ACTA MEDICA LITUANICA. 2014. Vol. 21. No. 3. P. 99–102

Endometriosis of the sciatic nerve with cyclic sciatica

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Endometriosis is an important gynecological disorder which is characterized by proliferation of the functional endometrial tissue outside the uterine cavity, affects most commonly the ovaries and less frequently the gastrointestinal tract, chest, urinary tract, and soft tissues. Endometriosis invading the sciatic nerve is a rare manifestation of a common disease. The cyclic rhythm of pain, associated with the magnetic resonance imaging (MRI) signal of the lesion should suggest a diagnosis of endometriosis. Early diagnosis and treatment are important to prevent irreversible damage to the sciatic nerve.

Key words: endometriosis, magnetic resonance imaging, pelvic pain, sciatic nerve

INTRODUCTION

Endometriosis is the ectopic proliferation of the endometrial tissue outside the uterine cavity. It occurs mainly on the pelvic peritoneum, in the ovaries and rectovaginal septum, and more rarely in the pericardium, pleura, and the brain (1). Many causes of traumatic-nontraumatic sciatic neuropathy have been described in the literature but endometriosis of the sciatic nerve is a rare cause and remains difficult to recognize (2). We present the case of a 31-year-old woman with a history of episodic pain in her right thigh and leg, in whom pelvic MRI showed multiple foci of endometriosis localized in the right sciatic nerve and in its vicinity.

CASE REPORT

A 31-year-old woman was referred for episodic pain in her right thigh and leg associated with difficulty in walking. The clinical history revealed cyclic right-sided sciatica of more than 1 year duration. Attacks of pain were worse during the menstruation period. Then, the symptoms gradually worsened and pain has become constant and more severe during walking.

On physical examination, she had an antalgic gait, right gluteal atrophy, groin pain, irradiating to the knee and worsened by hip movement. Neurological examination showed right lower limb stiffness with right leg flexure and right leg hyperextension, gait disturbance and severe pain with apparent L5-S1 distribution. No pathological findings had been detected in lumbar spinal cord magnetic resonance imaging (MRI). Her past medical history was unremarkable.

Sciatica was suspected and pelvic MRI examination was performed on an Achieva 3T MRI scanner (Philips Best, Netherlands). The MRI examination revealed a nodular lesion in the right sciatic nerve, 24 × 12 × 7 mm in size at the level of sciatic notch. Multiple millimetric nodular components (millimetric-9 mm in size) were detected in the vicinity

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of the lesion that was described above. They were located anterior to the piriformis muscle and in the course of the right sciatic nerve behind the sciatic notch. The lesions were hyperintense on the T1-weighted, fat-saturated T1-weighted and T2-weighted images, partially surrounded by a thin hypointense zone and did not enhance after gadolinium injection (Figure). Inflammatory changes surrounding the lesions that were hypointense on T2-weighted images showed contrast enhancement (Figure).The gluteus minimus, medius and obturator internus muscles were also affected and showed fatty atrophic degeneration (Figure A–H). MRI characteristics of the lesions were considered endometriosis. The history of cyclical pain was consistent with the diagnosis.

DISCUSSION

Sciatica is most commonly caused by lumbar spine pathology, sciatic nerve injury or entrapment due to the piriformis syndrome (3). Other causes of intraneural mass-like enlargement are relatively uncommon; they include perineurioma, neurolymphoma, amyloidosis, endometriosis (4). These entities may be encountered during routine pelvic or hip imaging, and the radiologists should be aware of them and their respective imaging appearances.

Endometriosis is an important gynecological disorder which is characterized by proliferation of the functional endometrial tissue outside the uterine cavity (1). The incidence in women 15–49 years of age has been found to be 1.3 per 1 000 with a population prevalence range of 1–7% (2). Several theories have been studied in order to explain the development of endometriosis. The most accepted one is the regurgitation and implantation theory, which suggests retrograde menstrual flow through the fallopian tubes with subsequent implantation in the peritoneal cavity (5).

Endometriosis of the sciatic nerve is a rare entity. Endometriosis-induced cyclic sciatica was first reported by Schlincke in 1946 (6). Sciatic endometriosis manifesting as cyclic sciatica is related to the menstrual period, with painless intervals that become shorter each time until the pain becomes constant, as seen in our case. Other symptoms are parestesis and paresis, reflex alterations. The diagnosis should be considered in a woman who presents with sciatica associated with menstruation. The etiology of pain in sciatic endometriosis is multifactorial. Perineural and intraneural endometriosis itself produces pain from the local production in the endometrial stroma of prostaglandins, interleukins, and histamine. Additionally, cyclic hemorrhages within endometrial lesions may cause pressure and nerve damage by cyclical inflammation, resulting in pain (2). External compression anywhere along the sciatic nerve and its contributing lumbosacral roots can also cause radicular pain (2). The ectopic endometrial tissue implanted in the nerve and neighborhood caused peripheral inflammation, it became prominent with enhancement in our case (Figure).

Diagnosis of the sciatic endometriosis can be made by an association of the symptoms to menstrual periods, and MRI findings. MRI may show a focal mass, mass-like lesion in-or around the sciatic nerve, commonly in the area of the greater sciatic notch, where fibrosis, organized haematoma and endometrial tissue involving the muscles envelop the sciatic nerve (7). Endometriosis often exhibit relatively high signal intensity on T1-weighted images (especially fat-suppressed T1-weighted images) and mixed high and low signal intensity on T2-weighted images, depending upon the quantity and time of the bleeding (8). Enhancement on the contrast-enhanced images is variable (9). In our case, the lesion presented hyperintensity on both sequences (Figure). Some enhancement was detected in the periphery of the endometriotic lesions supporting the fibrotic changes. The MRI can be useful in the differential diagnosis between a benign neurogenic tumor and the endometrioma. On MR neurinoma and neurofibroma are hypointense on T1-weighted images and heterogeneously hyperintense on T2-weighted images. These tumors enhance after gadolinium injection.

