[Primary Care]

Case Report: Pelvic Congestion Syndrome as an Unusual Etiology for Chronic Hip Pain in 2 Active, Middle-Age Women

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Context: The past 2 decades have shown a dramatic increase in the number of pelvic and hip injuries in female athletes. Accurate diagnosis of hip pain in active women has proven to be a challenge, as there is an extensive differential including both musculoskeletal and visceral problems. While the incidence of pelvic congestion syndrome (PCS) is not known, this condition may manifest as chronic hip pain in this patient population.

Evidence Acquisition: A PubMed search was undertaken for articles published in English from 1980 to 2012. Additional references were accrued from reference lists of research articles.

Study Design: Case series.

Level of Evidence: Level 3.

Results: Diagnosis was established using magnetic resonance imaging. Both women were evaluated and treated by interventional radiology with gonadal vein embolization. Initial evaluation and subsequent follow-up was completed in the Sports Medicine Clinic to monitor chronic hip pain symptoms. Both patients experienced significant alleviation of chronic hip pain symptoms within several months after gonadal vein embolization, allowing for a return to the previous level of activity.

Conclusion: Although PCS most commonly presents as pelvic pain, it is important to consider this condition in athletes with persistent hip pain. PCS may also present with the primary symptom of hip pain as in the 2 case reports described. With more awareness of this condition and appropriate diagnosis, PCS as an unusual etiology of chronic hip pain may be effectively treated with gonadal vein embolization.

Keywords: chronic hip pain; pelvic congestion syndrome; active women

Pelvic congestion syndrome (PCS) is one of many causes of chronic pelvic pain. Gonadal vein dilation may be seen in as many as 10% of women, more than half of whom may go on to develop PCS.^{5,10} The primary presenting symptom of PCS is typically pelvic pain, characterized as dull and throbbing in nature.⁵ Little has been reported on PCS in female athletes. These 2 unique cases of PCS presented as hip pain in female runners.

CASE 1

A 39-year-old woman (gravida 4, para 4) presented with a 15-year history of left hip pain and several months of low back and leg pain. Previously very active with running and cycling,

the patient's exercise tolerance had declined over time because of hip pain to the point that she was no longer able to exercise consistently. In addition to her primary complaint of hip pain, she had radiating paresthesias from the left lower back to left lower extremity over the preceding several months. She denied any mechanical symptoms of the left hip and did not experience episodes of urinary retention or bowel incontinence. There was no history of trauma. She experienced only minimal symptom relief with chronic nonsteroidal anti-inflammatory drug (NSAID) use and physical therapy.

Physical examination revealed mild left paraspinal muscle spasm and deep tenderness to palpation over the left piriformis muscle, which induced radiation of paresthesias into her left posterior

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Figure 1. Case 1 venogram images. (a) Venogram prior to embolization of left gonadal vein, showing marked dilation and reflux. (b) Venogram after coil embolization and Amplatzer plug occlusion of left gonadal vein.

thigh and lower leg. Straight leg raise was positive on the left. Physical examination was otherwise unremarkable with full range of motion of both hips, negative impingement signs and log roll, and negative flexion abduction external rotation (FABER). No abdominal or external adnexal tenderness was noted. Bilateral lower extremities demonstrated normal strength and sensation. She was vascularly intact in both lower extremities with normal pulses, absent varicosities, and no edema.

Magnetic resonance imaging (MRI) was obtained because of the patient's radicular symptoms and revealed dilated pelvic vasculature on the left, including parauterine and paracervical veins. After consultation with the interventional radiology team, a diagnosis of PCS was made. Although not the focus of this clinical report, the patient did have left-sided back and leg pain, attributed to sciatica based on clinical history and examination (MRI of the lumbar spine was unremarkable).

Figure 2. Case 2 venogram images. Venogram illustrating a large left gonadal vein with cephalad stenosis and a more distal connection to a large left pelvic varix in the left adnexa without reflux.

The patient underwent venography with embolization of the left gonadal vein. Venogram demonstrated marked left gonadal vein reflux (Figure 1a). A series of 10-mm and 8-mm coils was used to occlude the distal branches of the left gonadal vein. Two 14-mm Amplatzer plugs (St. Jude Medical, St. Paul, Minnesota) were deployed in the main left gonadal vein to within 1 inch of the left renal vein (Figure 1b). The right gonadal vein was intact with a competent valve. Although no symptomatic improvement was noted at the 3-month follow-up appointment, she experienced significant relief of her left-sided hip pain at 6 months post-embolization. She has subsequently been able to return to exercise without restriction, including both running and cycling.

CASE 2

A 40-year-old woman (gravida 2, para 2) presented with a 2-year history of increasing right hip pain. She experienced a sudden, significant decline in her ability to exercise and was no longer able to run several times per week secondary to right hip pain. Pain occasionally radiated down the posterior aspect of both lower extremities with numbness and paresthesias. There was no history of trauma, mechanical symptoms, urinary retention, or bladder incontinence. She was evaluated by pain management and physical medicine and rehabilitation prior to presenting to the sports medicine clinic. The patient had mild lumbar back pain. The pain was unrelated to the patient's menstrual cycles. She experienced no symptom relief with physical therapy, trigger point injections, or injection of the right trochanteric bursa.

