CASE REPORT

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METASTATIC BREAST CANCER TO THE UTERINE CERVIX MIMICKING A GIANT CERVICAL LEIOMYOMA

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ABSTRACT

Metastasis to the uterine cervix is a complication of breast cancer that is not commonly known. Detection of cervical metastasis before the diagnosis of the primary tumor is even rarer. The present report describes a case of a 52-year-old woman who had a large cervical tumor appearing as a leiomyoma. She underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy. Histopathological examination of the cervical tumor showed patterns characteristic of invasive lobular carcinoma of the breast, leading to the discovery of the primary in the left breast. She subsequently underwent mastectomy, hormone therapy and chemotherapy, and is alive at 7-year follow-up.

Key Words: breast cancer, cervix, leiomyoma, metastasis

INTRODUCTION

Metastases to the female genital tract from extragenital primary cancers are uncommon. When they occur, the ovaries are most often affected, and the uterus, especially the uterine cervix, is rarely involved by metastatic tumors.[1)] In cases of metastatic involvement of the cervix, most present with abnormal vaginal bleeding or abnormal cervical cytology in the follow-up of known primary cancers. Here we report a case of metastasis of breast cancer to the cervix appearing as a large cervical leiomyoma which was diagnosed before the discovery of the primary tumor.

CASE REPORT

A 52-year-old woman, gravida 1, para 1, without significant past medical or family history, presented with a 2-week history of lower abdominal discomfort and pollakisuria. Her last period had been 6 months previously. Vaginal inspection revealed a fibroid-like lesion protruding into the vaginal cavity without abnormal bleeding. An ultrasound scan showed a solid large mass in the cervix measuring over 10 cm in diameter appearing as a leiomyoma. Magnetic resonance imaging revealed several tumors in the uterine corpus and cervix, suggestive of multiple leiomyomas (Fig.

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1A). A cervical smear was normal. Serum levels of CA125, CA19-9, LDH and estradiol were 30.1 U/ml, 5.5 U/ml, 182 IU/l, and 131 pg/ml, respectively.

A total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. The removed uterus weighed 940g. A bulging 11-cm mass in the cervix had a whitish appearance on

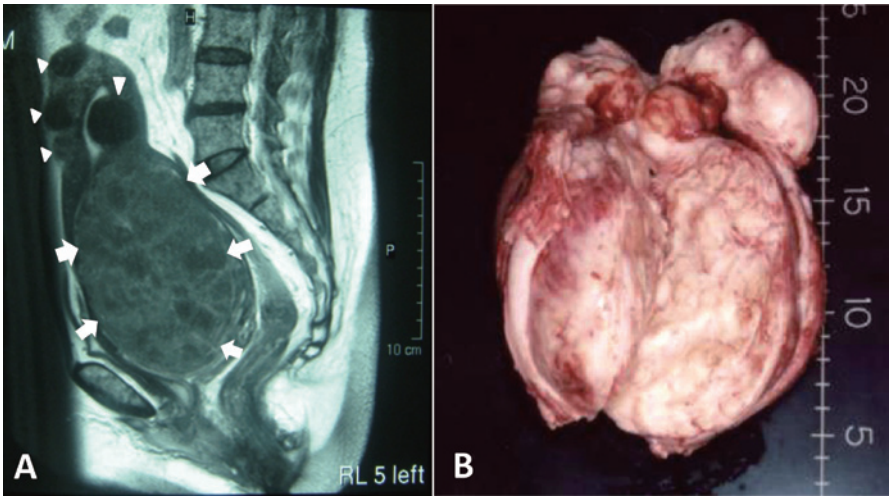

Fig. 1 Radiologic and gross aspects of the cervical tumor. (A) T2-weighted MRI shows a large mass with heterogeneous signal intensity in the cervix (arrows). Smaller masses are also present in the corpus (arrow heads). (B) Gross appearance of the resected uterus.

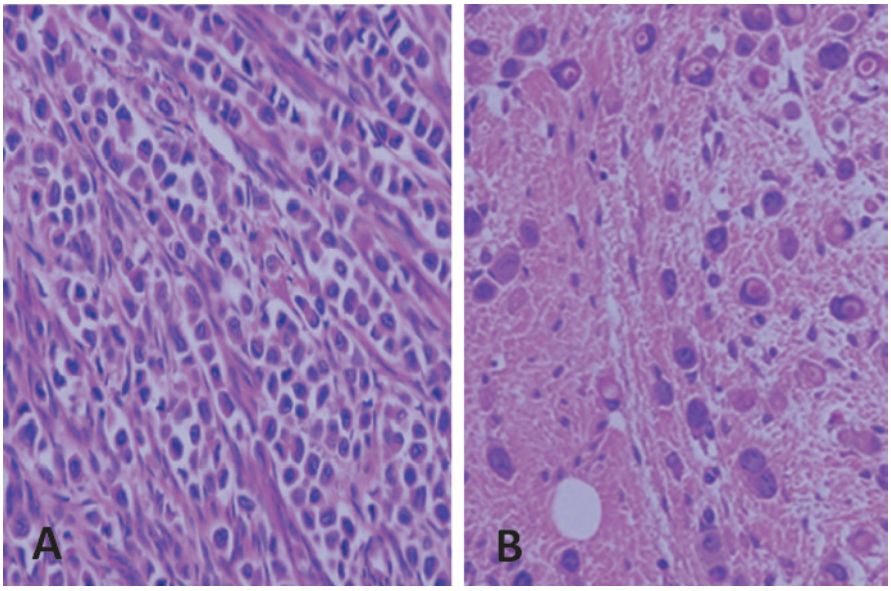

Fig. 2 (A) Histologic aspect of the cervical tumor showing "Indian-file" pattern of tumor cell infiltration (HE ×400). (B) Histology of the primary breast tumor with pleomorphic variant pattern of invasive lobular carcinoma (HE x400).

