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Case Report

Intramuscular Metastasis in Carcinoma of the Cervix: Atypical Site of Clinical Presentation

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Abstract

Cervical carcinoma is the second most common malignancy among Indian women. It spreads mainly through the regional lymphatics to nodes in the pelvic and para-aortic regions. If distant metastasis occurs, it is typically in the lung, bone, and liver. Melanoma, renal, lung, thyroid, lymphoma, and leukemia malignancies frequently metastasize to muscles. Subcutaneous and intramuscular metastasis from carcinoma of the cervix is a rare manifestation. The reported incidence for subcutaneous metastasis ranges from 0.1% to 2%, and only 19 cases of intramuscular deposits have been reported. Here, we discuss the occurrence of subcutaneous and intramuscular metastatic lesions in a patient with carcinoma of the cervix.

Keywords: Carcinoma of the cervix, intramuscular, metastasis, palliation, subcutaneous

Introduction

The incidence of carcinoma of the uterine cervix is 9.4% in India annually.[1] Main regional spread is via the lymphatics to pelvic nodes, and the common sites of distant metastasis are lungs, bone, and liver. Cutaneous and intramuscular metastases are exceedingly rare in cervix malignancy,[2,3] and only 19 cases of intramuscular deposits with carcinoma of the cervix have been reported to date. These patients are staged as FIGO IVB and carry a poor prognosis. Data concerning the therapeutic management, as well as the prognostic significance, are limited. Here, we report subcutaneous and intramuscular deposits in a patient with carcinoma of the cervix.

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Case Report

A 51-year-old female presented to our radiation oncology outpatient department with complaints of bleeding per vaginum associated with foul smelling discharge and dull aching lower abdominal pain. Her Zubrod score was 1, and on clinical examination, a 3 cm × 4 cm ulceroproliferative growth was identified involving both lips of the cervix, all fornices, and the upper one-third of the vagina. The left parametrium was involved until the medial one third. Contrast-enhanced

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computed tomography (CECT) of the abdomen and pelvis revealed a 5 cm × 3.6 cm heterogeneous lesion in the cervix, with ill-defined fat planes along the posterior wall and base of the urinary bladder anteriorly, anterior wall of the rectum posteriorly, and moderate surrounding pelvic fat stranding. However, proctoscopy revealed a normal mucosa and cystoscopy showed only a posterior bulge in the bladder with normal mucosa.

A biopsy of the cervical lesion showed squamous cell carcinoma. X-ray chest was normal. She was initially staged as FIGO IIB and was planned for radical concurrent chemoradiation, after she provided informed consent. However, during treatment, she developed complaints of severe pain in the right gluteal region and a limp on walking due to pain. A bone scan showed multiple skeletal metastases in the left first and fourth ribs, T4, T8, T9, right acetabulum, and right ischial bone. She was restaged as FIGO IVB. Her radical treatment was abandoned, and in view of the severe pain, and she received 20 Gy/5# palliative radiotherapy to the painful bony lesions along with bisphosphonates. Her pain gradually improved. Due to COVID lockdown, she was lost to further follow-up.

Three months later, she reported back with similar symptoms, and local disease progression was noted on clinical per vaginum examination. CECT of the thorax and abdomen and bone scan showed metastases in the anterior aspect of the left first and fourth ribs, thoracic T4, T8, and T9 vertebrae, and right acetabulum. She was given 8 Gy/single fraction palliative radiotherapy to the bone metastases which provided symptomatic pain relief. She also received three cycles of taxane and platinum-based palliative chemotherapy. After completing three cycles of chemotherapy, swelling was noted in her right arm. On examination, hard mobile and nontender nodules were palpable in the right posterior axillary fold and right upper arm [Figure 1]. On local examination, a 4 cm × 4 cm ulceroproliferative growth was identified involving both lips of the cervix, all fornices, and the upper one third of the vagina. The parametrium was involved bilaterally.

Figure 1: Nodule in the right posterior axillary fold

A positron emission tomography CT (PET-CT) scan showed a soft tissue lesion in the cervix, active mediastinal, abdominopelvic, left inguinal lymph nodes, bilateral lung nodules, liver, splenic, skeletal lesions, and intramuscular and subcutaneous deposits in the right gluteal region [Figure 2]. Fine needle aspiration cytology (FNAC) was done of the right posterior axillary fold nodule, which showed metastatic deposits of squamous cell carcinoma [Figure 3].

Second-line gemcitabine-based monotherapy was then planned. In addition, in view of the progression of skeletal metastases, she was considered for palliative radiation, pain medication, and supportive care.

Discussion

We report the case of a female with metastatic carcinoma of the cervix with intramuscular and subcutaneous deposits, an atypical clinical presentation of metastasis. The reason for the rarity of metastasis to skeletal muscles in carcinoma of the cervix is unclear, but various hypotheses have been postulated, as follows: (1) perpetual intramuscular blood pressure fluctuations and skeletal muscle contractions provide a mechanical barrier against tumor cell implantation; (2) lactic acid production in skeletal muscles prevents tumor cell proliferation; (3) the presence of protease inhibitors in myocyte basement membrane prevents tumor cell invasion; and (4) natural killer cells and lymphocytes present in skeletal muscles eradicate tumor cells.[3]

