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Bilateral Ovarian Endometriomas: A Case Report

Antonia M. Pausch, MD,* Olivio F. Donati, MD,* and Andreas M. Hötker, MD*

Endometriosis is a benign gynecological condition in women of reproductive age with a prevalence of approximately 10%.[1] It is defined by the presence of endometrial-type tissue outside the uterine cavity. Clinical presentation of endometriosis may be heterogeneous and unspecific. Common symptoms or consequences of endometriosis are dysmenorrhea, dyspareunia, pelvic pain, and infertility. However, some patients may also be asymptomatic. Commonly, endometriosis manifests within the female pelvis. Nevertheless, extra-abdominal endometrial lesions rarely occur. The ectopic endometrial implants may induce inflammatory processes, causing scar tissue formation, adhesions, and consequently pelvic anatomy distortion.[2] A common site of endometriotic involvement is the ovaries. In this context, we present a case of a 23-year-old nulliparous woman without any known pre-existing condition but recurrent pelvic pain.

CASE REPORT

A 23-year-old woman with no prior diseases presented with recurrent pelvic pain at her local gynecologist. Clinical examination was only possible to a limited extent because the patient was severely in pain. Consequently, transvaginal ultrasound could only be performed with restricted diagnostic quality, but the gynecologist suspected cystic "tumors" in the right and left ovaries. Laboratory results showed no pathological findings, and thus, the patient was referred to magnetic resonance imaging (MRI) for further examination.

The MRI protocol included a transversal T1-weighted fat-saturated sequence covering the entire pelvis; high-resolution T2-weighted turbo spin echo sequences in sagittal, coronal, and axial plane (after intravenous admission of butylscopolamine); and transversal postcontrast T1-weighted fast-saturated sequences.

MRI demonstrated 2 T2w-intermediate/hyperintense, T1w-hyperintense cystic lesions with a maximum diameter of 7.7 cm (left) and 7.2 cm (right), with the left lesion being slightly more hypointense on T2w and more hyperintense on T1w compared with the lesion in the right ovary ("T2 shading sign," Fig. 1: T2-weighted image and Fig. 2: T1-weighted fat-saturated image). These findings together with the T2w-hypointense and T1w-hyperintense nodule at the base of both lesions ("T2 dark spot sign," white arrows) lead to the diagnosis of endometriomas in both ovaries. The differential diagnosis includes hemorrhagic cysts, which commonly resolve over time. However, the presence of the T2 dark spot sign is highly

suggestive of ovarian endometrioma. According to the #Enzian classification,[3] the endometriosis extent was encoded #Enzian O3/3 because of suspected bilateral ovarian endometriosis at a maximum diameter >7 cm on each side. The patient was scheduled for laparoscopic ovarian cystectomy.

During laparoscopy, the gynecologist identified a normal uterus and uterine tubes but a cystic enlargement of both ovaries. Ovarian cystectomy was performed. Histopathological workup revealed benign cystic ovarian lesions consisting of endometrial tissue and degenerated blood products. These findings were well consistent with endometriomas. The patient's outcome was favorable because she could be discharged 72 hours after surgery.

DISCUSSION

Endometriomas are cystic lesions that arise from endometriosis and are mostly found in the ovaries. Ovarian endometriomas are detected in 17%–44% of women with a history of endometriosis and account for approximately one-third of benign ovarian cysts.[4] Endometriosis represents a great challenge in clinical management, with some women reporting painful symptoms or are dealing with associated complications such as infertility, whereas others are asymptomatic. The complex pathogenesis of endometriosis remains contentious.[5]