cut section and seemed to be a leiomyoma which was not unusual grossly (Fig. 1B). Unexpectedly, however, microscopic examination of the cervical tumor showed carcinoma cells displaying the linear, "Indian-file" arrangement characteristic of invasive lobular carcinoma (ILC) of the breast (Fig. 2A). Immunohistochemical staining of the tumor was positive for estrogen receptor and cytokeratin 903 (34 β E12), also suggestive of breast origin. Several microscopic foci of carcinoma cells were also observed in the stroma of the endometrium. The masses in the corpus were leiomyomas and free of carcinoma. The ovaries and tubes were normal as well. After the diagnosis of cervical metastasis of probable breast origin, mammography and ultrasound detected a 5-cm lesion in the left breast. Fine-needle aspiration confirmed the diagnosis of invasive lobular carcinoma. Computed tomography and isotopic bone scanning revealed no evidence of other metastases. A left modified radical mastectomy with axillary lymph node dissection was performed (the histologic appearance of the tumor is shown in Fig. 2B). All 13 lymph nodes resected were involved with tumor. Estrogen and progesterone receptors were positive while epidermal growth factor receptor 2 (HER2/neu) was negative. Postoperative adjuvant therapy was anastrozole for 3.5 years, which was changed to S-1 (an oral fluoropyrimidine derivative composed of tegafur, 5-chloro-2,4-dihydroxypyridine and oteracil potassium) due to the rise in serum CA15-3 levels. Seven years after laparotomy, the patient remains alive and well with elevated CA15-3 levels.

DISCUSSION

Although adenocarcinoma of the cervix as direct spread of an adenocarcinoma of the endometrium is not unusual, metastasis to the cervix from extragenital sites is a rare occurrence. Mazur *et al.* reported that, among 149 metastatic tumors to the female genital tract from extragenital primaries, the ovary and vagina were the most frequent locations of metastases (75.8% and 13.4%, respectively), and only 8.1% were to the uterus (4.7% to the endometrium, 3.4% to the cervix).[1] Breast was the second most common primary site next to gastrointestinal tumors; of 52 breast cancer cases metastatic to the gynecologic organs, ovaries were affected in 88.5% cases, vagina in 5.8%, endometrium in 3.8%, vulva in 1.9% and no case to the cervix.[1] Limoine and Hall found 33 cases of distant metastasis to the cervix, four of which (12.1%) were from a breast primary.[2]

Breast cancer includes a number of histological subtypes of which the two most common are invasive ductal carcinoma (IDC) and ILC. More than seventy percent of all breast cancers are IDCs while ILC represents 5–15%.[3] With respect to metastasis, ILC spreads more frequently to gynecologic organs than IDC.[4,5,6] ILC is often a poorly circumscribed tumor, which can be difficult to detect by palpation[7] or by mammography.[8] This feature may lead to a delay in diagnosis, as is the case in the present patient. In fact, she had taken a mammography showing no abnormality three years previously, and she was unaware of any breast masses at the time of presentation.

To date, approximately 35 cases of breast cancer metastases to the cervix have been reported and, in the majority of the cases, the primary tumor was diagnosed before the discovery of the metastasis. A review of the English literature disclosed only seven cases in which the presenting symptoms due to metastatic cervical tumor precede diagnosis of the primary tumor in the breast (summarized in Table 1).[2,9-13] At presentation, the previously reported cases seemed to be advanced primary cervical cancer, which contrasts with the present case in that the initial diagnosis was a cervical leiomyoma. Presence of multiple fibroids in the corpus, serum CA125 and LDH levels within normal limits,[14,15] and serum estradiol level in premenopausal state favored that diagnosis rather than a malignant tumor. This case highlights the difficulty and the importance

Table 1 Reported Cases of Breast Cancer with Synchronous Metastasis to the Uterine Cervix

Reference	Patient no.	Age (yr)	Clinical presentation	Pap	Initial impression	Primary histology	Treatment	Survival
Song (1963)	1	45	AVB	(+)	cervical cancer	ductal	radiation (pelvis, breast)	AAR (6 months)
	2	49	AVB	(-)	cervical cancer	ductal	none	AAR (4 months)
Lemoine (1986)	3	39	AVB	NP	cervical cancer	ductal	NM	6 months
Fiorella (1992)	4	54	AVB	(+)	endometrial cancer	signet ring cell	none	6 months
Hepp (1999)	5	55	abdominal pain	NP	cervical tumor	lobular	mastectomy chemotherapy loop excision of cervical tumor	NM
Bogliolo (2010)	6	78	none	(-)	cervical cancer	lobular	quadrantectomy radiation (breast) chemotherapy	AAR (2.5 years)
D'souza (2010)	7	44	AVB	(+)	cervical cancer	lobular	NM	NM
Current	8	52	abdominal discomfort	(-)	leiomyoma	lobular	hysterectomy mastectomy chemotherapy	AAR (7 years)

AVB: abnormal vaginal bleeding; Pap: pap smear; NP: not performed; NM: not mentioned; AAR: alive at time of report

to consider a metastatic tumor in the differential diagnosis of a cervical mass without abnormal vaginal bleeding or abnormal cervical cytology in women of perimenopausal ages.

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