CASE REPORT

MR Imaging of Uterine Adenosarcoma: Case Report and Literature Review

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We report a case of uterine adenosarcoma demonstrated on magnetic resonance (MR) imaging. A 74-year-old woman with a large uterine mass underwent MR examination before total abdominal hysterectomy. Imaging revealed a markedly enlarged uterus with thin myometrium occupied by a large polypoid mass. The mass contained solid components with low intensity on T1-weighted images and high intensity on T2-weighted images compared to the myometrium and areas of small cysts.

Keywords: MR imaging, neoplasm, uterus

Introduction

Uterine adenosarcoma is a rare mixed epithelial-mesenchymal tumor that contains both benign glandular epithelial elements and malignant mesenchymal elements as active participants in the neoplastic process.1 Only a few case reports have documented the magnetic resonance (MR) imaging findings of uterine adenosarcoma.2-5 We describe a case of uterine adenosarcoma and review the relevant literature with regard to the characteristics of this tumor on MR imaging.

Case Report

A 74-year-old woman was referred to our hospital with vaginal bleeding. She had no history of hormone therapy. Pelvic examination revealed an enlarged uterus, which ultrasonography demonstrated as a large heterogeneous uterine mass.

We performed pelvic MR imaging using a system with a 1.5-tesla superconducting unit and obtained spin-echo T1-weighted, gadolinium-enhanced fat-suppressed spin-echo T1-weighted, and fat-suppressed turbo spin-echo T2-weighted axial images and turbo spin-echo T2-weighted sagittal images.

MR imaging revealed the uterus to be significantly enlarged with a thin myometrium. The endometrial cavity was expanded by a heterogeneous mass measuring 13 × 9 × 8 cm that extended to the internal os. The mass had solid components with intermediate signal intensity on both sequences and small cystic areas with low signal intensity on T1-weighted images and high intensity on T2-weighted images (Fig. 1A, B, D). After gadolinium administration, the solid components and septa enhanced (Fig. 1C). Areas of high intensity observed on T1-weighted images were presumed to represent hemorrhage (Fig. 1A). The tumor seemed to be confined to the endometrium, but distortion of the zonal anatomy by absence of a junctional zone made it difficult to exclude invasion of the superficial myometrium.

We suspected a malignant tumor and performed biopsy, but the pathological diagnosis was endocervical polyp. The patient subsequently underwent hysterectomy with bilateral oophorectomy. A large sessile polypoid mass arising from the uterine fundus occupied the endometrial cavity, and small cystic areas were observed throughout the tumor on examination of the cut surface. Microscopically, the tumor comprised benign glandular epithelial components surrounded by low grade sarcomatous stroma (Fig. 2). It was limited to the endometrium with no myometrial invasion and displayed no sarcomatous overgrowth. Accordingly, the pathological diagnosis was low grade adenosarcoma of the uterus.

Discussion

Mixed epithelial-mesenchymal tumors of the uterus include adenofibroma, adenosarcoma, and car-
Fig. 1. (A) Spin-echo T1-weighted (repetition time [TR]/echo time [TE], 500/9 ms) axial image shows the uterine cavity distended by a mass measuring 9 × 8 cm. Note cystic areas with low signal intensity, septa with intermediate signal intensity, and the thin myometrium. Area of high signal intensity probably represents hemorrhage. (B) Fat-suppressed turbo spin-echo T2-weighted (TR/TE, 6133/80 ms) axial image shows well delineated cystic spaces with high signal intensity. (C) Gadolinium-enhanced fat-suppressed spin-echo T1-weighted axial image shows distension of the endometrial cavity and enhancement of the solid components and septa within the tumor. Note similar tumor enhancement to that of the myometrium. (D) Turbo spin-echo T2-weighted (TR/TE, 6133/80 ms) sagittal image shows a heterogeneous tumor extending to the internal os.

cinosarcoma. In these tumors, both epithelial and mesenchymal elements have an active role in the neoplastic process. Adenofibroma has benign glandular epithelial and mesenchymal components, whereas carcinosarcoma has malignant epithelial and mesenchymal components. Adenosarcoma has a benign glandular epithelial component with sarcomatous mesenchymal stroma and may be considered an intermediate state between benign adenofibroma and highly malignant carcinosarcoma.

Adenosarcoma accounts for 8% of all uterine sarcomas. At presentation, the most common symptom is abnormal vaginal bleeding, and mean age is 58 years. On gross examination, the tumor forms a well demarcated polypoid mass that arises from the endometrium and protrudes through the cervical os, resembling a large endometrial polyp or submucosal leiomyoma. It is often difficult to make a pathological diagnosis of low grade adenosarcoma from a small histological specimen because the sarcomatous stroma may be very low grade, leading to misdiagnosis as a benign tumor such as adenofibroma or polyp. Thus, adenosarcoma is occasionally treated as benign polypoid disease with multiple episodes of recurrence.

