

Humeral Metastasis from Cervical Cancer: A Rare Case Report

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Abstract

Long bone metastasis in cervical cancer is a rare presentation generally seen in the lumbar column or ribs. The reported rates of bone metastases are between 15%-29%. It is associated with poor prognosis. Bone scan and magnetic resonance imaging are useful techniques for diagnosis. In this case report, a 32-year old female with a previous history of cervical carcinoma FIGO stage IIIA presented with severe pain and swelling in her right humerus. X-ray and magnetic resonance imaging findings were non-conclusive and suggestive of a lytic lesion. She was diagnosed with metastatic cervical cancer according to fine needle aspiration cytology. Fine needle aspiration cytology is considered an important means to confirm clinical suspicion of local recurrence or metastasis of a known cancer without subjecting the patient to further surgical intervention. Suspicious bone lesions, especially in the patient with a past history of cancer should be promptly investigated as they can represent evidence of advanced malignant disease, thereby leading to early therapeutic intervention and decreased morbidity in such patients.

Keywords: Cervical cancer, Metastasis, Humeral, FNAC

Introduction

Cervical cancer is the third most common cancer affecting women worldwide, the most common cancer in women in several less developed countries, and now the second most common cancer in India. Almost 70% of the global burden of cervical cancer is in areas with lower levels of development, and more than one fifth of all new cases are diagnosed in India.¹ Patients with cervical cancer

are at risk of developing pelvic recurrence, distant metastasis, or a combination of both. In patients who develop distant metastasis, the most frequently observed metastatic sites are the lungs, para-aortic lymph nodes, the abdominal cavity, and supraclavicular nodes. Bone metastases in patients with cervical cancer are relatively rare but have a significant clinical impact. The reported rates of bone metastases are

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between 15%-29%.² Bone metastases tend to predominantly involve the lumbar spine and pelvic bones. There are only a few case reports of isolated long bone metastasis from cervical cancer in the literature. To our knowledge, this is first case of uterine cervix cancer with isolated metastasis to the humerus in India. Another such case has been reported in Iran by Malek et al in 2012.³

Case report

Approximately four years previous, a 32-year-old female presented with menorrhagia and a mass in her cervical region. She was diagnosed with squamous cell carcinoma of the cervix on biopsy (Figure 1). The patient was staged as FIGO stage IIIA. She completed a carboplatin and 5-FU regimen and radiotherapy sessions two and half years ago. Currently, she presented with severe pain and swelling in her right humerus since two months previous. There was no history of trauma. An X-ray was performed which revealed a lytic lesion that measured 4.5×3 cm in the upper one-third of the right humeral shaft (Figure 2). An orthopedic opinion was sought and the patient was clinically suspected of having osteomyelitis. She was treated with antibiotics but there was no relief in her problem.

In order to exclude the presence of breast and lung cancers, she underwent a mammography and thoracic computerized tomography (CT scan). Both were within normal limits. An ultrasound showed a large hypoechoic collection (4.5×2.5 cm) seen in the muscle plane at the site of swelling in the upper right arm. She was radiologically diagnosed as having a muscle hematoma. A three phase bone scan was performed which showed evidence of bone discontinuity with increased tracer uptake along bony ends that involved the proximal shaft of the right humerus, suggestive of metastasis (Figure 3).

To confirm the diagnosis, she underwent fine needle aspiration cytology (FNAC) of the swollen area. The smears examined revealed large numbers of atypical cells with basophilic cytoplasm, hyperchromatic nucleus with moderate pleomorphism, condensed chromatin and

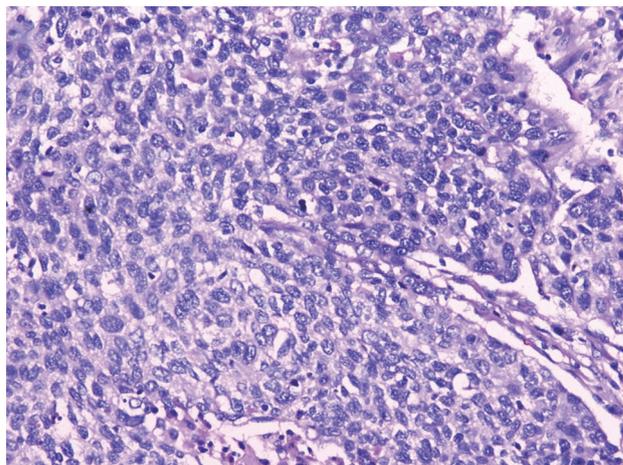


Figure 1. Microsection showing poorly differentiated squamous cells with mild-to-moderate cytoplasm, round nucleus, opened up chromatin and prominent nucleoli. Mitotic figures >10/hpf. (H&E, 200×).

prominent nucleoli in some of the cells against a necrotic background (Figure 4). A diagnosis of metastatic squamous cell carcinoma was made. In view of her past history of cervical cancer FIGO stage IIIA, the cervical carcinoma was suspected



Figure 2. X-ray showing lytic lesion that measured 4.5×3 cm in the upper one-third of the right humeral shaft.

to be the primary.

She was offered the option of salvage chemotherapy, which she refused.

Results

Fine needle aspiration cytology is considered an important means to confirm a clinical suspicion of local recurrence or metastasis of a known cancer without subjecting the patient to further surgical intervention.

