

Bilateral Lower-Extremity Edema Caused by Iliopsoas Bursal Distention after Hip Arthroplasty

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Lower-extremity edema is encountered by internists, nephrologists, vascular specialists, and many others. We report a case of an elderly woman who presented with a painful, swollen left leg. Without a clear diagnosis, she had been taking diuretics for the past 8 years for swelling in both legs. After extensive investigation, we found that her lower-extremity edema was due to bilateral iliopsoas bursal distention secondary to degeneration of her hip prostheses. Chronic breakdown of the polyethylene component of the hip prostheses had led to a communication between the artificial joints and the iliopsoas bursae. With the aid of ultrasonographic guidance, she underwent drainage, followed by clinical and radiographic improvement.

Although case reports have described leg swelling arising from extravascular compression by enlarged iliopsoas bursae, we think that this is the first case of clinically significant bilateral lower-extremity edema arising from that cause. More important than the novelty is the inappropriate use of diuretics to treat lower-extremity edema without first establishing a diagnosis. (Tex Heart Inst J 2016;43(6):550-1)

Key words: Arthroplasty, replacement, hip/adverse effects; bursa, synovial/pathology; edema/etiology/physiopathology; hip prosthesis/adverse effects; leg/blood supply; psoas muscles/radiography; risk factors; treatment outcome; vascular diseases/etiology

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Lower-extremity (LE) edema can be a sign of various disease processes. Acuity of onset, symmetry, and widespread swelling are important clues that help form the differential diagnosis.¹ Most often, bilateral LE edema is caused by heart failure, nephrotic syndrome, or cirrhosis.² Various commonly prescribed drugs can also cause LE swelling: gabapentin, ropinirole, and dihydropyridine calcium-channel blockers (for example, amlodipine).² Regardless of its specific origin, LE edema is caused by alterations of capillary hydraulic pressure, increased capillary permeability, low plasma oncotic pressure, increased interstitial oncotic pressure, or a combination of those conditions. Venous obstruction leads to edema because of an increase in capillary hydraulic pressure. It can be seen in cases of deep vein thrombosis, cirrhosis, or masses that compress the draining vessel in the abdomen or pelvis.

Edema from extravascular compression can present unilaterally or bilaterally, depending on the site of obstruction. We report a rare case of bilateral LE edema secondary to iliopsoas bursal distention on both sides, which was a sequela of hip arthroplasties in an 86-year-old woman.

Case Report

In July 2015, an 86-year-old woman presented for evaluation of sudden worsening of her left LE swelling and pain. She had been dealing with swelling in both of her ankles for the past 8 years. Up to this point, it had been controlled with escalating doses of a diuretic.

Her physical examination was negative for chest pain and shortness of breath. Her medical and surgical histories were significant for hypertension, atrial fibrillation (on aspirin for stroke prevention), obesity, bilateral total knee replacements, and bilateral total hip replacements. She had never had a venous thromboembolism.

Her vital signs were unexceptional. Her physical examination revealed nonpitting bilateral LE edema (the left worse than the right) and varicosity of her saphenous veins. Her venous clinical severity score was 2 (moderate), and a positive Stemmer sign was present on both sides. She had normal peripheral pulses, no jugular venous distention, and lungs clear to auscultation.

Laboratory investigations revealed intact kidney and liver function. An echocardiogram showed a preserved ejection fraction and a normal diastolic function. Results of bilateral LE Doppler ultrasonography showed no evidence of acute thrombosis but did reveal nonvascular masses in both groins. A computed tomographic venogram showed bilateral iliopsoas bursal distention (Fig. 1), which was believed to have been caused by her hip prostheses. This abnormality was not visible on a plain radiograph of the left hip. After identification of the lesion, the patient underwent drainage of the fluid collection, guided by ultrasonography. A follow-up visit several weeks later indicated clinical improvement, and radiographic improvement (via computed tomographic venography) was also noted.

Discussion

Lower-extremity swelling is a common patient complaint. Bilateral LE edema is usually due to cardiac, hepatic, or renal disease. It can also be caused by the impingement of venous outflow by a pelvic or abdominal mass. Distention of the iliopsoas bursa has also been known to cause LE edema, usually in the presence of underlying hip disease.³ The bursa lies between the iliopsoas muscle and the anterior portion of the hip joint. In one report, authors described bursal distention secondary to an underlying hip prosthesis.⁴ This infrequently recognized (and often clinically silent) chronic process occurs when the polyethylene component of a hip prosthesis breaks down, leading to a communication between the artificial joint and the iliopsoas bursa.⁵ Venous compression caused by chronic bursal distention can also lead to the formation of a deep vein thrombosis, a sequela that our patient did not have.⁶ Although some authors have described an enlarged ilio-

psoas bursa causing extravascular compression leading to leg swelling,^{4,7,8} we think that this is the first report of an enlarged iliopsoas bursa's causing clinically significant edema bilaterally. In common with an iliopsoas abscess, a distended bursa can be drained to provide relief of symptoms.⁹

This challenging case serves as an example of the meticulous diagnostic examination necessary to identify the exact, but uncommon, cause of the patient's symptom. A thorough history and physical examination, supplemented by advanced imaging, led to the appropriate diagnosis. The case also serves to highlight the initial clinical inertia that can lead to the use of substantial doses of diuretics to treat a symptom without first identifying a cause.

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References

1. Gorman WP, Davis KR, Donnelly R. ABC of arterial and venous disease. Swollen lower limb-1: general assessment and deep vein thrombosis [published erratum appears in BMJ 2000;321(7256):266]. *BMJ* 2000;320(7247):1453-6.
2. Messerli FH. Vasodilatory edema: a common side effect of antihypertensive therapy. *Curr Cardiol Rep* 2002;4(6):479-82.
3. Loneragan R, Anderson J, Taylor J. Distended iliopsoas bursa: case reports and anatomical dissection. *Australas Radiol* 1994;38(4):331-5.
4. Algarni AD, Huk OL, Pelmus M. Metallosis-induced iliopsoas bursal cyst causing venous obstruction and lower-limb swelling after metal-on-metal THA. *Orthopedics* 2012;35(12):e1811-4.
5. Grosclaude S, Adam P, Besse JL, Fessy MH. Iliopsoas bursal distension revealing complication of total hip arthroplasty: five cases [in French]. *Rev Chir Orthop Reparatrice Appar Mot* 2006;92(4):351-7.
6. Jones PB, Economou G, Adams JE, Bernstein RM. Iliopsoas bursa presenting as deep vein thrombosis in rheumatoid arthritis. *Br J Rheumatol* 1993;32(9):832-4.
7. Beksac B, Tozun R, Baktiroglu S, Sener N, Gonzalez Della Valle A. Extravascular compression of the femoral vein due to wear debris-induced iliopsoas bursitis: a rare cause of leg swelling after total hip arthroplasty. *J Arthroplasty* 2007;22(3):453-6.
8. Matsumoto K, Hukuda S, Nishioka J, Fujita T. Iliopsoas bursal distension caused by acetabular loosening after total hip arthroplasty. A rare complication of total hip arthroplasty. *Clin Orthop Relat Res* 1992;(279):144-8.
9. Mallick IH, Thoufeeq MH, Rajendran TP. Iliopsoas abscesses. *Postgrad Med J* 2004;80(946):459-62.



Fig. 1 Computed tomographic venogram (axial view) shows bilateral iliopsoas bursal distention. The left (L) iliopsoas bursa is 8.1 × 5.3 × 3.8 cm (craniocaudal × anteroposterior × width); the right (R) bursa is 3.4 × 1.7 cm (anteroposterior × width).