

Male Breast Cancer with Skeletal Metastasis: A Case Report and Review of Literature

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Abstract

While it is the most common malignancy in women, breast cancer is rare in men and thus often ignored or overlooked, which leads to delayed diagnosis for the already fulminant condition. Bone is the most common location for metastasis from breast cancer, and there is a particular affinity for the spine. Despite the high incidence of spinal metastasis from breast cancer, only around 10 cases of breast cancer with spinal secondaries in male patients have been reported. Management of spinal metastases is palliative, with treatment aimed at restoring or preserving neurological function and relief of symptoms such as pain and incontinence. Here we report the case of a male patient with breast cancer and extensive metastasis to the axial skeleton and review the relevant literature.

Keywords: Breast Cancer; Male Breast Cancer; Spinal Metastases.

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Introduction

Breast cancer is extremely rare in men and is a biologically more aggressive malignancy than breast cancer in women. Diagnosis is often delayed too, due to late presentation, and low index of suspicion. Bone is the most common site for secondary deposits from breast cancer, the majority of which localize to the axial skeleton. Spinal involvement has the dreaded complications of pathological fractures, instability, cord compression and resulting intractable pain, paralysis and incontinence. Treatment is multi-modal, and palliative surgery may have to be undertaken. This is only the 10th report of male patient with breast cancer complicated by spinal metastases.

Case Report

A 55-year-old male patient presented to the

Orthopedic OPD with complaints of progressively worsening back pain for the last 6 months, with an acute exacerbation of lower back pain when lifting farm equipment a few days earlier. He had taken over-the-counter pain medication but did not feel sufficient symptomatic relief. Orthopaedic examination did not reveal any specific abnormality, and spinal and neurological evaluation were normal except for tenderness noted along multiple paravertebral spaces (positive Sign of Delitala, Lasegue or Valleix). Bilateral lower limb power, bulk, muscle tone and reflexes were symmetrical and normal, and sensory system examination was also normal. Special tests including SLRT (straight leg raising test) and FABER (Flexion, Abduction, External Rotation) were unremarkable.

MRI of the Lumbar Spine showed bony erosions with multiple lytic and sclerotic foci in the iliac bones and lumbar vertebra, suggestive of malignant etiology, following which the search for occult primary began, and the patient referred to General



Surgery Department for evaluation.

Head to toe examination clinched the diagnosis, with nipple retraction noted on the right side (Fig. 1). On enquiry, the patient confessed that the nipple retraction had been present for over a year, and he had ignored it as it did not give him any discomfort. There was no significant past or familial history, and no history of any discharge from the nipple. The nipple was almost completely retracted, the nipple-areolar complex destroyed and induration was present. An ill-defined hard mass fixed to the chest wall was palpable on the affected side. The contralateral breast and nipple areolar complex were normal, and bilateral axilla did not have any palpable lymph nodes.



Fig.1: Nipple retraction right breast



Fig. 2a: PET CT showing involvement of axial skeleton



Fig. 2b: PET CT showing carcinoma of right breast with extensive skeletal metastases

PET CT was done, which demonstrated carcinoma of the right breast involving the skin and pectoralis major muscle and right axillary lymphadenopathy with extensive skeletal metastases (Figs. 2a and b).

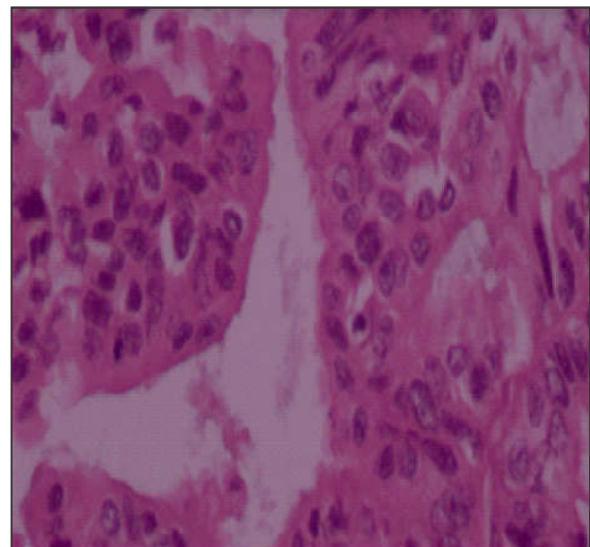


Fig. 3: Ductal carcinoma

Histopathology revealed infiltrative ductal carcinoma (Fig. 3), with ER PR positivity and Her2 negative.

