

## Bone Metastases From Cervical Cancer: A Case Report and Review of the literature

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### ABSTRACT

Bone metastases from cervical cancer are rarely seen, their frequency is rarely observed, their frequency is estimated to average 3-4% of bone metastases. The most common locations of these metastases are in the spine and pelvis. We report the observation of a 51-year-old patient treated in 2015 for stage IIIa cervical cancer with chemo-radiotherapy combination. Six years later, she was admitted for low back pain. A thoracoabdominopelvic CT scan was performed objectifying a lytic tissue mass of the vertebral body and posterior arch of 3rd lumbar vertebra with endocanal extension. The patient underwent a bone biopsy, the histological study of which confirmed the epidermoid nature of a carcinomatous proliferation of cervico-uterine origin given the context. The originality of this observation lies in the bone location of these metastases and the interest of the CT scan in the diagnosis, as well as in the delay between the complete remission and the appearance of the bone lesion. The occurrence of bone metastases during cervical cancer has a very poor prognosis.

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### Introduction

Cervical cancer accounts for 10% of all cancers diagnosed in women worldwide (1). Patients with this cancer are at risk of developing pelvic recurrence, distant metastasis, or a combination of both. The risk of recurrence is higher in patients with more advanced disease at presentation and the majority of recurrences occur within 2 years of diagnosis (2). Control of the primary tumour is thought to be associated with a lower incidence of distant metastasis (3). In patients who develop distant metastasis, the most frequently observed metastatic sites are lung, para-aortic nodes, the abdominal cavity, and supraclavicular nodes. Bone metastasis in patients with cervical cancer are relatively rare, but have a significant clinical impact. The reported rates of bone metastasis vary and have been reported between 1.9-16% (4). Bone metastases tend to predominantly involve the lumbar spine and pelvic bones.

We report a rare case of a patient treated 5 years ago for cervical cancer, who currently presents an isolated lumbar bone metastasis.

### Case Report

The case of a 51-year-old woman treated in 2015 for FIGO stage IIIA squamous cell carcinoma of the cervix, who subsequently developed an isolated bone metastasis in her third lumbar vertebra.

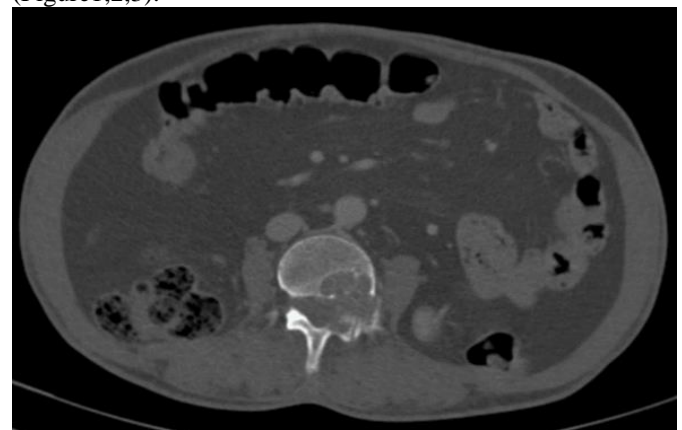
The patient initially presented with menometrorrhagia, in whom vaginal examination revealed a large cervical tumor and whose hysteroscopy with biopsy confirmed a squamous cell carcinoma of the uterine cervix. A pelvic MRI was performed as part of the extension workup, which came back in favor of a cervical-isthmic tumor process extended to the lower third of the vagina classified FIGO IIIA.

The patient was treated radically with combination chemoradiation.

The patient tolerated treatment well and follow-up imaging showed a good response to treatment with complete remission.

Six years after the end of the treatment, the patient presented with low back pain that was resistant to analgesic treatment and had been evolving for one month. The biological workup found an inflammatory syndrome (ESR: 65 mm) with a normal corrected calcium level.

A thoracic-abdominal-pelvic CT scan was performed, which revealed a lytic tissue mass of the vertebral body and the posterior arch of the third lumbar vertebra, responsible for an enlargement of the left foramen with endocanal extension (Figure 1,2,3).



**Figure 1.** CT scan in bone window in axial section showing a lytic mass of the vertebral body and the posterior arch of the 3rd lumbar vertebra breaking the cortical bone and enlarging the foramen with endocanal extension

A whole-body bone scan revealed intense uptake of the third lumbar vertebra but no other sites of disease.

