Obstructive Uropathy Caused by Severe Interstitial Cystitis: a Report of Two Cases

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ABSTRACT

Background: Interstitial cystitis is a chronic clinical condition affecting women predominantly. Characterized by irritative voiding symptoms and suprapubic pain. Most of Interstitial cystitis cases run a benign course and the bothersome symptoms are the main concern of the treating doctors; however obstructive uropathy as a complication could occur and mostly noticed in Interstitial cystitis cases associated with connective tissue diseases in particular systemic lupus erythematosus. A variety of medical therapies used for the treatment interstitial cystitis, on the other hand, surgical management, if any, commonly indicated for intractable symptoms rather than obstructive uropathy.

Aim: The aim of the present work was to discuss 2 cases of severe interstitial cystitis reported presented to the outpatient clinic.

Cases: Two cases of women with severe interstitial cystitis without associated connective tissue diseases, complicated by bladder wall thickening and obstructive uropathy were reported.

Results: Cases were managed successfully with oral sodium Pentosan Polysulfate (Elmiron) without the Need for invasive measures in one case and required invasive procedure in the other.

Key Words: interstitial cystitis, obstructive uropathy, sodium pentosan polysulfate (Elmiron), hydrodistention.

INTRODUCTION

The term interstitial cystitis (IC) and painful bladder syndrome (PBS) are often used interchangeably in clinical practice (¹). IC. is a disease of the urinary bladder which could be severely debilitating. Symptoms of IC include excessive urgency and frequency of urination, Suprapubic pain, dyspareunia and chronic pelvic pain. The course of the disease is usually marked by flare-ups and remissions (²). The onset of IC usually occurs between 30 and 70 years of age and affects women mainly (³) though children can also be affected (⁴).

Patients with IC should have no other definable pathology such as urinary infections, bladder cancer, radiation or medication induced cystitis and tuberculosis (¹). Diagnosis is often made as an exclusion of other pathologies. On the other hand, Evaluation of patients might include urodynamic study and cystoscopy with bladder biopsy (⁵). Treatment goal is to relief the patient's symptoms (²). The management options include self-help strategies, oral medications, intravesical therapy and possible surgical treatment (¹).

The ulcerative form (Hunner’s ulcer) is a severe form of the disease which occurs in10% of patients (²) and usually associated with more serious complications.
Although IC usually runs a benign course, it could be rarely complicated by obstructive uropathy especially in patients with systemic lupus erythematosus (SLE) \(^6,7\). The aim of the present study was to discuss two case of severe IC complicated by obstructive uropathy and their management.

**CASE REPORT 1**

A 64-year-old woman, married, presented to outpatient clinic. The patient was diabetic and hypertensive. Her main complaints were distressing symptoms of urinary frequency, nocturia, urgency, suprapubic pain and occasional gross hematuria for the last three years, progressing gradually.

She had mild bilateral loin pain, no obstructive symptoms, with no previous history of bladder cancer, recurrent urinary tract infections (UTIs), stone disease, radiation or chemotherapy use. On examination she was pale, anxious, with normal vital signs, and her abdominal and pelvic examinations were unremarkable.

Her hemoglobin level was 9.6 gm/dl, serum creatinine 1.4 mg/dl, with normal serum electrolytes. Urine culture was negative for bacteria and urine analysis showed 6-8 WBCs/HPF. Urinary ultrasound and urinary computed tomography (CT) scan showed bilateral moderate hydroureteronephrosis, (Figure 1) with thickened bladder wall (Figure 2) and small urinary bladder capacity of 55 Cc. only with no significant post-void residue on urinary ultrasound. Intravenous urography (IVU) showed delayed excretion from both sides with severe bilateral hydro-ureteronephrosis down to the bladder.

This patient underwent cystoscopy with bladder hydrodistention which showed that the urinary bladder anesthetic capacity was 100 ml, along with diffuse petechial hemorrhagic spots and a single Hunner’s Ulcer on the posterior bladder wall. Bladder biopsy was taken and the histopathology report was suggestive of IC showing epithelial ulceration, sub mucosal inflammation and detrusal mast cell infiltration. Urodynamic study showed reduced bladder capacity and sensory urgency.

Rheumatological consultation was requested and associated connective tissue diseases like: SLE, scleroderma, polyarteritis nodosa and Sjögren’s syndrome were all excluded by clinical and laboratory examinations.

The patient was diagnosed as a case of IC, reassured, given dietary advice and started on Amitriptyline tablet 25 mg three times daily and Hydroxyzine 25 mg twice daily for 8 weeks without proper improvement, then she was started on sodium Pentosan Polysulfate (Elmiron ®) orally in a dose of 100 mg three times daily. Patient's symptoms started to improve dramatically within few weeks, especially the suprapubic pain and urgency.

Three months later, another cystoscopy was done under general anesthesia and showed bladder anesthetic capacity of 350 ml, few diffuse petechial hemorrhages, no ulcer was seen and therapeutic hydrodistention was done for 8 minutes. Patient's symptoms, bladder capacity and the degree of bilateral hydronephrosis on subsequent ultrasound examinations further improved.

