

CLINICAL CASE - TEST YOURSELF

MSK Imaging

Left posterior thigh pain only in sitting position

Marianna Theodorou, Amalia Sotiriadou, Antonia Bintoudi

Radiology Department, Papageorgiou General Hospital, Thessaloniki, Greece

SUBMISSION: 29/9/2019 | ACCEPTANCE: 3/2/2020

PART A

A 60-year-old woman was referred to our department for pelvic Magnetic Resonance Imaging (MRI) due to posterior left thigh pain. The patient described the pain as caustic, starting from the gluteal fold to the back of the knee only when sitting.

On physical examination the patient did not reveal

any pain during extension, adduction or external rotation of the left hip. She did not have any pain neither during long-stride walking nor in any other position of the body. Coronal T1-w and T2-w and axial fat suppressed T1-w, without and following contrast administration MR images, are shown (**Figs. 1, 2**).



CORRESPONDING
AUTHOR,
GUARANTOR

Marianna Theodorou,
Radiology Department, Papageorgiou General Hospital, Ring Road,
N. Eykarpia, 56403, Thessaloniki, Greece, Email: annairamthe@gmail.com



Fig. 1. Coronal T1-w (a, b), T2-w (c, d) and STIR (e, f) MR images.

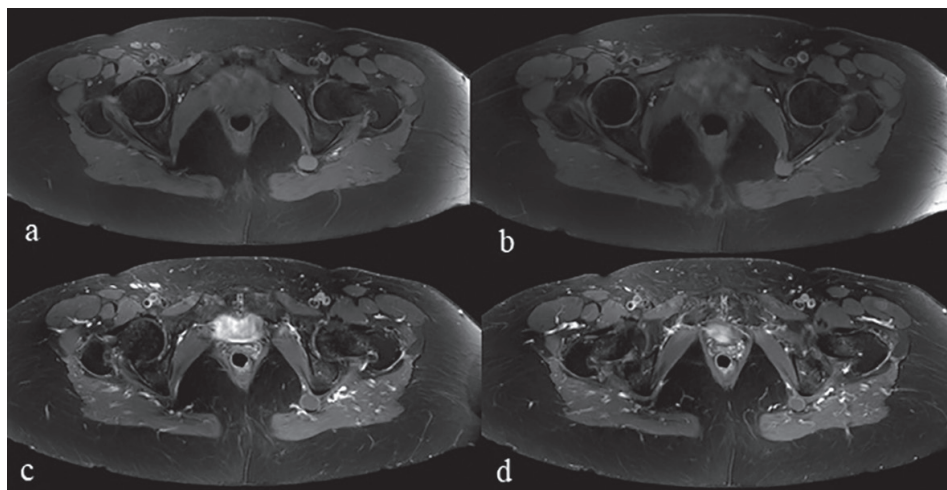


Fig. 2. Axial fat suppressed T1-w before (a, b) and after (c, d) intravenous gadolinium administration.

PART B

Diagnosis: Posterior femoral cutaneous nerve compressed by a lymphatic cyst

Posterior femoral cutaneous nerve (PFCN) is a sensory branch of the sacral plexus. Its distribution area includes the posterior surface of the thigh and leg and perineal skin. Isolated PFCN neuropathy is extremely rare. Most common PFCN pathology includes i) injury due to injections within the gluteus muscles and ii) injury during knee surgery [1].

The PFCN derives from double origin. It arises from the posterior divisions of the anterior rami of S1 and S2 nerves and the anterior divisions of anterior rami of S2 and S3 nerves [2]. Within the gluteal region, the PFCN is located anterior to the gluteus maximus muscle and overlies the sciatic nerve. The PFCN divides into the cutaneous branch, inferior cluneal nerve and perineal branch. Localised pain provoked on the posterior thigh area is a really uncommon clinical symptom and most of the times remains under-diagnosed.

Differential diagnosis includes entrapment syndromes of other neighbouring nerves hence with different distribution. Pudendal neuropathy and piriformis syndrome are two of them [1]. Pudendal neuropathy is a rare entrapment neuropathy in which the pudendal nerve is compromised [3]. Piriformis syndrome is an uncommon neuromuscular disorder in which the sciatic nerve is compressed within or by the piriformis muscle [4-6]. Other pathologies, such as benign neural sheath tumour or dilatation of inferior gluteal artery and internal pudendal artery, could provoke compression upon PFCN and therefore similar symptoms with our case [4]. Isolated lesions of the PFCN have been described in a small number of individual case studies, such as after gluteal intramuscular injection, exercise-induced compression by the ischial tuberosity, sitting and biking [1, 7-9].

In our case the only symptom from which the patient suffered was caustic pain in her left gluteal fold, extending to the back of the knee but only on sitting.

Due to reproducibility of symptoms only on a sitting position, a nerve entrapment was clinically considered as an underlying pathophysiology. According to the nerve distribution and the caustic nature of the pain, a sensory nerve compression/entrapment was suspected.

A hip MRI protocol when nerve entrapment is considered in the area includes T1-w, T2-w, STIR, prior and post contrast fat suppressed T1-w MR images at different planes. The main finding on pelvic MRI of our patient was a cystic lesion measuring 4.1 x 1.7 cm (**Figs. 1, 2**). It was well defined, ovoid, and adjacent to the acetabulum, posterior to the obturator internus muscle, and in close proximity to the sacrocoxial ligament and the gluteal artery and vein. On T1-w images the lesion was hypointense and on T2-w and STIR images hyperintense. Following gadolinium intravenous administration, the lesion showed a peripheral wall ring enhancement.

