

Chronic Pelvic Pain: the Occurrence of Interstitial Cystitis in a Gynecological Population

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ABSTRACT

Objective: The objective of this study was to determine what relationship exists between interstitial cystitis and chronic pelvic pain in patients.

Methods: A prospective study of 35 women with a complaint of chronic pelvic pain was performed between August 2002 and September 2003. These patients underwent a workup to exclude other causes of pelvic pain and underwent a laparoscopy and a cystoscopy with hydro-distention at 80 cm of hydrostatic water pressure. Results were obtained and quantified.

Results: Twenty-eight patients (80%) were diagnosed with interstitial cystitis, 28 were diagnosed with endometriosis (80%), 24 had both disease entities simultaneously (69%), and 32 (91%) had endometriosis, interstitial cystitis, or both. Three patients (9%) had neither and were diagnosed with other pathologies.

Conclusions: Chronic pelvic pain is a major concern for many women in the United States. Patients with chronic pelvic pain have traditionally been difficult to manage. A large percentage of women presenting with chronic pelvic pain have been shown to have endometriosis, interstitial cystitis, or both. Therefore, an appropriate workup for those individuals with chronic pelvic pain involves not only obtaining a good history and performing a good physical examination, but the possibility of a cystoscopy being performed when a laparoscopy has been deemed necessary for diagnosis of the pain. These procedures can serve as both a means for diagnosis and short-term treatment of these problems when encountered.

Key Words: Chronic pelvic pain, Endometriosis, Interstitial cystitis.

INTRODUCTION

Chronic pelvic pain (CPP), intermittent or constant pelvic pain whose duration is longer than 6 months, is a major concern for more than 9 million women in the United States.¹ It is a debilitating disease for many women and is associated with many ancillary problems. It is purported that this disease accounts for up to 10% to 15% of referrals to gynecologists,² with greater than 40% of all diagnostic gynecological laparoscopies being done for this entity.³ It is well appreciated that from 25% to 40% or more of all patients who have hysterectomies done for CPP continue to have pain after the procedure,^{4,5} thereby validating the fact that those individuals with CPP may have symptoms emanating from areas not mediated through the uterus. In the past, it was suggested that the major causes of pain of a chronic nature were due to gynecological problems, including endometriosis, adhesions, pelvic inflammatory disease (PID), leiomyomata and adenomyosis; gastrointestinal disease; skeletal disorders; and genitourinary problems. After ruling out nongynecological disorders, laparoscopy for CPP has demonstrated endometriosis in approximately 30% to 90% patients, adhesions were seen in up to 50% of the patient population, chronic pelvic inflammatory disease was noted in a modest number of the patients, and some patients had no pathology.⁶⁻¹¹ Patients without a pathological cause have frequently been told that the source of their pain was psychological or that removing the uterus would provide a definitive cure of the problem. This has, obviously, not been correct in many of these patients. More recently, there have been reports that up to 38% of individuals with CPP had interstitial cystitis as a component of their disease.¹² Chung et al¹³ described a series of patients with chronic pelvic pain who exhibited a strong relationship between interstitial cystitis and endometriosis and the number of patients with interstitial cystitis demonstrated a higher percentage in this series compared with the 38% in the previous paper.

This prospective study was performed on women with CPP who had nongynecologic sources for its cause previously ruled out. The purpose was to determine whether relationships existed between the pathologies in patients with chronic pelvic pain (CPP). No intention regarding

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management or treatment outcomes of these clinical entities will be made due to the short length of follow-up.

METHODS

The institutional review board approved this study design. Thirty-five consecutive patients with chronic pelvic pain were evaluated from August 2002 until September 2003. The patients were initially evaluated prospectively by using visual analog pain scores, symptoms, and history and physical examinations. All nongynecological sources of pain were ruled out by physical examinations and appropriate testing in conjunction with nongynecological specialists. All the patients' discomfort had been treated with Non-steroidal anti-inflammatory drugs, narcotics, and other analgesics without cessation of the pain. Cultures of the urine and urinalysis were performed to rule out bladder infections and where warranted, investigation of the upper urinary tract was accomplished. Abdominal and pelvic examinations were performed to find exact physical areas of discomfort including examination of the pelvic floor for vulvodynia and pelvic floor tension myalgia.