On histological examination, the components of this tumor may include uterine elements (homologous) or elements not normally found in the uterus (heterologous). Homologous elements include endometrial stromal cells, smooth muscle cells, and
fibroblasts, whereas the heterologous elements are striated muscle, cartilage, osteoid, and fat. These tumors are typically homologous. Staging is the same as for endometrial stromal sarcoma. The usual treatment is total abdominal hysterectomy with bilateral salpingo-oophorectomy followed by postoperative adjuvant pelvic radiation therapy. The 5-year survival rate is only 10 to 25%.9

Few cases are reported with documented magnetic resonance (MR) imaging findings of uterine adenosarcoma.2–5 The table summarizes MR imaging findings in these cases and ours. Two patients received tamoxifen therapy.2,3 The first patient2 received 30 mg of tamoxifen daily for 7 years. MR imaging revealed a fibrous vessel-containing pedicle entering the mass, and the tumor demonstrated less enhancement than the myometrium. The second patient2 received 30 mg of tamoxifen daily for 50 months, and that tumor had features resembling those of endometrial polyps associated with tamoxifen treatment. These 2 patients were treated with different dosages of tamoxifen for different dura-

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**Table.** Comparison of past cases with ours

<table>
<thead>
<tr>
<th>Author</th>
<th>Soh2</th>
<th>Chourmouzi3</th>
<th>Lee4</th>
<th>Takeuchi5 Case 1</th>
<th>Takeuchi5 Case 2</th>
<th>Our case</th>
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<tbody>
<tr>
<td>Age (years)</td>
<td>56</td>
<td>52</td>
<td>69</td>
<td>52</td>
<td>51</td>
<td>74</td>
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<td>Mass size (cm)</td>
<td>$14 \times 8 \times 7$</td>
<td>$9.3 \times 7.9$</td>
<td>$9 \times 5 \times 4$</td>
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<td>occupied endometrial cavity</td>
<td>not described</td>
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<td>occupied endometrial cavity to the internal os</td>
<td>occupied endometrial cavity to the internal os</td>
<td>large polyp</td>
<td>to the vagina</td>
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<td>thin</td>
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<td>heterogeneous</td>
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<td>heterogeneous</td>
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<tr>
<td>Cystic part</td>
<td>multiple cystic areas</td>
<td>multiple cystic areas well defined</td>
<td>no cystic part</td>
<td>scattered tiny cystic areas</td>
<td>scattered tiny cystic areas</td>
<td>gathered small cystic areas</td>
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<td>Solid part signal intensity relative to myometrium</td>
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<td>homogeneous hyperintense</td>
<td>homogeneous hyperintense</td>
<td>homogeneous hyperintense</td>
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<tr>
<td>Solid part enhancement relative to myometrium</td>
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<td>Diffusion Weighted Image</td>
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<td>1.5</td>
<td>1.5</td>
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</table>

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tions. Both dosage and treatment duration may be related to the characteristics of uterine malignancies that occur.3

As the table shows, uterine adenosarcoma usually presents with marked enlargement of the uterus and a thin myometrium. The endometrial cavity is typically distended by a large polypoid mass that extends to the internal os. The mass has solid components with high signal intensity compared to the myometrium on both sequences, small cystic areas, and tumor enhancement similar to that of the myometrium after administration of gadolinium. An adenosarcoma with components of sarcomatous overgrowth might show myometrial invasion, but relatively low signal intensity on high b-value diffusion-weighted imaging suggests that the tumor is low grade.5,10

Correct histopathological diagnosis of adenosarcoma from a small specimen is often difficult because the sarcomatous stroma may be of very low grade, leading to misdiagnosis as benign disease like adenofibroma or polyp.6,7 As a result, adenosarcoma has occasionally been treated as benign polypoid disease with repeated recurrence.1,7,8 Therefore, gynecologists are advised to perform more aggressive sampling and evaluate the entire endometrial cavity in patients whose MR imaging findings match the pattern reported here.

In conclusion, uterine adenosarcoma usually presents as a markedly enlarged uterus with a thin myometrium occupied by a large polypoid mass that extends to the internal os. The tumor contains solid components with a high signal intensity compared to the myometrium on both sequences and small cystic areas. It demonstrates similar enhancement to the myometrium after administration of gadolinium.

References