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CASE REPORT

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Sciatica: An Extremely Rare Complication of the Perianal Abscess

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Summary

Background: Sciatica has been classically described as pain in the back and hip with radiation in the leg along the distribution of the sciatic nerve, secondary to compression or irritation of the sciatic nerve. Spinal abnormality being the most common etiology, is one of the most common indications for MRI of the lumbosacral spine. Here we describe imaging findings secondary to a supralevator perianal abscess causing irritation of the sciatic nerve, which was diagnosed on MRI of the lumbosacral spine.

Case Report: A 47-year-old male patient presented to the emergency department with severe acute pain in the right hip and right leg which was aggravated by limb movement. Clinically, a possibility of sciatica was suggested and MRI of the lumbosacral spine was ordered. The MRI did not reveal any abnormality in the lumbosacral spine; however, on STIR coronal images, a right perianal abscess with air pockets was seen. The perianal abscess was extending above the levator ani muscle with and was seen tracking along the sciatic nerve, explaining pain along the distribution of the sciatic nerve. The abscess was surgically drained, followed by an antibiotic course. The patient was symptomatically better post-surgery. Post-operative scan done 3 days later revealed significant resolution of the infra- and supralevator perianal abscess. The patient was discharged from hospital on post-operative day 3 on oral antibiotics for 7 days. On 15th post-operative day, the patient was clinically completely asymptomatic with good healing of the perianal surgical wound.

Conclusions: Extra-spinal causes are rare and most often overlooked in patients with sciatica. While assessing patients with sciatica, extra-spinal causes for the radiation of pain along the distribution of the sciatic nerve should always be looked for if abnormalities in the MRI of the lumbar spine are not found. Inclusion of STIR sequences in the imaging of the lumbosacral spine, more often than not, helps to identify the extra-spinal cause of sciatica when MRI of the lumbosacral spine does not reveal any abnormality.

MeSH Keywords: Magnetic Resonance Imaging • Perianal Glands • Sciatica

Abbreviations: **SLRT** – straight leg raising test; **STIR** – short Tau inversion recovery; **T1WI** – T1-weighted Image; **T2WI** – T2-weighted image; **ADC** – apparent diffusion coefficient

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Background

Various pathologies can cause compression or irritation of the sciatic nerve as it courses through the neural foramina and the soft tissues of the pelvis and thigh. Sciatica due to spinal pathologies is most commonly seen in patients undergoing MRI for back pain with radiation to the lower limb. These patients show compression of the sciatic nerve roots at the neural foramina or lateral recess either by herniated disc, osteophytes, hypertrophied ligamentum flavum or arthropathy of the facet joints. At times, combined above mentioned causes lead to compression. Extra-spinal causes, although rare, generally include pelvic bone fractures, dislocations, entrapment syndrome, compartment syndrome

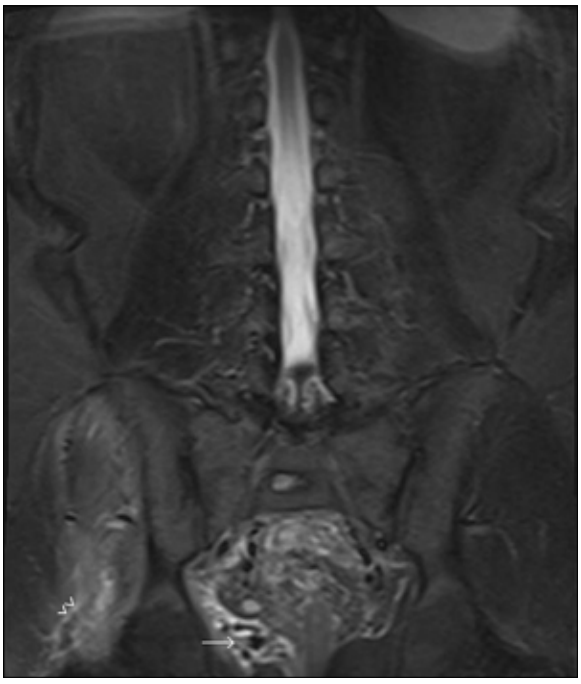

Figure 1. STIR coronal image showing hyperintense signal on the right side of the pelvis (arrow) which is seen extending towards the greater sciatic foramen (arrow heads).

of the posterior thigh, inadvertent intramuscular injection in the nerve in the gluteal region, complication of hip joint replacement etc [1,2]. Two cases with perianal abscess causing sciatica have been described in literature [3,4] but none of them describes imaging appearance in detail. Hereby we present imaging appearance of a rare case of ruptured perianal abscess causing sciatica.

Case Report

A forty-seven-year-old man presented with low back and right buttock pain radiating to the right lower limb, from hip to knee joint. The pain was sudden in onset, burning in nature and aggravating by limb movements. No previous history of backache was mentioned. Significant tenderness was present on the posterior aspect of the right thigh. SLRT was positive at 60 degrees. No significant sensory loss was identified on examination.

MRI of the lumbosacral spine was advised for evaluation of the back pain radiating to the right limb. MRI of the lumbosacral spine did not reveal any significant spinal abnormality. However, an abnormal hyperintense signal was noticed in the right gluteal muscles and perianal region on large field of view STIR coronal images (Figure 1). Subsequently, dedicated T2W and T1W images were taken for assessment of the pelvis. A perianal collection with

Figure 2. T1WI (**A**) shows a hypointense lesion in the right ischiorectal fossa region (arrow). T2W Fat sat image (**B**) shows hyperintense signal in the right ischiorectal fossa region with hyperintense signal extending towards the greater sciatic foramen and along the sciatic nerve (arrow head). Multiple tiny hypointense foci seen in both the T1 and T2W fat sat images representing air as confirmed by corresponding axial CT images (**C, D**). Tiny pockets of air are also seen along the sciatic nerve (**C, D**).