The patient underwent a modified radical mastectomy with axillary clearance. Post-operatively, Tamoxifen as an oral chemotherapeutic agent was used, in addition to which, bisphosphonates were given in view of the spinal metastasis. The patient was doing well 6 months postoperatively, with no evidence or recurrence.

Discussion

Accounting for less than 1% of all malignancies in men, and 0.5% of all cancer-related deaths, male breast cancer is a rare disease [1]. However, like the female counterpart, the incidence has been rapidly increasing, estimated to have risen 26% in the last quarter century [1]. The contrasting prevalence of the disease between men and women is evident from the Surveillance, Epidemiology, and End Results (SEER) registry which lists 5494 cases of male breast cancer and 835,000 cases of female breast cancer between 1973 and 2005 [2].

In a retrospective German study that included 160 male patients diagnosed with breast cancer in a district with a population of 1.5 million over a 16 years period, 41 patients (25.6%) had metastatic disease at the time of presentation, with bone being the most frequently involved site (23 patients) [1].

Bone involvement occurs in 8% of patients with breast cancer, and a whopping 69% of patients with advanced disease. There is a strong affinity for the spine, which accounts for two-thirds of the secondary deposits [3]. This is facilitated by the valveless Batson's venous plexus, which includes the Azygous Vein which through the intercostal veins receives blood drained from the breast [3].

The complications of osseous metastases include pathological fractures, reduced hemopoieses, hypercalcemia (which in itself is a dreaded paraneoplastic syndrome), and spinal cord compression causing intractable pain, neurological deficits, incontinence, instability and paralysis [3]. Pain may be biological, caused by periosteal stretching; radicular, due to nerve involvement or cord compression; or mechanical, due to instability resulting from osteolytic lesions.

The prognosis of male breast cancer is significantly worse than that of the disease in women, due to greater biological aggressiveness of the disease itself, and delay in diagnosis due to low index of suspicion of the disease in both the patient

and physician [2].

Treatment requires a multidisciplinary approach, and a combination of hormonal therapy, radiotherapy and surgery as the circumstance demands. Emergent situations where fragility of the spine causes impending cord compression requires urgent intervention, in the absence of which there can be a spinal "stroke" with irreversible neurological damage [3]. The Spine Instability Neoplastic Score (SINS), a 6-point scale that accounts for the location of pathology, pain, type of bony lesion, spinal alignment, extent of vertebral body collapse and posterior element involvement is an effective and reliable tool to guide decision-making and treatment [3].

Hormone therapy includes selective estrogen receptor modulators and aromatase inhibitors, and depends on the receptor status of the tumor. Bisphosphonates along with Vitamin D and Calcium limits osteoclastic tumor activity, and corticosteroids have oncolytic effects [3].

On immunohistochemistry, male breast cancers tend to be positive for estrogen receptor (ER) and negative for HER2 receptor [4]. ER positivity allows the use of Tamoxifen [5] as oral chemotherapeutic agent, as was done in our cases. Additionally, bisphosphonates were given to the patient in view of the spinal metastasis.

The median survival of patients with breast cancer is 10 months after the diagnosis of spinal metastases, but surgery is still an important modality of palliative care to manage instability and for decompression, tasks that cannot be achieved by chemotherapy or radiation [2].

Despite the high incidence of breast cancer metastases to the spine, to the best of our knowledge, only 9 cases of breast cancer with spinal secondaries in male patients have been reported [2] prior to this, and only 2 where surgical management (one case of vertebroplasty and the other decompression followed by screw and rod fixation) was undertaken [2].

Conclusion

Breast cancer is rare in men; however, it must be kept in mind when the search for a relevant occult malignancy is being done. Breast cancer in men tends to be more aggressive and carries an overall worse prognosis compared to the disease in women. Bone is the most common site for the seeding of breast cancers, the spine being a favoured location, and patients may suffer debilitating pain and neurological dysfunction. Patients are also prone

to pathological fractures, spinal cord compression, bowel and bladder disturbance, and paralysis. Timely diagnosis is thus essential to prevent the development of serious complications. Treatment is mainly palliative and aimed at preserving neurological function, ensuring spinal integrity and relieving pain so that reasonable quality of life can be maintained.

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