter) for nulliparous women under the age of 30 and a bigger one (~50 mm diameter) recommended for women aged 30 and over and/or who have delivered vaginally.<sup>5</sup>

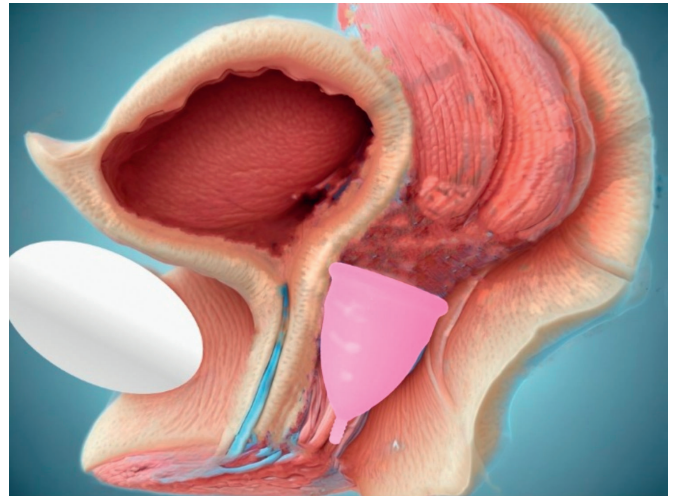
The vagina is a distensible muscular tube that is closely related anteriorly to the bladder and urethra and laterally to the ureters and uterine arteries and, according to a Lancet systematic review and meta-analysis, variations in the pelvic anatomy or wrong positioning of the MC can lead to internal pressure. The authors found three case reports of ureterohydronephrosis associated with MC use.<sup>5-7</sup>

It is theorized that the anatomical proximity of the bladder and ureters, combined with the thinness and plasticity of the vaginal wall caused the bladder of patients to become entrapped in the MC (Fig. 2).

There are several case reports of AUR associated with imperforate hymen.<sup>8-11</sup> Imperforate hymen can be a cause of AUR possibly due to the pressure effect of the distended vagina (hematocolpos) on the lower urinary tract.<sup>11</sup> In these cases, the hematocolpos occupied the pelvis and compressed the urethra, which resulted in elevation of maximum urethral closure pressure and consequent AUR.<sup>11</sup>

The authors theorize that the case we present can be explained by a similar mechanism, in which the MC compressed the urethra/bladder neck and, aggravated by a lower UTI, caused AUR. Symptom relief upon removal of the MC supports this reasoning.

The present case demonstrates the need to carry out a complete anamnesis in cases of AUR, especially in women of child-bearing age, who should be questioned specifically about the use of a MC.



**Figure 2** – Mechanism of urinary retention by MC (it is possible that the use of a menstrual cup caused an extrinsic compression on the bladder neck or even proximal urethra causing the urinary retention)

The authors also suggest that, in case of a UTI, MC use should be deferred until symptom improvement, to decrease the risk of AUR.

The unprecedented nature of the reported case is corroborated by the almost absolute absence of articles addressing the impact and influence of MC use on the users' voiding function.

### Responsabilidades Éticas

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