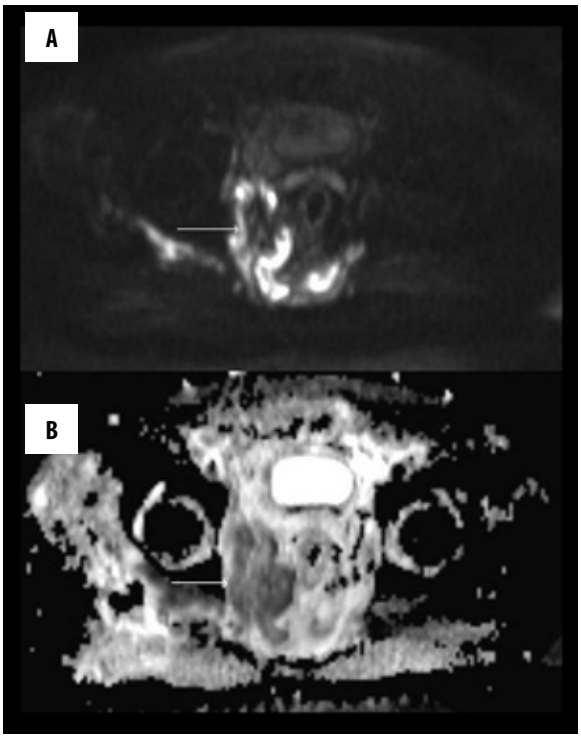

Figure 3. Diffusion weighted image (**A**) and a corresponding ADC image (**B**) showing restriction of diffusion in the abscess cavity (arrows).

Figure 4. T2 fat sat coronal (**A**) and corresponding coronal CT image (**B**) showing hyperintense signal with air pockets along the sciatic nerve (arrows) extending from the pelvis to the thigh. In CT image (**B**), the arrowhead marks the thickened edematous right levator ani muscle and the asterix (*) marks the ischiorectal fossa abscess.

marked T2WI and T1WI hypointensities suggestive of air was noticed (Figure 2). Abnormal STIR hyperintense signals with air pockets were also noted extending into the right greater sciatic notch and along the right sciatic nerve. Additionally, the diffusion weighted sequence was planned and it revealed areas of restriction within the right perianal collection (Figure 3). A CT scan of the pelvis confirmed presence of perianal abscess in the right ischiorectal fossa with multiple air pockets (Figures 2, 4), tracking along the right sciatic nerve up to the mid-thigh. Preoperative evaluation of the patient also revealed high fasting (165 mg/dL) and postprandial (220 mg/dL) blood glucose levels. The right ischiorectal fossa abscess was surgically drained with a drainage tube kept in the ischiorectal fossa. Microbiological examination of the abscess revealed gram-negative rods suggesting Escherichia coli. A postoperative CT scan 3 days later revealed significant resolution of the abscess and the air pockets. The patient was discharged after 3 days of hospitalization on oral antibiotic treatment for gram-negative and anaerobic bacteria for 7 days. On 15th post-operative day, the patient was completely asymptomatic and showed signs of healthy healing of the perianal surgical wound.

Discussion

Sciatica is commonly defined as pain in the lower back and hip radiating along the distribution of the sciatic nerve. A variety of common and uncommon causes of sciatica has been described in literature. The causes can be broadly categorized as spinal and extraspinal.

Pathologies affecting the spine are the most common causes of sciatica. Osteophytes, disc herniation, facetal hypertrophy, ligamentum flavum hypertrophy, synovial cysts are the most common spinal pathologies that cause compression or irritation of the sciatic nerve roots. Traumatic fracture, dislocation of facet joints and tumors of the nerve roots have also been mentioned.

Extra-spinal causes of sciatic pain are extremely rare and thereby at times overlooked while assessing a patient with sciatica. Extra-spinal causes can be broadly categorized into traumatic, infective, inflammatory, tumoral, vascular and other etiology.

Traumatic causes like inadvertent intramuscular injection in the gluteal region in the sciatic nerve, traumatic posterior dislocation of the hip, thigh hematoma or total hip replacement surgeries have been described in literature [5,6]. Primary nerve sheath tumors can also cause sciatica. Pelvic and abdominal tumors can cause pressure effect or invasion of the sciatic nerve giving rise to sciatica [7,8]. Other rare causes like pelvic endometriosis, uterine leiomyomas, pyriformis syndrome, pregnancy, aneurysm of the external iliac artery, radiotherapy and osteoarthritis of the sacroiliac or hip joints have also been described [9–13].

Rarely gluteal, perianal and pelvic abscesses can cause pain along the sciatic nerve either by compression or irritation of the nerve [2,3]. Abdominal infections can also spread into the pelvis along the iliopsoas muscles or along the iliac

vessels [6,14]. Inflammation in the vicinity of the sciatic nerve due to sacroilitis can elicit referred pain causing sciatica [15].

Active perianal fistulas and abscesses are usually hypointense on TIWI and hyperintense on T2WI and show restriction on DWI [16]. Presence of marked T2- and T1-hypointense foci within the collection was highly suggestive of air which was confirmed by plain CT images [16]. Presence of air in the abscess cavity and along the sciatic nerve was very well demonstrated in our case which suggested perineural spread of abscess.

Conclusions

Although compression of the nerve roots at the level of the lumbar spine constitutes the most common cause of sciatica, rare extraspinal causes should also be looked for while imaging for pain in the sciatic nerve. Awareness of these rare entities is always helpful in making an early diagnosis and in favorable outcome. Including large field-of-view STIR coronal sequences in routine imaging of the lumbar spine is usually helpful in defining the diagnosis in patients with extra-spinal sciatica.

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