Case report

Renal endometriosis mimicking an angiomyolipoma

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1. Introduction

Renal endometriosis is not only a rare cause of a renal tumor, but is also a rare condition by itself.\(^1\) In this article, we report the case of a huge renal tumor that initially mimicked an angiomyolipoma (AML) but was histopathologically diagnosed as endometriosis, and present our review of the relevant literature on renal endometriosis.

2. Case report

A 42-year-old nulliparous woman presented with a sudden onset of right flank pain, a palpable tender mass in the right upper quadrant of the abdomen, and hematuria. A contrast-enhanced computed tomography revealed a huge encapsulated right renal tumor with a minimal fat component, which was initially diagnosed as a renal angiomyolipoma (AML) on the basis of her history and imaging findings. She underwent a right nephrectomy after initially receiving conservative treatment. Results of a pathologic examination of the resected specimen, however, revealed renal endometriosis. After the operation, she received hormone therapy with danazol. During the 10 months after the operation, no untoward events developed. Herein, we report a rare case of renal endometriosis that initially mimicked an AML.

3. Discussion

Endometriosis is defined as the presence of endometrial glands and stroma outside the endometrial cavity and uterine...
The prevalence rate of endometriosis was estimated to be 10% in women of reproductive age. The incidence of genitourinary endometriosis is approximately 1–5% among these cases. Among patients with urinary tract endometriosis, the incidence rate of endometriosis in the bladder, ureter, and kidney has a ratio of 40:5:1. Renal endometriosis was first reported by Marshall in 1943. Thus far, 15 cases of renal endometriosis were reported in the medical literature. The most commonly presumed diagnosis in cases of renal endometriosis is renal cell carcinoma, and a misdiagnosis of AML has rarely been reported.

Fig. 1. (A) Contrast-enhanced computed tomography revealed a huge septate, encapsulated right renal tumor. There were contrast-enhanced soft tissue density and a minimal accumulation of fat component in the internal part. (B) Renal angiography demonstrated some vascularity within the huge tumor.

Fig. 2. (A) A nephrectomized specimen showing the renal tumor with multiloculated hemorrhagic cysts. The tumor was proven to be endometriosis, which involved the renal cortex and medulla. (B) Pathological findings of the specimen proved the diagnosis of renal endometriosis characterized by endometrial glands and embedded stromal cells (hematoxylin and eosin stain, 200×). (C) Progesterone receptor staining was positive in the nuclei of the endometrial glands and stromal cells [3-amino-9-ethylcarbazole (AEC) stain, 200×]. (D) CD10 staining was positive in the nuclei of stromal cells (AEC stain, 200×).
Renal AML is clinically more common than renal endometriosis, and presents with a classic triad of flank pain, a palpable tender mass, and gross hematuria. The CT diagnosis of AML is mainly based on detecting fat in the renal lesion, and the accuracy of this diagnosis is approximately 75–86%. However, in women with a history of cesarean delivery or other gynecologic procedures, a differential diagnosis of endometriosis should be considered, especially if the common symptoms of endometriosis are present. The pathogenesis of endometriosis is controversial, and the etiology is multifactorial. The main causative theories can be categorized as embryonic, migratory, and immunological.

Endometriosis necessitates either surgical or medical (hormonal) treatment because there is a high risk of recurrence and local invasion by endometrial tissues. There are no treatment guidelines for renal endometriosis because of its rarity. However, the consensus with respect to treatment of genitourinary endometriosis is mainly based on age, severity of symptoms, extent of the disease, duration of infertility, and a desire to maintain reproductive ability. Hormonal therapy leads to decidualization and subsequent atrophy of ectopic endometrial tissue, thereby reducing bleeding and pain. These effects can be achieved by creating a pseudo-pregnancy state using progestational agents or a combination of estrogens and progestins, or by creating a pseudo-menopausal state using danazol or a gonadotropin-releasing hormone agonist. The advantages of medical treatment are its low cost, easy availability of drugs, systemic effect, and preservation of fertility, while the disadvantages include inadequate disease eradication, limited degree of pain and symptom relief, risk of relapse, and side effects of the hormones. Hormonal therapy is mainly effective in the early stage of the disease or in the post-operative stage as an adjuvant disease-control strategy. Surgical treatment is usually performed in the advanced stage or in cases of extensive disease. Surgery involves resection of the endometrial tissue (with or without a nephrectomy) and/or surgical castration in the form of a total abdominal hysterectomy with a bilateral salpingo-oophorectomy. The use of a combination of medical and surgical treatments for genitourinary endometriosis is also a suitable option.

Our patient had a history of a uterine myometrectomy, which is a risk factor for endometriosis. However, an initial evaluation of the huge renal tumor favored AML, but renal cell carcinoma could not be excluded because of some vascularity on renal angiography. Under these conditions, it was reasonable to perform a right nephrectomy for further diagnosis and treatment. Surgical castration was not performed perioperatively, but adjuvant hormone therapy was added for the final pathologic diagnosis of renal endometriosis. Because of the high recurrence rate and local invasiveness of endometriosis, close surveillance and frequent clinical follow-up are necessary.

**Conflicts of interest statement**

The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in the manuscript.

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**References**