Surgical procedure was performed to remove the lesion one month after the MRI examination. The patient experienced progressive improvement with immediate remission of sensory radiated pain, thus confirming the PFCN entrapment. The results from histopathology examination showed that the lesion was a lymphatic cyst.

Lymphatic cysts are benign, non-inflammatory, well defined normal lymph fluid collections lined by inner epithelial layer with lymphatic malformation. They most commonly result from previous trauma or operation. Idiopathic lymphatic cyst adjacent to PFCN has not been reported in the English literature, to the best of our knowledge [10].

In conclusion, in our case MRI showed the exact location and benign nature of the lesion and thus it was of valuable clinical significance in the overall patient management. **R**

Conflict of interest

The authors declared no conflicts of interest.

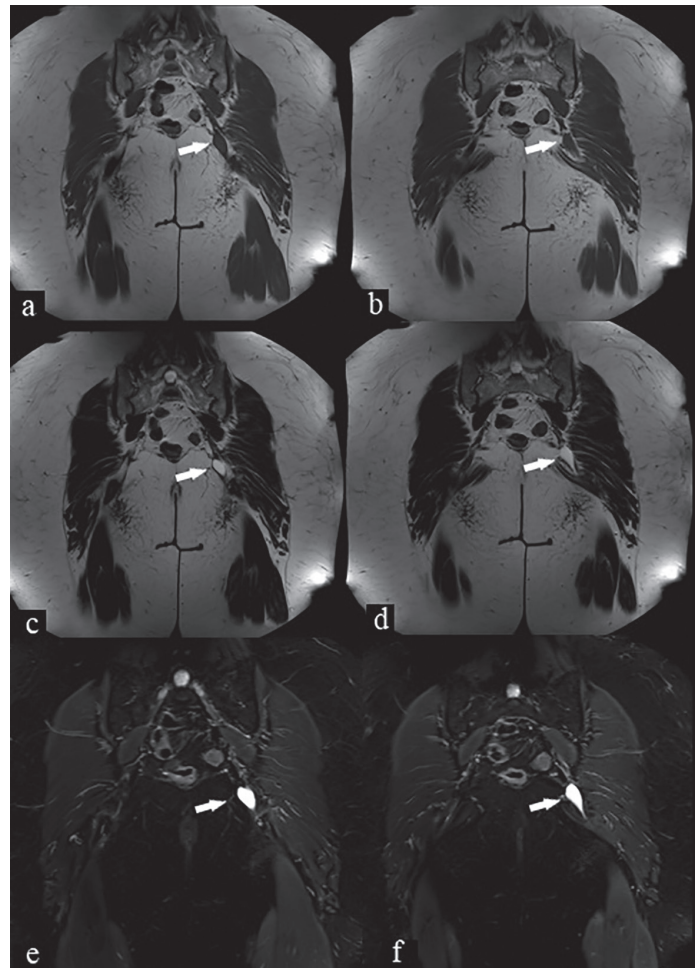


Fig. 1. Coronal MR images show a well-defined, ovoid lesion (arrow) adjacent to the acetabulum, located between the obturator internus and the gluteus maximus muscle, in close proximity to the sacrocoxial ligament and gluteal artery and vein. The lesion is hypointense on T1-w MR images (a, b) and hyperintense on T2-w (c, d) and STIR (e, f) MR images.

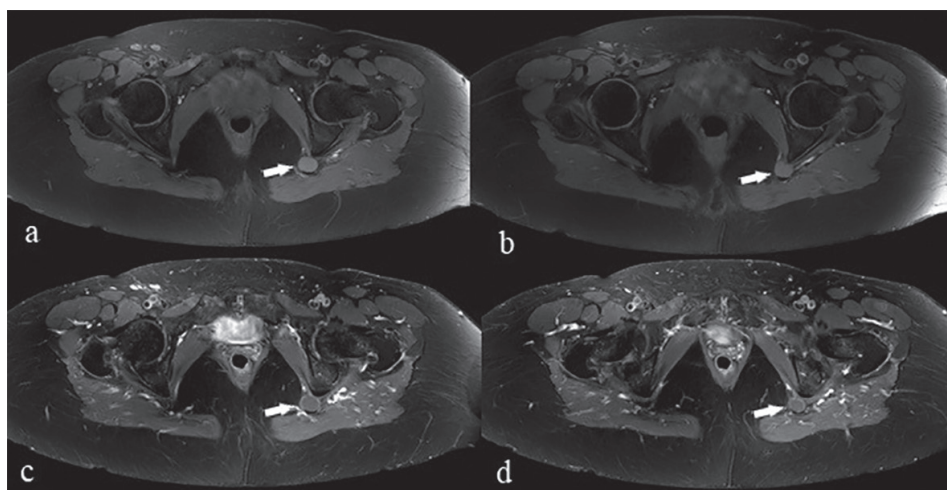


Fig. 2. Fat suppressed axial T1-w before (a, b) and after (c, d) intravenous gadolinium administration show the ring-like peripheral enhancement of the lesion (arrow) which abuts the posterior acetabular wall.



KEY WORDS

Posterior femoral cutaneous nerve; Cystic lesion; Lymphatic cyst; Nerve entrapment; MR imaging/diagnosis

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READY-MADE
CITATION

Theodorou M, Sotiriadou A, Bintoudi A. Left posterior thigh pain only in sitting position. *Hell J Radiol* 2020; 5(1): 50-55.