Malignant Melanoma of the Vagina: CT and MR Findings

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Abstract

We report CT and MR findings in two cases of primary malignant melanoma of the vagina, one arising from cervicovaginal junction mimicking squamous cell carcinoma of the cervix and the other one recurring at vagina after resection. Two cases of malignant melanoma had high-attenuation on CT and high signal intensity on T1-weighted MR images and enhanced well after gadopentetate dimeglumine administration.

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The Vagina is an infrequent site of primary malignant neoplasm, and primary vaginal melanoma is rare, with approximately 150 cases being reported in the literature (1,2). Although the Computed tomography (CT) features of vaginal melanoma have been described (3), magnetic resonance (MR) findings have not been previously reported. We report CT and MR findings in two cases of malignant melanoma of the vagina, one arising from cervicovaginal junction mimicking squamous cell carcinoma of the cervix and the other are recurring at vagina after the resection of a vulvar melanoma.

CASE REPORTS

Case 1

A 65-year-old postmenopausal woman presented with a 4-month history of vaginal bleeding and dysuria. Gynecologic examination revealed a 3.5cm sized dark lesion in the uterine cervix.

CT of the pelvis showed an ovoid high-attenuation mass on the right side of uterine cervix (Fig. 1a). No pelvic or paraaortic lymph node involvement was seen. MR imaging was obtained with a 0.5-T superconducting scanner (Supertec 5000; Goldstar, Seoul) and spin-echo techniques. T1-weighted axial image revealed an ovoid mass at cervicovaginal junction with hypersignal intensity which was 42% higher than that of the gluteus muscle (Fig. 1b). The mass enhanced moderately following administration of gadopentetate dimeglumine (Gd). On T2-weighted image, the signal intensity of the mass was increased (Fig. 1c). Bilateral salpingo-oophorectomy and total hysterectomy were performed. There was a black ulcerofungating mass in the upper vagina extending into the uterine cervix (Fig. 1d). The pathologic diagnosis was malignant melanoma. The tumor involved full thickness of the anterior vaginal wall and extended into the
Fig. 1. A 65-year-old woman with a primary malignant melanoma of the vagina.
a. Contrast-enhanced CT scan shows an ovoid high-attenuation mass (arrow) on the right side of uterine cervix.
b. T1-weighted (500/30) axial MR image shows a high signal intensity mass (arrow) involving anterior vaginal wall and right anterior aspect of uterine cervix.
c. T2-weighted (2000/85) sagittal image shows an intermediate signal intensity mass (arrows) at upper vagina. A round low signal intensity mass (open arrows) at uterine body represents a uterine myoma.
d. On hysterectomy specimen, a black ulcerofungating mass is seen at upper vagina extending into the cervix. M=myoma.
cervix. Radiation therapy was performed after the surgery.

**Case 2.**

A 35-year-old nulliparous woman was admitted with one-month history of vaginal bleeding. She had vulvectomy due to malignant melanoma two years ago. Contrast-enhanced CT shows a large vaginal mass with peripheral high- and central low-attenuation (Fig. 2a). T1-weighted axial MR image showed a mass with intermediate signal intensity, which was 32% higher than that of gluteus muscle, and with focal high signal intensity areas (Fig. 2b). The mass occupied the whole vaginal canal. T2-weighted image showed a mass with increased signal intensity and contrast-enhanced T1-weighted image showed heterogeneous enhancement of the mass (Fig. 2c). With the apparent evidences of pelvic lymph nodes and urinary bladder invasion, chemotherapy was performed.

**DISCUSSION**

Malignant melanomas of the female genital tract account for 3% of all malignant melanomas, vulvar melanomas being the most common (1,2). Of these genital tract melanomas, only one-tenth are primary melanomas of the vagina, which represent only 2.5% of all vaginal malignancies (4). Our first case belongs to primary vaginal melanoma, but the second case is an example of vaginal recurrence of surgically removed vulvar melanoma.

Malignant melanoma of the vagina is mainly a disease of the postmenopausal woman, with 75% of patients being over 50 years of age (1). Recurrent vaginal bleeding or discharge of recent onset is the most common complaint. This symptom can be related to superficial ulceration of the mass. Melanoma may arise anywhere in the vagina, with a predilection of the lower third (1).
As far as histogenesis is concerned (5), the presence of malignant melanoma of the cervix or vagina may be accounted for by two facts: (1) the presence of melanin-containing cells in 3.5% of otherwise normal cervix. Their origin has been discussed and several theories proposed (epithelial, schwannian syncitium, neural crest migration); (2) the recognition of benign pigmented lesion at the cervix or vagina (benign melanosis, blue nevus, benign lentigo). Malignant melanoma could arise de novo, or by malignant transformation of a previously benign pigmented lesion.

For practical purposes, differential diagnosis from squamous cell carcinoma of the uterine cervix is one of the most important questions. On T1-weighted MR imaging, the masses in our two cases had increased signal intensities higher than pelvic muscles by 42% and 32%, respectively. On T1-weighted image, the signal intensity of the cervical mass was compared to that of the pelvic muscles in 10 patients with uterine cervical carcinoma. The signal intensity ratio was 110.0±10.3% (mean±standard deviation) (unpublished data).

MR characteristics of melanoma have been discussed in the context of metastatic intracranial melanoma and melanomas involving the eye (6). These studies demonstrated that for intracranial melanotic and uveal melanomas the predominant MR characteristics were hyperintensity on T1-weighted images and hypointensity on T2-weighted images. These findings were attributed to either the paramagnetism of stable free radicals occurring in melanin or the methemoglobin in hemorrhagic regions within the tumor. However, malignant melanomas may have different signal characteristics according to melanin concentration and stage of hemorrhage (7,8).

A malignant melanoma should be considered when a vaginal mass unusually high signal intensity on T1-weighted MR image.

REFERENCES


〈한글 요약〉 질에 생긴 원발성 악성흑색종의 CT와 MR소견

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저자들은 질에 생긴 원발성 악성흑색종 2예의 CT와 MR소견을 분석하였다. 1예는 질과 자궁경부의 경계부에서 생겨 자궁경부암과 혼동된 예이고, 다른 1예는 수술후 재발한 예이다. 2예 모두 CT에서는 고음영도의 질종과였으며 MR에서는 T1 강조영상에서 높은 신호강도를 보였고 조영증강이 잘 되었다.