Interstitial cystitis was diagnosed by the finding of glomerulations in at least 3 of 4 quadrants during cystoscopy after hydrodistention, signs and symptoms of lower urinary tract dysfunction including frequency and urgency or pelvic pain in the absence of other pathology. Endometriosis was diagnosed by pathological diagnosis either by excision or biopsy or by visual means of typical peritoneal lesions of a black charcoal appearance, as a correlation of up to 93% - 97% with a pathological diagnosis of endometriosis has been confirmed on peritoneal lesions with a typical black "powder burn" appearance.^{14,15}

Laparoscopy was performed with a closed technique. The pelvis was explored and evaluated and areas of pathology were recorded. All pathology was removed by usual techniques including surgical removal of endometriosis, fulguration of endometrial implants with the CO₂ laser, electro surgery or harmonic scalpel and cutting adhesions with the CO₂ laser, harmonic scalpel, or scissors.

Cystoscopy was performed with sterile water to distend the bladder. The urethra, urethral-vesicle junction, the trigone, dome, sidewalls of the bladder, and both ureteral orifices were observed upon initial visualization. The bladder was allowed to equilibrate at a hydrostatic water pressure of 80cm for 4 minutes. The bladder was allowed to drain at the conclusion of the procedure. Glomerulations were noted if visualized, and if >10 per quadrant were present in at least 3 of the 4 quadrants in the bladder

and hematuria occurred at the end of the procedure, a diagnosis of interstitial cystitis (IC) was made.

RESULTS

Of the 35 women with a complaint of chronic pelvic pain, 28 (80%) were diagnosed with interstitial cystitis. Seventeen (61%) complained of lower urinary tract symptoms in addition to pelvic pain. Four (14.3%) were only diagnosed with IC without endometriosis; 3 of these patients had no other pathology.

Twenty-eight patients (80%) were diagnosed with endometriosis (minimal to moderate by American Fertility Society [AFS] scoring¹⁶) and treated with excision or fulguration of the disease (**Table 1**). Of these 28 patients with endometriosis, 4 (14.3%) had no concomitant interstitial cystitis involved with the CPP. Six of these patients (17%) had a previous history of endometriosis.

Twenty-four patients (69%) were diagnosed with both endometriosis and interstitial cystitis at the same time. They were diagnosed and treated with excision or fulguration of the endometriosis, or both, at the time of the procedure and hydro-distention at the time of the cystoscopy.

Only 3 patients (9%) had other pathology. Two had an ovarian cyst and one had an ovarian remnant syndrome. Eleven patients had adhesions that were significant. Seven of the 11 (63%) had both endometriosis and interstitial cystitis, and 4 patients (36%) had interstitial cystitis alone or IC with ovarian cysts.

Pain scores with a visual analog scale were determined before the procedure, at 6-week postoperative check up, and 3 months after the procedure. The pain was divided into generalized pain, dysmenorrhea if the patient did not have a previous hysterectomy, and dyspareunia if the patient had intercourse. There was a decrease in all areas

Table 1.
Pathology of the 35 Patients With Chronic Pelvic Pain

Pathology	Number	Percentage
Interstitial Cystitis (IC)	28	80%
Endometriosis (Endo)	28	80%
IC and Endo	24	69%
IC or Endo	32	91%
Adhesions	11	30%
Other pathology	6	18%

of pain when comparing preoperative to postoperative levels (**Table 2**). At the 6-week and 3-month postoperative visits, 31/35 reported that pain was either gone or was significantly improved, 3 patients had some improvement, and 1 patient had no improvement.

Of all the patients with interstitial cystitis, over 80% (23/28) had a painful or sensitive bladder on vaginal examination after voiding. Thirty percent (11/35) of patients with CPP with the diagnosis of IC had no lower urinary tract symptoms (frequency, urge, nocturia, or dysuria). These patients presented with the chief complaint of chronic pelvic pain. Seventy-three percent (7/11) of these individuals had a sensitive bladder on pelvic examination after voiding.