The patient was kept on Sodium Pentosan Polysulfate (Elmiron) 100 mg three times daily for about 1 year with mild tolerable symptoms of frequency and urgency; yet, no bothersome drug side effects were noted. At the end of this year on Elmiron therapy, her serum creatinine was 1 mg/dl with normal electrolytes and Hb level.

The patient stopped Elmiron therapy after 1 year and followed up for another year where she had just mild tolerable symptoms and her recent CT scan showed a marked reduction in both bladder wall thickness and the degree of bilateral hydroureteronephrosis, (Figure 3).

**CASE REPORT 2**

A 46 years old diabetic and hypertensive woman presented to the outpatient clinic complaining of frequency, nocturia, urgency, dysuria and occasional gross hematuria over the last year. She had supra-pubic pain on full bladder and no loin pain. Her Hb was 9.9 gm/dl, serum creatinine 1 mg/dl, and urine analysis showed increased WBC and RBC with negative culture.
Urinary ultrasound showed bilateral moderate hydronephrosis and thickened bladder wall. Urodynamic study revealed sensory urgency with reduced capacity. Cystoscopy with bladder hydrodistention showed diffuse petechial hemorrhages and reduced cystometric capacity, bladder biopsy was taken and it suggested the diagnosis of IC.

The presence of any associated rheumatological diseases was excluded, and the patient was treated with dietary advice, oral Amitriptyline tablet 25 mg three times daily Hydroxyzine 25 mg twice daily and nonsteroidal anti-inflammatory drugs; however the patient still had severe irritative symptoms and supra-pubic pain.

Multiple intravesical instillations of a cocktail containing: gentamicin, dexamethason, lidocaine and heparin were given, as well as bladder hydrodistention without proper response. The patient serum creatinine start to rise (2.6 mg/dl) and a non-contrasted CT scan showed bladder wall thickening and severe bilateral hydro-ureteronephrosis.

Bilateral retrograde pyelography showed bilateral severe hydrouretero-nephrosis, a trial of retrograde ureteric stenting failed and bilateral CT guided percutaneous nephrostomies were inserted, however, serum creatinine dropped from 2.6 mg/dl to 1.8 mg/dl only. In spite of bilateral percutaneous nephrostomies the patient still had significant symptoms, hydroureteronephrosis and serum creatinine of 2 mg/dl.

**DISCUSSION**

Obstructive uropathy as a complication of IC is not adequately issued, severe IC may be complicated by obstructive uropathy, either due to reflux or gradual ureteral stenosis. However the majority of reported cases involves SLE and occurs in oriental women (8), furthermore, Obstructive uropathy may be the only manifestation of flare in those patients with SLE (9). The present cases live in the Middle East, and autoimmune disorders were excluded.

A Korean study described obstructive uropathy due to IC in a patient with SLE, which did not responded initially to steroid treatment, thus bilateral nephrostomies were inserted and medical treatment continued with steroid and cyclophosphamide with good result after nephrostomy removal (9).

Another case report from China described two patient with lupus cystitis and obstructive uropathy, one resolved spontaneously without treatment, while the other did not respond to steroid therapy and required augmentation cystoplasty (10). A report from Japan described a patient with sever IC and obstructive uropathy associated with Sjögren’s syndrome treated with self intermittent catheterization, steroid and cyclosporine therapy with good response (6).

Since the associated autoimmune disorders with IC were excluded in the present reports, no steroids or immunosuppressive drugs were needed, as well as the mild degree of renal impairment in the first case allowed us to have a trial of medical therapy, the good response to bladder hydrodistention and medical therapy with Elmiron in the first case precluded the need for any surgical intervention which has controversial outcome.

Medical therapy improved patient’s symptoms, as well as, the bladder wall thickening, degree of obstructive uropathy and renal functions without causing significant side effects apart from the cost of the drug.

The 2nd patient, however, had more severe symptoms and renal function affection, in addition to bilateral hydroureteronephrosis and bladder wall thickening. Due to financial causes sodium pentosan polysulfate was not used and intravesical instillations failed to achieve a proper response. Invasive procedures including hydrodistention and bilateral nephrostomies were tried, however in spite of that, the patient still complaining. In such situation, choices were limited and more aggressive surgical options like augmentation cystoplasty or supratrigonal cystectomy with urinary diversion may be considered.
Severe IC can be complicated by obstructive uropathy and bladder wall thickening in the absence of connective tissue diseases. Medical therapy with oral sodium pentosan polysulfate (Elmiron) can be well tolerated and effective in relieving the patient's symptoms, as well as, obstructive uropathy, thereby obviating the need for more invasive surgical alternatives, on the other hand, some patients with IC and obstructive uropathy still require other interventional procedures and even more aggressive surgical options.

Figure (1): Computed tomography scan of the abdomen showed bilateral hydronephrosis in case 1

Figure (2): Computed tomography scan showed bladder wall thickening and bilateral ureteric dilatation in case 1
Figure (3): Computed tomography scan showed reduction in bladder wall thickening

REFERENCES