Endometriosis invading the sciatic nerve is a rare manifestation of a common disease. Salazar-Grueso and Roos (10) reported a mean interval of 3.7 years between the onset of symptoms and diagnosis. Early diagnosis and treatment is very important to minimize the nerve damage caused by recurrent cycles of bleeding and fibrosis, which are characteristics of endometriosis. This condition has to be considered in the differential diagnosis in young women of reproductive

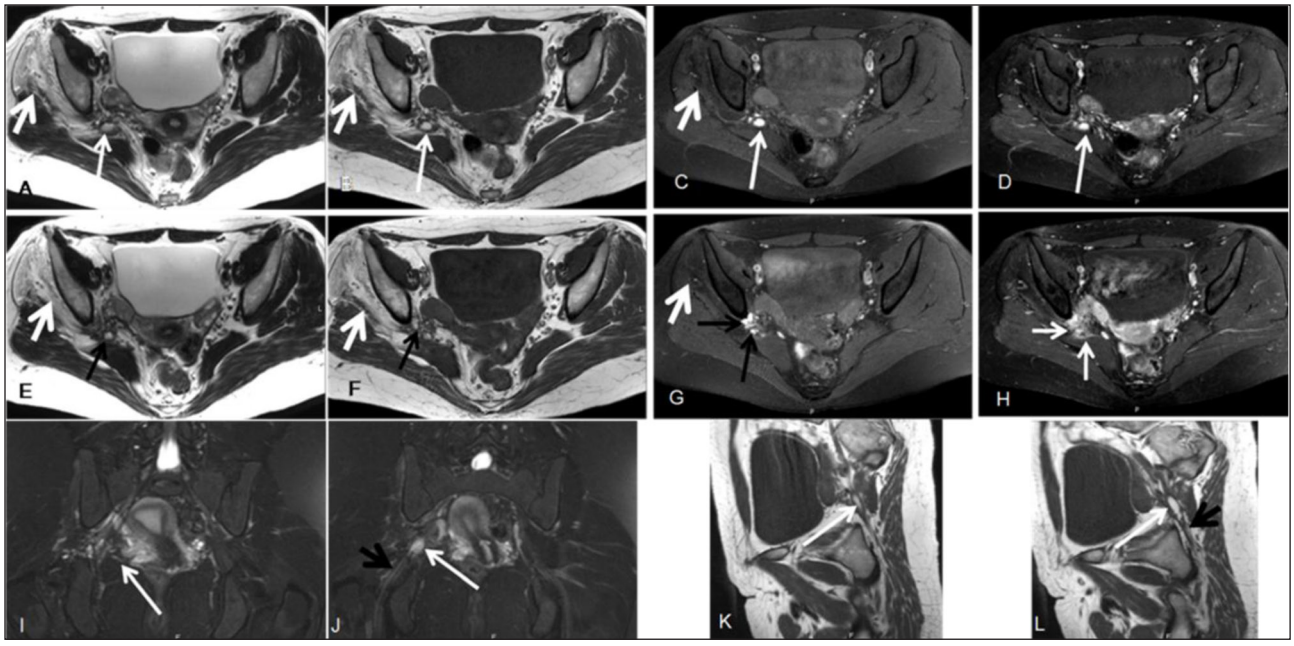

Figure. Axial T2-weighted (A, E) and T1-weighted images (B, F) show hyperintense lesion in the right sciatic nerve (white arrows). Corresponding axial fat-suppressed T1-weighted images (C, G) show hyperintense hemorrhagic focus within the right sciatic nerve (white arrows) and additional smaller similar foci (short black arrows). Axial post-gadolinium fat-saturated T1-weighted (D, H) images are showing enhancing peripheral inflammatory changes surrounding the lesions that were hypointense on T2-weighted images (short white arrows). Coronal fat-saturated T2-weighted images (I, J) and sagital oblique T1-weighted images (K, L) of the sciatic nerve lesion showing a high signal (white arrows). Notice asymmetric right gluteal musculature fatty replacement and atrophy (short thick white arrows). Sciatic nerve (thick black arrow)

age, especially if a history of dysmenorrhoea and cyclic symptoms is present.

Received 17 October 2014
Accepted 24 October 2014

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SĖDIMOJO NERVO ENDOMETRIOZĖ SU CIKLINE IŠIALGIJA

Santrauka

Endometriozė yra svarbus ginekologinis sutrikimas, kuris apibūdinamas kaip funkcionuojančio gimdos gleivinės audinio proliferacija už gimdos ertmės ribų, dažniausiai pažeidžiantis kiaušides ir rečiau virškinimo trakto, krūtinės, šlapimo takų ir minkštuosius audinius. Sėdimojo nervo pažeidimas yra retas endometriozės pasireiškimas. Ciklinis skausmo ritmas bei magnetinio rezonanso tomografijos (MRT) tyrimas leidžia įtarti endometriozės diagnozę. Ankstyva diagnozė ir gydymas yra svarbūs siekiant užkirsti kelią negrįžtamam sėdimojo nervo pažeidimui.

Raktažodžiai: endometriozė, magnetinio rezonanso tomografija, dubens skausmas, sėdimasis nervas