

Original Article | **Urinary Retention in Women: Causes and Management**

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**ABSTRACT**

**Objectives:** Urinary retention in women is uncommon and there are numerous etiological factors. Most reported studies are from Europe and North America, with few studies from developing countries. The aim of this study was to review the etiology of urinary retention in women referred to our institution, a public sector hospital serving a largely indigent population.

**Patients and Methods:** We reviewed the clinical records of all patients admitted with urinary retention to the Urology wards in our hospital during the period September 1998 to June 2007. In total there were 589 patients with urinary retention, 558 (94.7%) men and 31 (5.3%) women.

**Results:** The average age of the 31 women was 51.9 years (range 20 to 88 years). The underlying pathology was cervical carcinoma (4 patients), urethral carcinoma (4), transitional cell carcinoma of the bladder (3), eosinophilic cystitis (3), hematuria due to miscellaneous causes (3), anti-incontinence surgery (2), cerebral palsy (2), multiple sclerosis (1 patient), diabetes mellitus (1), hypotonic detrusor (1), bladder stone (1), vaginal leiomyoma (1), cyclophosphamide cystitis (1), constipation (1), postpartum (1), blocked indwelling catheter and idiopathic (1). Renal dysfunction was present in 17 (55%) of the patients.

**Conclusion:** The most common causes of urinary retention in women in this study were malignancy in 11 patients (36%) and neuropathic bladder dysfunction in 5 (16%). Eosinophilic cystitis, normally a rare condition, was diagnosed in 3 women (10%). The high incidence of malignancy in this study differs from other reported series, in which neuropathic bladder dysfunction was the most common cause of urinary retention in women.

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**Key Words :** Urinary retention, women, etiology

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**INTRODUCTION**

Urinary retention in women is uncommon and the cause is sometimes difficult to establish. Literature reviews report psychogenic causes as the most common underlying pathology, accounting for at least a third of cases<sup>1,2</sup>. Virtually all reports on this topic are from developed countries.

In the past two decades studies from Europe and the USA provided evidence for etiological factors different from those historically reported (Table 1)<sup>3-10</sup>. Most of these studies suggested a functional basis for urinary retention in women (Fowler's

syndrome)<sup>11-14</sup>. What many studies did not mention is that retention in females is often transient with no apparent cause, e.g. postoperative or postpartum urinary retention<sup>15-17</sup>.

Apart from a small number of case reports on female urinary retention<sup>18,19</sup>, no studies from developing countries are available in the literature. The aim of this study was to review the etiology of urinary retention in women referred to our institution, a public sector hospital serving a largely indigent population.

**Table 1:** Causes of urinary retention in women reported in the literature<sup>20, 21</sup>.

|  |  |
|--|--|
| <b>1) Neurogenic</b>   | e) Benign lesions / inflammatory processes               |
| a) Detrusor sphincter dyssynergia  | i) Skene's gland cyst/ abscess                           |
| b) Spinal cord injury (suprasacral)  | ii) Anterior vaginal wall mass (Mullerian duct remnants) |
| c) Multiple sclerosis  | iii) Urethral diverticulum                               |
| d) Reflex sympathetic dystrophy  | iv) Ectopic ureterocele                                  |
| e) Cauda equina syndrome   | v) Urethritis  |
| f) Parkinson's disease   | vi) Urethral valves                                      |
| g) Viral sacromyeloradiculitis (secondary to severe pain or detrusor areflexia)                                    | f) Gynecologic   |
| h) Spina bifida occulta (detrusor sphincter dyssynergia (DSD) or detrusor areflexia)                               | i) Retroverted uterus                                    |
| <b>2) Non-neurogenic</b>   | ii) Ovarian cyst   |
| a) Anatomic obstruction  | iii) Uterine leiomyoma                                   |
| b) Iatrogenic obstruction  | g) Neoplastic  |
| i) Anti-incontinence procedures  | i) Urethral carcinoma                                    |
| ii) Other surgical interventions (urethral dilatation, diverticulum excision, urethral excision or reconstruction) | ii) Vaginal carcinoma                                    |
| c) Pelvic prolapse (any vaginal compartment)   | iii) Cervical carcinoma                                  |
| d) Primary bladder neck obstruction  | h) Functional  |
|  | i) Dysfunctional voiding                                 |
|  | ii) External sphincter pseudodyssynergia                 |

## **PATIENTS AND METHODS**

We conducted a clinical chart review of all patients admitted with urinary retention to the Urology wards of our institution (a public sector hospital serving a largely indigent population in the Western Cape, South Africa) during the period September 1998 to June 2007. In total there were 589 patients with urinary retention, 558 (94.7%) men and 31 (5.3%) women (male:female ratio 18:1). It should be noted that not all women with urinary retention in our hospital would necessarily be referred to Urology, thus

possibly excluding patients with postpartum or postoperative retention from this analysis.

Detailed clinical data were retrieved from inpatient records and microfilms and entered on an Excel spreadsheet for analysis.

## **RESULTS**

The average age of the 31 women was 51.9 years (range 20 to 88 years). Acute urinary retention was present in 28, chronic retention in 2 and acute on chronic retention in 1 patient. The causes are summarized in Table 2.