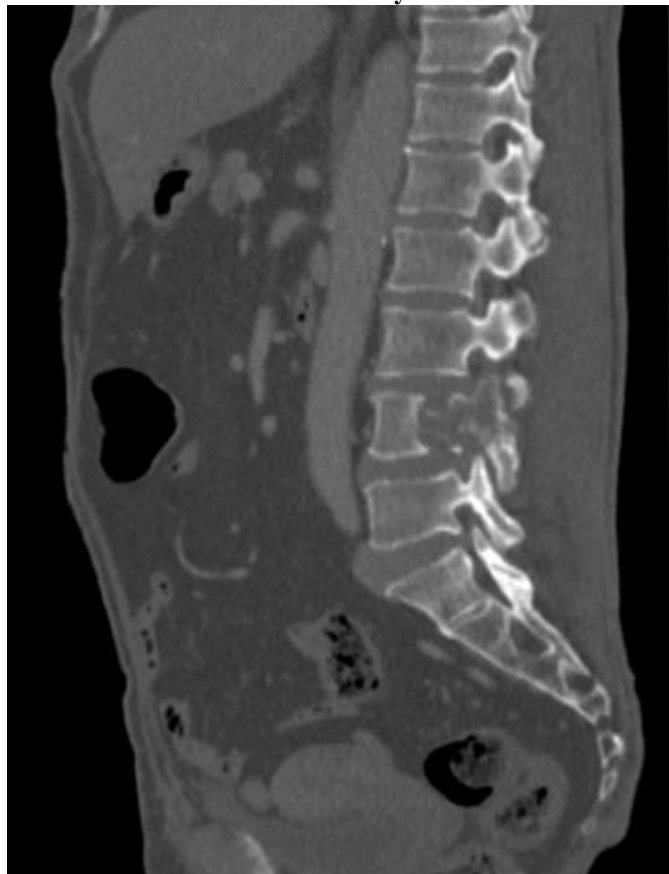
Histologic confirmation of bone metastasis was obtained by surgical biopsy of the lumbar vertebra.

The patient underwent palliative radiotherapy which reduced the pain by more than 50%.

The evolution was marked by the rapid occurrence of pulmonary metastasis.



**Figure 2. CT scan in parenchymal window in axial section showing a lytic tissue mass of the vertebral body and the posterior arch of the 3rd lumbar vertebra extending intracranially**



**Figure 3. Bone window CT scan in sagittal section showing a lytic tissue mass of the vertebral body and the posterior arch of the 3rd lumbar vertebra**

## Discussion

The incidence of bone metastases from cervical cancer varies from 0.87% to 6.6% according to different studies (5). This incidence may be as high as 16%, if autopsy results are consulted according to Sreejith (6).

This is an unusual, late stage disease, associated with a very advanced stage of malignancy and is a poor prognostic element (7).

These metastases occur mainly in the lumbar spine (54%) and pelvis (25%) (5). In our case, the location is lumbar.

Bone metastases from cervical cancer are often associated with other secondary lymph node localizations, hepatic, and especially pulmonary (8) testifying to their late onset during the course of this cancer. The occurrence of an isolated bone metastasis is rare, as was the case in our patient with an isolated lumbar metastasis. The time to appearance of this bone localization is variable, it is one year in 75% according to Matsuyama and 3 years in more than 50% according to Yu. In our case the time was 6 years.

The mechanism of occurrence of these metastases is variable according to their sites, they can result from an extension by contiguity either of the primary tumor leading to a direct invasion of the bone, explaining the localizations at the level of the pelvis, or from a metastatic paravertebral lymph node, which may explain the location in the lumbar spine, similarly a pulmonary metastasis can lead to costal or sternal involvement. Dissemination via the venous route may explain spinal metastases unrelated to local extension, while extension via the arterial route may explain metastases to the long bones, scapula and skull (9). Concerning our case, the localization at the level of the 3th lumbar vertebra, suggests a mechanism of dissemination by venous route.

Investigations for suspected bone metastasis include Xray, CT, whole-body scintigraphy (bone scan), MRI and 18fluorodeoxy glucose positron emission tomography (PET) in combination with CT (PET/CT).

The radiological appearance of cancer bone metastases of the cervix is often osteolytic, a condensing aspect is exceptional (9). In our case, the scanner objectified a lytic tissue mass of the vertebral body and the posterior arch of the 3rd lumbar vertebra which breaks the cortex and extends intracanal.

MRI is considered to have high sensitivity for detecting bone marrow or osteolytic bone metastasis (10), showing a signal anomaly, in hyposignal T1, hypersignal STIR, restricting the diffusion, with a variable enhancement after injection of Gadolinium.

The prognosis of these metastases is very poor, it is noted 75% death at one year according to Matsuyama (11), and 87% according to Yu (12). There are no definitive recommendations for the treatment of bone metastases from cervical cancer. Treatment decisions should be based on the performance status of the patient, the site of recurrence and/or metastases, the extent of metastatic disease, and prior treatment. Local treatment with external beam radiotherapy to sites of symptomatic involvement in patients with metastatic disease has an important role to play in pain control. Bone pain responds to external beam radiotherapy in 60-70% of cases (13). Response can take 4-6 weeks, therefore it is important to assess patients' prognosis before arranging radiotherapy. The current recommendation of uncomplicated bone pain is a single 8 Gy fraction (14). Patients should be referred to community palliative care teams if pain is an ongoing issue.

The role of chemotherapy is poorly defined (12). According to Matsuyama and Sreejith it is based on radiotherapy followed by chemotherapy (8).

### Conclusion

Bone metastases can be found at all stages. Common sites are the bone beyond the radiation field of their primary treatment. Bone metastasis was found at a median of 16 months after cervical cancer diagnosis; therefore, bone metastasis surveillance after 12 months using imaging, in particular CT scans, should be performed especially in patients who are at FIGO stage IIB or greater, or those who had received primary treatment by radiation therapy alone and who were experiencing intractable pain. Currently, there are many varieties of treatment that result only in palliation. This group of patients has poor prognoses and short survival of only about 7 months after clinical manifestation of bone metastasis.

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