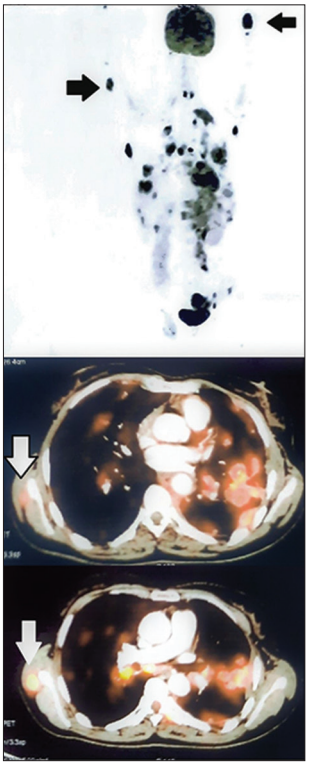
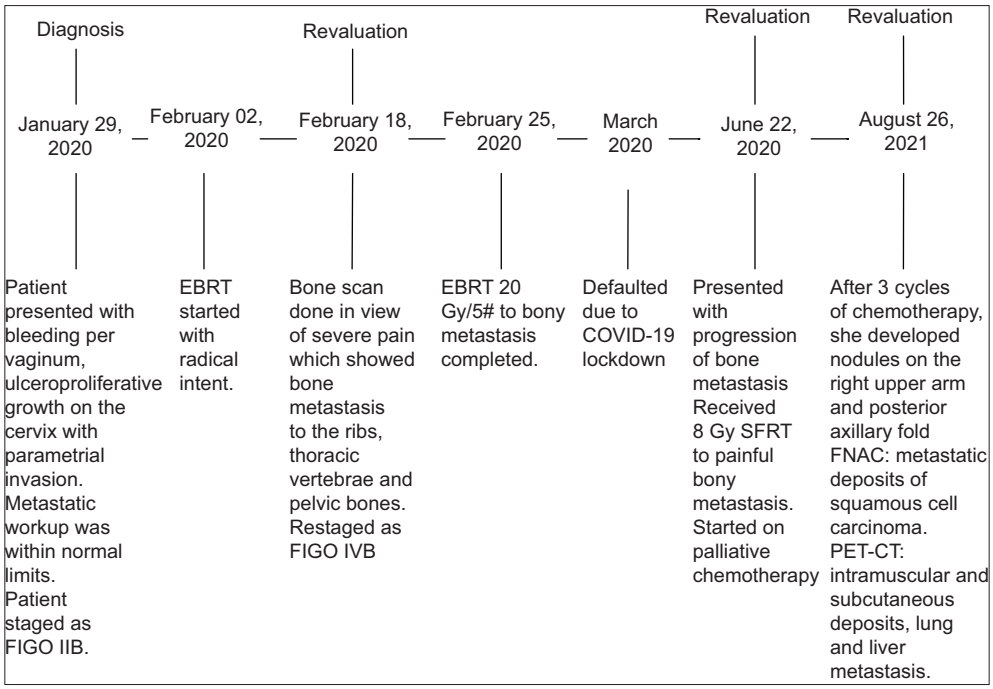


Figure 2: Positron emission tomography computed tomography scan showing disseminated disease

Treatment course



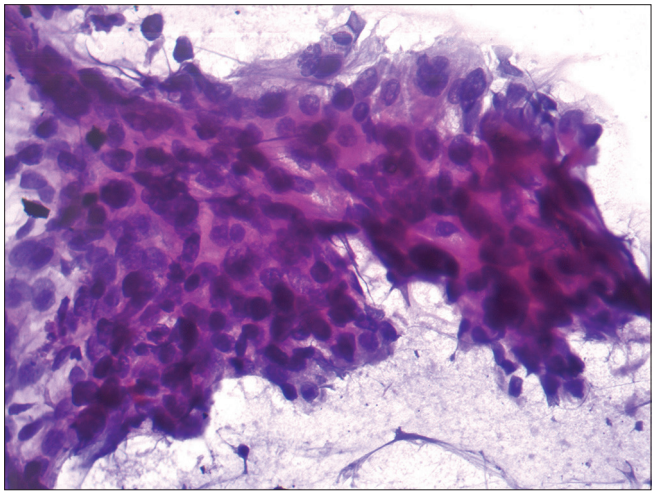


Figure 3: Fine needle aspiration from posterior axillary fold nodule showed squamous cell carcinoma

In an exhaustive literature search, only 19 cases of skeletal muscle metastases as recurrence sites in patients with carcinoma of the cervix were found, indicating the rarity of this condition.[3] The muscles of the abdominal wall, iliopsoas, and paravertebral muscles were most commonly affected in these cases, while our patient had deposits in the upper arm.[4] Notably, 11 of the 19 patients (57.8%) with metastases to skeletal muscles had isolated disease, showing that involvement of skeletal muscles by a recurrent tumor might not indicate systemic disease.[3] Interestingly, skeletal muscle was a site of disease progression in our patient.

Imaging modalities such as [^{18}F] fluoro-2-deoxy-2-glucose PET/CT, CECT, and contrast-enhanced magnetic resonance imaging are useful in detecting skeletal muscle tumors; however, they cannot differentiate between soft tissue sarcomas and metastatic deposits to skeletal muscles. Thus, any suspected metastasis should be confirmed with FNAC or fine needle aspiration biopsy.

Patients with metastasis to skeletal muscles generally have a grave clinical outcome.[3] The most common sites of cutaneous metastasis are reported to be the lower abdominal wall and lower extremities.[5] A review of 1190 patients revealed that the incidence of skin metastasis in Stage 1 was 0.8%, 1.2% in both Stage 2 and 3, and 4.8% in Stage 4.[6] The incidence of cutaneous metastasis was observed more in adenocarcinoma histology and poorly differentiated varieties compared to squamous cell carcinomas.[6] It is almost considered to be a preterminal event, with the time from the diagnosis to death being around 3 months.[7]

Skeletal and subcutaneous metastasis is rare in carcinoma of the cervix, and it is associated with poor clinical outcomes. The disease behavior and progression are also dissimilar to carcinoma of the cervix. This entity should be studied further for a better understanding of its approach and management.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her

consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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