

# Endometrial metastasis from signet-ring breast carcinoma: case report

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## Summary

Breast cancer rarely metastasizes to the endometrium. The signet-ring variety of breast cancer is very rare and has been reported to metastasize to the endometrium in only three previous reports. We present a patient with signet-ring breast carcinoma with metastasis to the endometrium. The patient presented with vaginal bleeding and was found to have wide spread metastasis. Endometrial metastasis in patients with signet-ring breast cancer usually denotes a poor prognosis.

**Key words:** Signet ring breast cancer; Endometrial metastasis.

## Introduction

The uterine corpus and cervix are usually involved by direct extension of pelvic or extra genital neoplasia [1]. Vaginal bleeding is often the chief complaint [1]. Metastasis to the female genital tract occurs from cancers that arise in various anatomic sites [2]. The ovary is the most common metastatic site followed by the vagina, cervix, uterine corpus and fallopian tubes [2]. Among extra genital cancers metastasizing to the uterus, the breast is the most common primary site [3]. Lobular carcinoma is the most common type of breast carcinoma that metastasizes to the uterus [4]. Among breast carcinomas, the signet-ring cell variant is rare and is generally associated with a poor prognosis. Only three previous patients with signet-ring cell breast carcinoma metastatic to the uterus and cervix have been reported [1, 5]. The purpose of this paper is to present a case of a patient with signet-ring breast cancer who presented with anemia, thrombocytopenia and vaginal spotting. Evaluation revealed bone marrow and endometrial metastasis. Her course and prognosis are discussed.

## Case report

Mrs. FM is a 60-year-old female, gravida 5, para 5, who presented in July 1998 with a right breast mass. Fine needle aspirate showed adenocarcinoma. Metastatic workups at that time including chest X-ray, ultrasound of the abdomen and bone scan were negative. She underwent right modified radical mastectomy and pathology revealed *infiltrating lobular carcinoma* in two different foci of the breast. In addition, several areas revealed signet-ring cell pattern (Figure 1). The surgical margins, vascular compartment, and skin and nipple were negative for tumor invasion. There were 20 out of 22 axillary lymph nodes involved by tumor with extra nodal invasion. Estrogen receptors

were positive while progesterone receptors were negative. The patient was treated with six cycles of (FAC) chemotherapy (5-fluorouracil, adriamycin and cyclophosphamide) followed by locoregional radiotherapy, and was maintained on tamoxifen. In February 2001, she presented with thrombocytopenia and anemia and she also complained of vaginal spotting. Bone marrow aspirate revealed metastatic adenocarcinoma. Pelvic examination revealed an enlarged uterus. CT scan of the abdomen and pelvis revealed a large pelvic mass arising from the uterus compressing the bladder. Chest X-ray showed a small left pleural effusion while bone scans and CT scan of the brain and left mammogram were unremarkable. Endometrial biopsy revealed adenocarcinoma with signet-ring cell compatible with a breast primary origin (Figure 2). The patient was started on chemotherapy with docetaxel followed by second-line hormonal therapy with letrozol and she is still in remission.

## Discussion

The most common metastatic sites from a breast cancer are the lungs, liver, and bone. Other less common sites

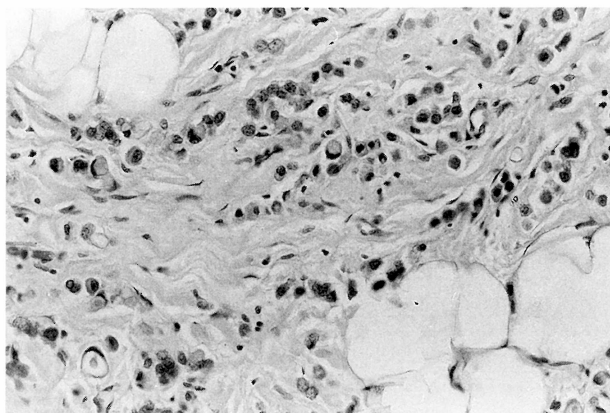


Figure 1. — High power view showing signet-ring breast cancer.

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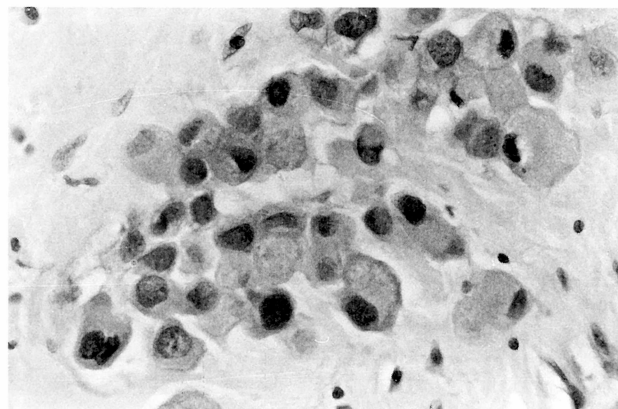


Figure 2. — High power view showing signet-ring breast cancer metastatic to the endometrium.

include the skin and brain [1]. The signet-ring cell variant of breast cancer is considered an aggressive disease with tendency for early metastases at the time of diagnosis [1]. Metastasis to the uterus from breast carcinoma occurs in 2-15% of patients with metastatic disease [1, 2]. The incidence may be falsely low due to inadequate sampling of these organs at autopsy [1]. Isolated endometrial metastases in the absence of myometrial involvement are uncommon [2]. The incidence of myometrial involvement is much more than endometrial involvement (93 versus 4%, respectively) [1, 2]. Signet-ring cell carcinoma of the breast is a rare variant representing only 2% of all breast carcinomas [7]. Kumar *et al.* reviewed 64 patients with metastatic cancer to the uterus. Breast carcinoma was the most common primary (47.3% of cases) [8]. Our patient had vaginal spotting, however, it is important to properly investigate patients with breast cancers who present with abnormal bleeding or an enlarged uterus, especially those on tamoxifen therapy, to exclude primary uterine carcinoma secondary to tamoxifen [9]. In the other three previously reported patients with similar metastasis, vaginal bleeding/spotting was a

common symptom. Moreover, they all had disseminated metastasis at the time of diagnosis of endometrial metastasis. Women with breast cancer can develop an isolated uterine metastasis or a second uterine primary [2, 10]. Routine pelvic examination as well as a vaginal ultrasonography should be part of the initial evaluation and the follow-up visits for all women with breast cancer [1].

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