DISCUSSION

Chronic pelvic pain is a major problem for many women in the United States. It causes not only quality of life issues, but is also responsible for excessive costs to our society. Patients with chronic pelvic pain have traditionally been difficult to manage. This difficulty is in part due to making a correct diagnosis, and this is further exacerbated by the long list of possible differential diagnoses that exist for this disease. We have confirmed the work of Chung et al¹³ that a large number of women complaining of CPP have endometriosis, interstitial cystitis, or both.

Pain before and after treatment by laparoscopy has long been discussed. It is well established that a placebo effect exists in the alleviation of the pain secondary to doing the procedure. This often reverses itself, and the levels return to presurgical levels within 6 months. The length of time followed in this study was inadequate to claim long-term success from these procedures. It is known that hydrodistention of the bladder at the time of cystoscopy has been helpful in about 70% of patients, generally lasting greater than 3 months.¹⁷ Equally frustrating is the fact that diminution of pain after laparoscopy with removing endome-

triosis appears, also, to be limited as recurrence of pain is common. A further study of longer duration with more patients is currently being performed.

The cause of endometriosis is unknown. Experts have postulated that endometriosis can be from retrograde menstrual flow, from vascular and lymphatic spread, from metaplasia, or from an autoimmune reaction.^{18–24} A combination of one or more of these potential causes may be possible. The pathoetiology of interstitial cystitis is equally perplexing. Some authorities have suggested that the cause of interstitial cystitis could be an activation of the process in the bladder by toxic substances in the urine,²⁵ an infectious process,²⁵ an autoimmune occurrence,^{26,27} a traumatic etiology,²⁸ an autoimmune phenomenon with a trigger such as one of the elements above,²⁹ or a neuroinflammatory process.³⁰ No known causal relationship exists between interstitial cystitis and endometriosis, but extrapolation of the above articles could lead to the speculation that autoimmune causes could exist in both diseases with some factor being a trigger for one or both in this disease state of chronic pelvic pain or a neuroinflammatory cause. Research into the pathogenesis of both these entities is ongoing and might yield more understanding in this area.

Both IC and endometriosis behave similarly in terms of symptoms expressed versus amount of disease. IC is thought to be a continuum of symptoms and physical findings without a 100% correlation to the stage of the disease.³⁰ The symptoms of endometriosis also show no direct correlation with the disease state; they can range from having no symptoms, up to excruciating pain that is debilitating; the extent of discomfort is not always in direct relationship to the amount of the disease. Laparoscopic examination does not always see the causes of pelvic pain, including hidden endometriosis and pelvic congestion.

It is important to take a good history and perform an accurate physical examination when dealing with patients who present with symptoms of CPP, keeping in mind that often more than one disease state is present, such as endometriosis, adhesions, and interstitial cystitis. A good history of lower urinary tract symptoms indicative of an overactive bladder with or without pelvic pain, may suggest IC. A history of pelvic pain exacerbated by the menstrual cycle may be suggestive of endometriosis or interstitial cystitis, or both. A history of previous surgery may alert the clinician to the possibility of adhesions within the pelvis. A physical examination that demonstrates pelvic pain without any correlation of a mass or a tender bladder

Table 2.

Visual Analog Pain Scores (Out of 10 Maximum) Associated With diagnosis at Surgery

Diagnosis	Preoperative	Postoperative (3 months)
Endometriosis (Endo)	8.5	1.2
Interstitial Cystitis (IC)	8.3	1.4
Endo and IC	8.8	1.2
Endo or IC	8.6	1.3

may be suggestive of disease. An examination after voiding that demonstrates a sensitive or painful bladder may also be a sign of bladder irritation. Because of this, it may be prudent and necessary in the evaluation of a patient with CPP to think about all these possible entities and perform both a laparoscopy and a cystoscopy after all nongynecological causes of pain are ruled out. If these diseases are encountered, medical therapy is often necessary. Hydrodistention, if successful in decreasing the pain, may only work a short time, and symptomatic treatment and long-term treatment options are available. For endometriosis, there is a high percentage of recurrence after laser fulguration of the lesions, and there may be areas not visualized that could benefit from medical treatment. Each patient's diagnosis, symptoms, and her physical findings must be evaluated by the physician. This serves as both a means for diagnosis and acute primary treatment of symptoms of both conditions when encountered.

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