On physical examination, the pain was not reproducible. She described discomfort radiating from her lateral hip to her groin. There was no vertebral tenderness, step-off deformities,

paraspinal muscle spasm, or tenderness to palpation over the sacroiliac joints or piriformis musculature. Straight leg raise was negative bilaterally. Physical examination was otherwise unremarkable with full range of motion of both hips, negative impingement signs and log roll, and negative FABER. No abdominal or external adnexal tenderness was noted. Both lower extremities demonstrated normal strength and sensation with normal pulses, absent varicosities, or edema. An MRI revealed dilated periuterine pelvic veins, more prominent on the left than on the right, leading to the diagnosis of PCS.

Venography illustrated a large left gonadal vein with cephalad stenosis and a more distal connection to a large left pelvic varix in the left adnexa without reflux (Figure 2). Embolotherapy was performed with a series of 10-mm, 8-mm, and 5-mm coils to occlude the distal left gonadal branches. Eight-mm Amplatzer plugs were deployed above these coils and also into the main left gonadal vein. A 14-mm Amplatzer plug was deployed to within 1 inch of the left renal vein. Six months after gonadal vein embolization, the patient reported marked improvement of her right-side hip pain and began a physical therapy regimen targeting myofascial release of trigger points. In less than 8 months from her gonadal vein embolization, she was pain free and able to resume all physical activities without restriction, including resumption of running.

DISCUSSION

Pelvic congestion syndrome results from insufficiency of the gonadal veins, resulting in pelvic venous dilatation.^{3,5,8,10} Cardinal symptoms include pelvic pain with a dull, throbbing, positional nature and tenderness to deep palpation.⁵ Women will also frequently complain of dyspareunia, postcoital pain, dysmenorrhea, or pelvic pain and heaviness with prolonged standing. In 1984, Beard et al³ found that the combination of postcoital ache and ovarian point tenderness was 94% sensitive and 77% specific for diagnosis of PCS with ensuing imaging.

Although the precise etiology of PCS remains unclear, many factors have been implicated in the development of the syndrome, including physiologic, mechanical, vascular, and hormonal factors. PCS occurs most frequently in premenopausal multiparous women and least commonly in postmenopausal women.³ After menopause, the pain will frequently disappear.⁸ During the physiologic changes of pregnancy, pelvic veins are known to undergo massive

dilation of up to 60 times their normal diameter.⁸ Engorgement of the pelvic venous system may persist for up to 6 months postpartum and is compounded by multiple gestations.⁸ Reflux of the valves in the pelvic venous system begins to occur over time as the valves begin to break down. During pregnancy, estrogen can weaken venous tissue, which commonly leads to the development of lower extremity varicose veins, which may occur within the pelvic and gonadal venous system. Anatomic studies in the general population have found an absence of valves in the left ovarian vein in 13% to 15% of women and in the right ovarian vein in 6%.¹ In patients who do have valves, valvular incompetence and reflux has been detected in 43%; 31% to 41% on the left and right gonadal vein, respectively.²

PCS will present most typically as chronic pelvic pain (CPP).¹⁰ Because of the poorly localized and vague symptoms of PCS, many women endure years of debilitation before obtaining the proper imaging and treatment. Women may experience increasing disability and suggestions that their pain is psychogenic and repeatedly fail physical therapy and/or steroid injections.

Varices are visualized with pelvic ultrasound, MRI, or a pelvic venogram that also enables embolization.¹⁰ Because of the positional nature of the varices, venous dilatation might not be visualized on MRI or ultrasound with the patient supine. A negative MRI or ultrasound cannot completely rule out PCS. A diagnostic venogram can demonstrate the lack of valves or valvular insufficiency. Should venous insufficiency be confirmed, intervention with coils and plugs to occlude the gonadal vein can be performed.¹⁰ The literature reports resolution of symptoms in a matter of weeks to months depending on the clinical follow-up of the individual trials.^{5,10} Some patients may require further coiling.

The diagnosis of hip and pelvic pain is difficult because of the complex anatomy of the lower abdomen and pelvis. The lack of specific clinical findings may lead to a lengthy differential including orthopedic, general surgical, urologic, and gynecologic disorders.^{4,6}

CONCLUSION

Pelvic venous varices can cause pelvic pain in a noncompetitive athlete.⁹ The prevalence of PCS in the general female population may be as high as 6%.^{7,9} Consideration should be given to PCS as a potential etiology for both pelvic and hip pain in active women.

Clinical Recommendations

SORT: Strength of Recommendation Taxonomy**A:** consistent, good-quality patient-oriented evidence**B:** inconsistent or limited-quality patient-oriented evidence**C:** consensus, disease-oriented evidence, usual practice, expert opinion, or case series

Clinical Recommendation	SORT Evidence Rating
If pelvic congestion syndrome (PCS) is clinically suspected, a diagnostic venogram should be obtained to confirm the diagnosis and perform embolization if present. ^{3,5,10}	B
PCS can be effectively treated with coils and plugs to occlude the gonadal vein. ^{5,6,8,10}	B

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