**Table 2:** Causes of urinary retention in the study group.

| Etiology                                     | Number (%)       |
|--|------------------|
| Macroscopic hematuria with clot retention    | 12 (39%)         |
| • Cervical carcinoma                         | • 4              |
| • Transitional cell carcinoma of the bladder | • 3              |
| • Eosinophilic cystitis                      | • 2              |
| • Miscellaneous                              |                  |
| • Kidney stone with JJ stent                 | • 1              |
| • Squamous cell papilloma of the urethra     | • 1              |
| • Hemorrhage associated with a renal cyst    | • 1              |
| Neuropathic bladder                          | 5 (16%)          |
| • Cerebral palsy                             | • 2              |
| • Multiple sclerosis                         | • 1              |
| • Diabetes mellitus                          | • 1              |
| • Hypotonic detrusor (epilepsy)              | • 1              |
| Urethral carcinoma                           | 4 (13%)          |
| • Adenocarcinoma                             | • 2              |
| • Squamous carcinoma                         | • 2              |
| Iatrogenic                                   | 2 (7%)           |
| • Burch colposuspension                      | • 1              |
| • Tension-free vaginal tape (TVT)            | • 1              |
| Miscellaneous                                | 8 (24%)          |
| • Eosinophilic cystitis                      | • 1              |
| • Bladder stone                              | • 1              |
| • Vaginal leiomyoma                          | • 1              |
| • Cyclophosphamide cystitis                  | • 1              |
| • Constipation                               | • 1              |
| • Postpartum                                 | • 1              |
| • Blocked indwelling catheter                | • 1              |
| • Idiopathic                                 | • 1              |
| <b>Total</b>                                 | <b>31 (100%)</b> |

In 30 women the retention was initially managed with transurethral catheterization, while one underwent immediate cystoscopy and fulguration of a bleeding bladder biopsy site. Cystoscopy was performed in 18 of the 31 patients (58%) and 14 (78%) of these yielded positive findings. Urinary diversion was performed in 3 (10%) patients, of whom 2 had urethral carcinoma (both adenocarcinoma) and one grade 3 transitional cell carcinoma (TCC) of the bladder. Of the 2 patients with urethral carcinoma, one underwent total anterior exenteration and the other urethrectomy, bladder neck closure and ileovesicostomy. One patient had a nephro-ureterectomy for upper tract TCC. Renal dysfunction (elevated urea and creatinine) was present in 17 (55%) of the patients.

## DISCUSSION

Excluding postoperative and postpartum cases<sup>15-17</sup>, urinary retention in women is rare. Much of the literature refers to female

urinary retention as a psychogenic condition, attributed to hysteria<sup>1,2</sup>. In other reports, transient and neurologic causes accounted for more than two-thirds of cases<sup>3</sup>. A study from Copenhagen evaluated the incidence and the male-female ratio in a population of approximately 700 000 people over a 9-month period<sup>4</sup>. The incidence was 7/100 000 with a male:female ratio of 13:1. The male:female ratio of our study group was 18:1.

Recent clinical studies have indicated that urinary retention in women may be more common than generally thought, with a spectrum of underlying causes that differs significantly from the etiology in our study. Fowler et al.<sup>11,12</sup> and Goodwin et al.<sup>13</sup> described a syndrome in young women with a mean age of 30 years who presented with painless urinary retention associated with residual urine volumes >1000 ml. Electromyography typically revealed abnormal bursts of

activity of the striated urethral sphincter, the so called Fowler's syndrome.

Kavia et al.<sup>14</sup> conducted a retrospective audit of 176 women presenting with urinary retention over a 3-year period. In total, 102 (58%) of the women had a primary abnormality of sphincter relaxation. In 7 retention was associated with constipation, while 56 (33%) had no clear diagnosis. The mean age of the women was 34.9 years, on average 16 years younger than in our study group.

Ahmad et al.<sup>5</sup> reported on 300 women with urinary retention over an 11-year period. In total, 51 (17%) had urethral stenosis, 33 (11%) urinary tract infection (UTI), 23 (7.6%) constipation, 14 (4.6%) neurological causes, 16 (5.3%) gynecological, 21 (7%) non-urolological postoperative, 7 (2.3%) medication and 12 (4%) clot retention secondary to bladder cancer as etiological factors. In 84 women (28%) there was no definite diagnosis. The average age was 64 years, about a decade older than our study population.

These studies indicate that in younger women conditions such as Fowler's syndrome and postpartum urinary retention are more common, compared to older women where most cases are idiopathic, although urethral stenosis, UTI and constipation are also common etiological factors.

Our study of women with urinary retention differs from these reports in that malignancy was the most common underlying factor.

Also noteworthy is the large proportion of patients with idiopathic urinary retention in some studies – 33% in the report of Kavia et al.<sup>14</sup> and 28% in the study of Ahmad et al.<sup>5</sup> However, there are numerous reports in the literature of women with rare forms of neurological disease presenting with AUR. In most cases magnetic resonance imaging (MRI) was necessary to confirm the underlying neurological disorder<sup>6-10</sup>. It is

therefore essential to make use of MRI in cases where no apparent diagnosis is evident.

In conclusion; Women comprised only 5% of patients admitted to our institution because of urinary retention. The most common cause was malignancy, diagnosed in 11 (36%) of the patients (4 cervix, 4 urethra and 3 bladder). Neuropathic bladder dysfunction was the second most common cause of retention, affecting 5 (16%) of the patients. Interestingly, eosinophilic cystitis, reported to be a very rare condition, was present in 3 (10%) of the cases, of whom 2 presented with macroscopic hematuria and clot retention. A variety of etiological factors was present in the remaining 12 (39%) women with urinary retention.

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## URINARY RETENTION IN WOMEN: CAUSES AND MANAGEMENT

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