Discussion

Matsuyama et al. reported that the rates of bone recurrence among 713 patients were 4.0% in stage I, 6.6% in stage II, 8.0% in stage III, and 22.9% in stage IV cases. In 32 (67%) patients bone lesions were detected within one year after completion of the initial treatment and 36 (75%) patients died within one year after detection of the metastasis.⁴

Several patterns of bone metastasis have been observed: (i) direct extension into the bone from the parametrial extensions of the primary or recurrent pelvic tumor, (ii) direct extension into the bone from the parenchymal metastasis to distant lymph nodes or lungs, (iii) regional hematogenous metastasis compatible with Batson's venous plexus distribution, and (iv) systemic hematogenous metastasis to distant bones.⁵

The vertebral bodies are the most common site of osseous metastasis, followed by the pelvis, ribs, and extremities. Bone metastasis in squamous cell carcinoma of the cervix may occur by lymphogenous or hematogenous spread, or by direct extension from adjacent lymph nodes.² Blythe et al. have found that the most common mechanism of bone involvement was by direct extension of the neoplasm from the para-aortic nodes into adjacent vertebral bodies.⁶ In contrast, metastasis to distant long bones and the calvarium is presumed to be hematogenous.⁷ The most common presenting symptom in bone metastasis is pain.

Investigations for suspected bone metastasis include X-ray, CT and whole-body scintigraphy (bone scan). Both magnetic resonance imaging

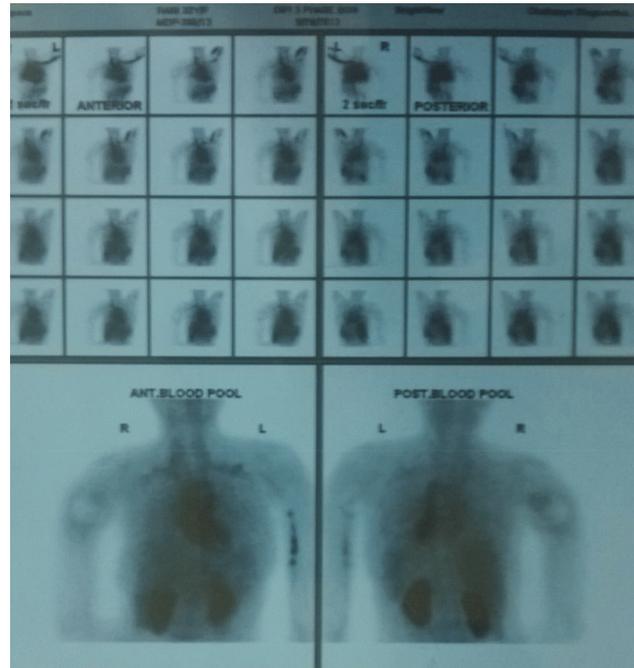


Figure 3. A three phase bone scan that showed bone discontinuity with increased tracer uptake along bony ends that involved the proximal shaft of the right humerus.

(MRI) and positron emission tomography (PET) are considered to have high sensitivity for detecting bone marrow or osteolytic bone metastasis.⁵ In view of the rare occurrence of bone metastasis, there are no specific guidelines for therapeutic interventions which can include radiotherapy, chemotherapy, and surgery according to the clinical setting. Indeed, the real benefit of these approaches remains questionable because of the very poor prognosis of these patients.⁸ Surgical

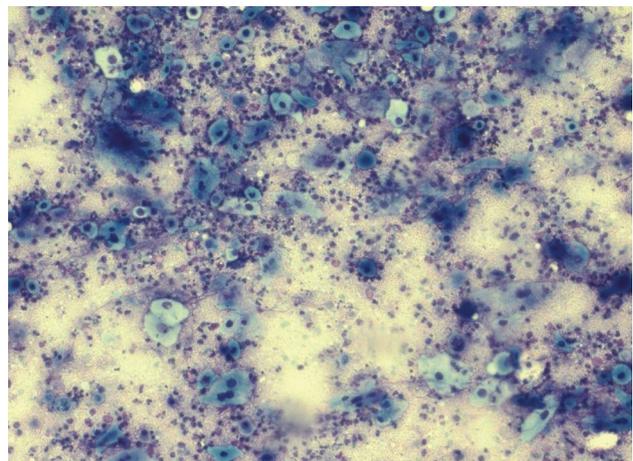


Figure 4. Smear that revealed large numbers of atypical cells with basophilic cytoplasm, hyperchromatic nucleus with moderate pleomorphism, condensed chromatin and prominent nucleoli in some of the cells against a necrotic background (Leishman, 200 \times).

management of bone metastasis is contemplated in cases of isolated and relatively localized disease, with the patient having a good general condition as in the current case. This is usually followed by palliative radiotherapy for control of pain and other local symptoms.⁹

Bone pain responds to external beam radiotherapy in 60%-70% of cases. Response can take 4-6 weeks; therefore it is important to assess the patient's prognosis before arranging radiotherapy. A number of randomized controlled trials have reviewed the most appropriate dose and on the basis of these the current recommendation of uncomplicated bone pain is a single 8 Gy fraction.¹⁰

Suspicious bone lesions, particularly in patients with past histories of cancer should be promptly investigated as they can represent evidence for advanced malignant disease thereby leading to early therapeutic intervention and decreased morbidity in such patients.

Conflict of Interest

No conflict of interest is declared.

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