Laparoscopy—ideally in combination with histological confirmation—is still considered the gold standard for diagnosis of endometriosis.[2] Besides clinical examination, transvaginal ultrasound is usually used for primary endometriosis screening. For further evaluation, MRI gains more and more importance. MRI not only provides a detailed
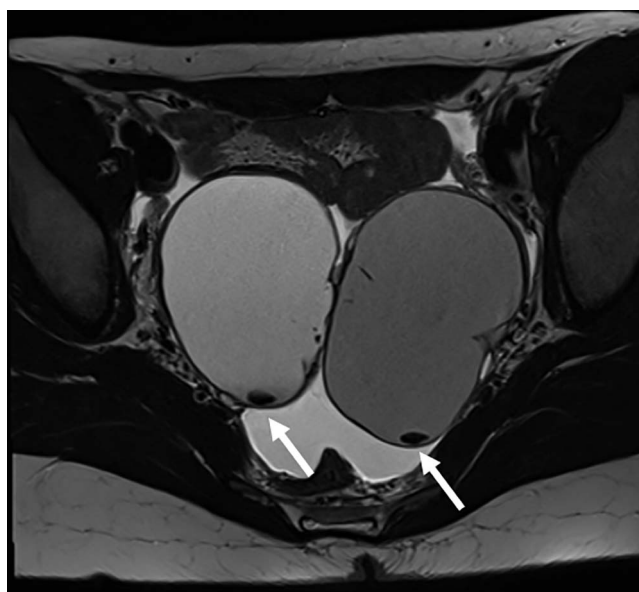
FIGURE 1. T2-weighted image depicting bilateral intermediate/hyperintense ovarian lesions with the left lesion being slightly more hypointense compared with the lesion in the right ovary. T2w-hypointense nodule at the base of both lesions (white arrows).
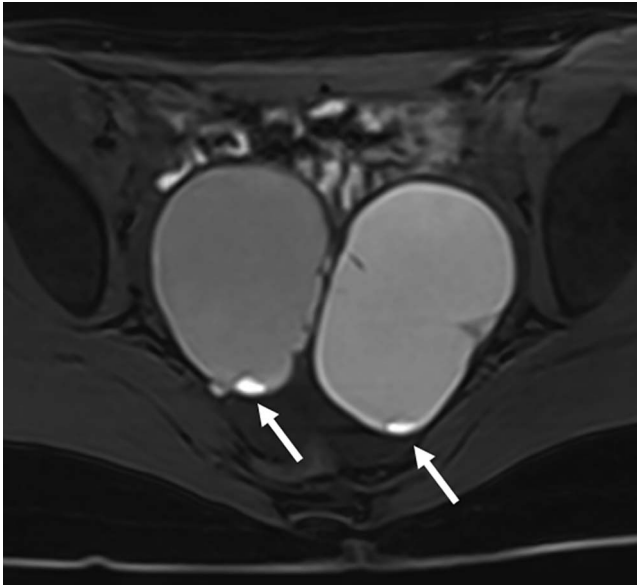
FIGURE 2. Bilateral hyperintense ovarian lesions on T1-weighted fat-saturated image with the left lesion being slightly more hyperintense compared with the lesion in the right ovary. T1w-hyperintense nodule at the base of both lesions (white arrows).

mapping of the disease associated complications and anatomic implications but may also rule out other underlying conditions or malignancy. The "T2 shading sign" in endometriomas was first described by Nishimura et al[6] in 1987 and is most likely because of recurrent bleeding at different time points. Another characteristic MRI feature is the "T2 dark spot sign." Corwin et al[7] reported high specificity (93%) but low sensitivity (36%) for this feature to discriminate endometriomas from other hemorrhagic cystic ovarian lesions. The etiology of this finding remains unclear, but chronic retracted blood clots with high amounts of protein and/or hemosiderin might be a possible correlate.[7] At our institution, contrast-enhanced sequences are routinely included in our endometriosis MRI protocol for better differentiation of indeterminate adnexal findings such as endometriomas or inflammatory conditions and to investigate malignancy. Wall enhancement of endometriomas may be present but is rather unspecific. Malignant transformation should however be suspected if enhancing mural nodules are detected.[8] In rather severe forms of endometriosis, the ovaries may be adjected to each other in the pouch of Douglas because of retractile adhesions, called the "kissing ovaries sign."[9]

There are several classification systems to describe the extent of endometriosis. A widely used system, particularly used in German-speaking countries, is the recently revised #Enzian classification.[3] It was updated for a more comprehensive assessment of the disease not only focusing on deep endometriosis but also including superficial and ovarian endometriosis.

The choice of a suitable treatment mainly depends on associated symptoms, disease extent, age, and desire of fertility.[10] Overall, important implications of endometriosis treatment are re-straining lesion growth, associated pain, and systemic effects of the disease.[11] Combined oral contraceptives or progestins only are widely used as an effective first-line treatment for dysmenorrhea and chronic pelvic pain.[2,12] Indication for surgery may be established in case of persistent pain under medical treatment, suspected malignancy, endometriosis-related subfertility, and to restore normal anatomy.[13]

In conclusion, MRI provides for a comprehensive disease assessment in patients with endometriosis, thus facilitating optimal treatment selection and ruling out other benign or malignant conditions.

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