CASE REPORT

Nasopharynx – A rare site of metastases from carcinoma breast

Anshu Tewari *, Padma Subramanyam, Shanmuga Sundaram Palaniswamy, T.S. Satheesh

Department of Nuclear Medicine & PET CT, Amrita Institute of Medical Sciences, Cochin 6802041, Kerala, India

Received 20 October 2012; accepted 10 November 2012
Available online 10 May 2013

Keywords Nasopharynx metastasis; Breast cancer; Computed tomography; Magnetic resonance imaging; 18 FDG PET/CT

Abstract We report a case of a 62-year old Indian female with a history of breast cancer treated with surgery, chemotherapy and radiation three years ago, now presenting with diplopia on the right eye for three weeks. CT showed a diffuse infiltrating lesion in the right cranial fossa. MRI reported meningeal and orbital wall involvement also. The patient was referred for 18 FDG PET/CT to assess the extent of disease and also to look for other distant metastases. 18 FDG PET/CT revealed an exact extent of lesion, from the right orbital apex, destroying greater wall of the sphenoid, extending to the nasopharynx and the right nasal cavity with extensive skeletal metastases. We present symptoms, signs and imaging modalities that aided in localization of metastases, while in the available literature such presentation of carcinoma breast secondaries in the nasopharynx is extremely rare.

© 2012 Production and hosting by Elsevier B.V. on behalf of Egyptian Society of Ear, Nose, Throat and Allied Sciences.

1. Introduction

Nasopharyngeal metastases from breast carcinoma is extremely rare with only three cases previously reported in the literature.1–3 We present a case of breast cancer with distant metastases to orbital apex, greater wing of the sphenoid and extending to the nasopharynx with extensive skeletal metastases. We discuss the diagnostic role of whole body 18 FDG PET/CT (18-Flourodeoxyglucose positron emission tomography/computed tomography) to assess the extent of disease and its implications in staging breast cancer and its management.

2. Case report

A 62-year old woman presented with a 3 weeks’ history of blurring of vision and proptosis in the right eye. Three years earlier the patient had been diagnosed with infiltrating ductal carcinoma. The tumor was ER/PR positive and HER2-neu negative. The initial treatment consisted of left mastectomy, flap reconstruction and neoadjuvant chemotherapy. Postoper-
ative external beam radiation of the left chest wall was also given. A whole body 18 FDG PET/CT to assess the therapy response was done which was normal (Fig. 1), suggestive of a good response to chemotherapy.

After three years, the patient complained of right sided diplopia for 3 weeks. She was seen by an ophthalmologist who diagnosed horizontal diplopia and abducent (VI) nerve palsy. On clinical examination, the patient had right supraorbital swelling and grade I proptosis with conjunctival injection or papilloedema. CT of the head showed right orbital metastasis with a tumor mass, a size of $3.7 \times 4.2 \times 2$ cm, with infiltration of the orbital roof and lateral orbital wall and greater wing of the sphenoid (Fig. 2). MRI study further reported meningeal and bony metastatic deposits involving the walls of the right orbit (Fig. 3), middle and anterior cranial fossa with no associated parenchymal brain lesion (Fig. 4). She underwent follow up whole body 18 FDG PET/CT which revealed FDG avid heterogeneously enhancing soft tissue lesion in right orbital apex causing destruction of greater wing of the sphenoid, lateral wall of orbit, right zygoma and extending to the nasopharynx and right nasal cavity (Fig. 5). Multiple metabolically active skeletal metastases were also noted in C5 vertebra, right 5th and 11th ribs, pelvic bones (bilateral iliac bones, inferior lip of right acetabulum) and left femur (Fig. 6). She received another course of chemotherapy and bisphosphonate treatment. Local radiotherapy of the right orbit and the skull base is reserved if there is further progression of symptoms.

3. Discussion

Metastatic spread to nasal cavity, nasopharynx and hypopharynx is extremely rare, and if it occurs, the primary site of malignancy is usually a renal cell carcinoma. To our knowledge, our case is the fourth case with nasopharyngeal involvement from breast carcinoma and second as nasal cavity involvement. The first case presented as a choanal polyp, the second as a solitary nasal cavity metastasis, the third case presented with diplopia and found to have partial nasal obstruction on ENT examination only.

Breast cancer metastases have a relatively wide distribution, the most common sites of spread are bone, regional lymph nodes, lung, liver and brain. Incidence of breast carcinoma to head and neck is unknown, usually metastases of this region

Figure 1 PET/CT (positron emission tomography), Transaxial images show no abnormal FDG uptake in the reconstructed left breast flap, right breast, bilateral internal mammary and axillary lymph nodes.
coexist with other distant sites of metastases, therefore these head and neck lesions usually remain occult. But now with the wider availability of whole body 18 FDG PET/CT, we can spotlight multiple obscured lesions from the head to toe.

Investigating nasopharyngeal lesions starts with clinical history and examination and includes tissue diagnosis via biopsy and histopathological analysis. Computed tomography (CT) is the initial radiological investigation of choice and should include the thorax, abdomen and pelvis. MRI provides a better delineation and higher resolution when there is need to investigate intracranial and soft tissue spread. 18 FDG PET/CT

![Figure 2](image1.png) Post contrast CT images showing enhancing lesion in the right orbital apex extending laterally causing destruction of greater wing of the sphenoid, lateral wall of orbit and zygoma. Medially it extends to pharyngeal mucosal space and posterior part of nasal cavity.

![Figure 3](image2.png) T1 weighted contrast MRI images showing enhancing lesion involving walls of orbit.

![Figure 4](image3.png) T2 weighted coronal images showing meningeal and bony metastatic lesion involving right anterior and middle cranial fossa.

![Figure 5](image4.png) Follow up 18 FDG PET/CT revealed FDG avid heterogeneously enhancing soft tissue lesion in the right orbital apex causing destruction of greater wing of the sphenoid, lateral wall of orbit, right zygoma and extending to the nasopharynx and right nasal cavity.

Nasopharynx – A rare site of metastases from carcinoma breast
scanning is potentially useful in cases of breast cancer in detecting distant metastases. In some cases it may be necessary to have one baseline 18 FDG PET/CT to assess the therapeutic response and monitor treatment modification in follow up.

So, when an ophthalmologist has a patient with unilateral painful ophthalmopathy and proptosis, orbital metastases must be considered and detailed multidisciplinary team examinations specially of the ENT should be performed, definitely at the same time whole body 18 FDG PET/CT must be considered to correctly upstage or downstage the disease and to modify treatment plan.

Nasopharyngeal metastases respond well to radiation, some tumors may be successfully treated with debulking or surgical resection. Chemotherapy is usually needed for systemic disease. Recognizing metastatic disease and prompt early treatment are very important to improve the quality of life.

In summary, although rare, breast cancer patients can develop metastases to the nasopharynx. Patients with a history of breast cancer presenting with eye symptoms such as proptosis, diplopia, pain, exophthalmos should not only be evaluated for orbital metastases but for nasopharyngeal involvement also. Once the diagnosis is confirmed, the treatment of nasopharyngeal metastases is multidisciplinary.

Conflicts of interest

There were no conflicts of interest.

References