Sciatica Caused by Pyomyositis of the Piriformis Muscle in a Pediatric Patient

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abstract

Because the sciatic nerve leaves the pelvis through the greater sciatic notch underneath the piriformis muscle, any pathology of the piriformis muscle could result in entrapment of the sciatic nerve; this is widely known as piriformis muscle syndrome. Pyomyositis of the piriformis muscle may be a cause of piriformis muscle syndrome. Piriformis muscle syndrome caused by pyomyositis of the piriformis muscle in pediatric patients is rare. This article describes a case of sciatica caused by pyomyositis of the piriformis muscle in a pediatric patient.

A 6-year-old boy presented with right buttock and thigh pain following a mild fever and sore throat. The pain worsened, and he became unable to walk. On admission, his temperature was 38.4°C. He reported severe right-sided buttock and lateral thigh pain. Positive Freiberg sign was observed. Laboratory examination revealed elevated white blood cell count and C-reactive protein level. T2-weighted magnetic resonance images of the pelvis revealed high-intensity changes of the piriformis muscle and ilio-sacral joint. Thus, piriformis syndrome caused by pyomyositis of the piriformis muscle was diagnosed. Oral antibiotics (10 mg/kg per day of cefdinir) were administered. Pain gradually decreased, and the patient was able to walk. Final follow-up examination at 6 months after symptom onset revealed no sciatic pain. Follow-up magnetic resonance imaging revealed normalized intensities of the piriformis muscle.

The endopelvic fascia provides a route for infection from the pelvis to the piriformis. The pyomyositis of the piriformis muscle in the current case may have occurred secondary to the pyoarthritis of the sacroiliac joint. Endopelvic infections involving the piriformis muscle may mimic hip diseases in pediatric patients.
The piriformis muscle arises from the 3 cephalad segments of the sacrum: the gluteal surface of the ilium, the capsule of the adjacent sacroiliac joint, and the posterior part of the pelvic surface of the sacrotuberous ligament; exits the pelvis through the greater sciatic notch; and inserts into the piriformis fossa on the greater trochanter of the femur. Because the sciatic nerve also leaves the pelvis through the greater sciatic notch, any pathology of the piriformis muscle could result in entrapment and irritation of the sciatic nerve; this is widely known as piriformis muscle syndrome. Well-known causes of piriformis muscle syndrome are chronic muscle spasm and fibrosis.

Pyomyositis of the piriformis muscle produces swelling of the muscle, resulting in compression and irritation of the sciatic nerve; thus, it may be a cause of piriformis muscle syndrome. Only 10 cases of piriformis pyomyositis presenting as sciatica have been reported. Piriformis muscle syndrome caused by piriformis muscle pyomyositis in pediatric patients is rare; only 1 case has been reported previously.

This article describes a case of sciatica caused by pyomyositis of the piriformis muscle in a pediatric patient.

**Case Report**

A 6-year-old boy presented with right-sided buttock and thigh pain following an episode of mild fever and sore throat. He reported no history of foreign travel or trauma and was previously fit and well. The pain worsened, and he became unable to walk. The patient was taken to the local orthopedic clinic, where observation generated suspicion of a hip problem; consequently, he was transferred to the authors’ institution for treatment.

On admission, the patient was awake and alert. Body temperature was 38.4°C. He reported severe right-sided buttock and lateral thigh pain. On physical examination, positive Freiberg sign and Pace’s test (pain and lower weakness with resisted hip external rotation and abduction) were observed. No paresis was apparent in either lower extremity; however, he could not sit because of severe pain.

Laboratory examination on the day of admission revealed elevated white blood cell count (17,400/mm³) and C-reactive protein (CRP) level (3.5 mg/dL). Anti-streptolysin-O and anti-streptokinase were normal. Negative bacterial cultures were obtained from the pharynx and peripheral blood. The rapid-antigen test for streptococci using a throat swab showed slight positivity.

Plain radiography showed no apparent abnormalities (Figure 1A). Hip pyarthrosis was suspected, and magnetic resonance imaging (MRI) of the hip joint was obtained (Figure 1B). No abnormality was apparent in the hip joint. A second MRI examination focusing on the posterior aspects of the pelvis revealed high-intensity changes of the piriformis muscle and iliosacral joint on T2-weighted images (Figure 2A). Thus, piriformis syndrome caused by pyomyositis of the piriformis muscle and pyogenic arthritis of the iliosacral joint was diagnosed.

Oral antibiotics (10 mg/kg per day of cefdinir) were administered. Pain gradually decreased, and the patient was able to walk. The patient was discharged 3 weeks after admission once the CRP level normalized. Final follow-up examination 6 months after symptom onset revealed full range of motion of the hip joint with no pain and no sciatic pain. Follow-up MRI showed normalized intensities of the piriformis muscle and iliosacral joint (Figure 2B).

**DISCUSSION**

Pyomyositis is rarely seen in temperate climates, although its incidence is increasing, with frequent cases in Africa and the South Pacific. It most commonly affects the quadriceps, iliopsoas, and but-
ock muscles. Transient bacteremia is the usual source. Muscle damage induced by trauma and overuse increases the susceptibility of the affected muscle for bacterial translocation. The endopelvic fascia overlies the psoas, iliacus, piriformis, and obturator muscles and provides a route for infection from the spine and pelvis to the piriformis. The current patient lacked a high fever, which suggested bacteremia, as well as muscle damage, including trauma and overuse. Thus, pyomyositis of the piriformis muscle in the current patient may have occurred secondary to the pyoarthritis of the sacroiliac joint; the infection may have spread via the endopelvic fascia.

Previous reports have shown the effectiveness of computed tomography and MRI for diagnosis of piriformis pyomyositis. In the current case, a diagnosis of piriformis pyomyositis could not be obtained by the initial routine hip joint MRI scan. A second pelvic MRI scan covering the sacrum and including the greater sciatic notch and piriformis muscle detected the pathology of the piriformis. However, routine hip joint MRI does not include the greater sciatic notch. Therefore, it is important to remember that endopelvic infections involving the piriformis muscle may mimic hip diseases in pediatric patients presenting with buttock and lower-extremity pain and limited range of motion of the hip and that computed tomography or MRI covering the hip joints and pelvis is recommended to detect these infections. Orthopedic surgeons need to be aware of piriformis syndrome as a differential diagnosis of lower-extremity pain, even in pediatric patients.

In cases of piriformis pyomyositis without abscess formation, the pediatric and adult literature report antibiotics as the first-line treatment. The most common organisms isolated are *Staphylococcus aureus* and *Streptococcus spp*, so initial antibiotics should be effective against these organisms and adjusted on the basis of culture from the blood or muscle itself. Abscess formation warrants drainage by open surgery or the percutaneous route.

In this context, the current authors’ choice of treatment using antibiotics without drainage was justifiable. Infection and sciatic nerve symptoms were attenuated by antibiotic treatment alone. The clinical course of the current case further supports treatment for pyomyositis of the piriformis muscle with antibiotics alone if no abscess formation exists.

### References