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•*Case report*

An unusual metastatic breast cancer presentation; Report of a case

F. Amouzgarhashemi, M. Vakilha*, M. Sardari

Department of Radiation Oncology, Cancer Institute, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

We are reporting a 43-year-old female breast cancer case with a solitary metastatic adenocarcinoma in clivus. This patient with a stage II (T1N1M0) breast cancer history has been followed for 7 years. Modified Radical Mastectomy (MRM) and 6 courses chemotherapy with CMF (Cyclophosphamide, Metotrexate, 5FU) regimen were done for her at the time of diagnosis. Also, she took tamoxifen twenty mg per day for five years. She had no evidence of disease for 6 years. About one year ago she suffered diplopia and headaches for two months. MRI and CT scan studies showed a well defined mass in her clivus. Biopsy of mass was performed and pathologic report was metastatic adenocarcinoma. **Iran. J. Radiat. Res., 2005; 3 (1): 43-45**

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INTRODUCTION

Bone is the second most common site of metastasis in breast cancer and bone metastases usually occur in the advanced stages of the disease[1]. Breast cancer metastases are usually multiple and frequently involve more than one organ site[2].

Bone metastases are usually multiple, affecting the vertebral body and pelvis. They usually appear as lytic and blastic lesions[3]. A single metastasis rarely occurs and must be differentiated from primary bone tumor[1], and solitary metastasis of breast cancer is rare. In our case no evidence of other skeletal metastatic sites were detected and she only had a single metastasis in clivus. We decided to report this case because of its interesting presentation. There are a few case reports of skull base metastasis of breast cancer, mostly involving hypoglossal nerve[3]. Diplopia is usually caused by brain metastasis or cranial nerve involvement[1], but in our case there was no evidence of brain involvement.

CASE REPORT

We are reporting a 43-year-old woman with a history of left breast cancer since 1995 from radiation oncology department of cancer institute, Tehran University, Iran. MRM was done for her at the time of diagnosis and the pathologic report showed an infiltrative ductal carcinoma, tumor size 2 × 1.5 × 1.5 cm, grade I, and one out of 32 axillary lymph nodes were found involved by the tumor. Estrogen and progestron receptors were positive and aneuploid DNA content was reported in flow cytometery report. Following surgery she received 6 courses of adjuant chemotherapy (CMF regimen) and hormonal therapy with Tamoxifen (20 mg/day) for 5 years. She was well for 6 years with no evidence of disease. Two months before admission she suddenly found diplopia and severe headache. She mentioned a history of mild headaches episodes for about one year. Brain CT scan and MRI showed a tumoral mass in the base of the skull with severe calcification and no abnormality in other anatomic structures of the brain, and the radiologist suggested one of the following diagnosis (chondroma, chondrosarcoma, chordoma or metastasis) for this radiological presentation (figure 1).

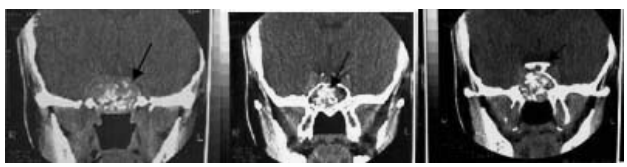

Figure 1. Brain CT scan before radiation therapy shows skull base mass on all of pictures (arrows).

Corresponding author:
Dr. Mehrdad Vakilha, Cancer Institute, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
Fax: *+98 21 66933005*
E-mail: *mehrdadvakilha51@yahoo.ca*

With and without contrast, brain MRI showed a well defined tumoral mass in the clivus and posterior aspect of sphenoid sinus and also iso- intensity in brain tissue on T1W and T2W images and contrast enhancement were seen. Meningioma, chordoma, epithelial cell carcinoma of sphenoid sinus, and metastasis were suggested for differential diagnosis. There was no abnormality in other anatomic structures of the brain. Bone scan with ^{99m}Tc, showed increased uptake in the base of skull (figure 2).

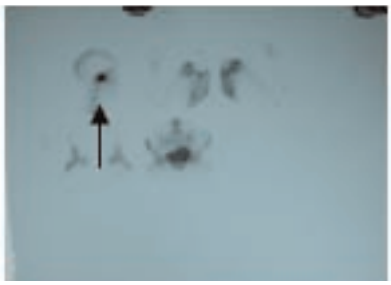

Figure 2. Bone scan before radiation therapy shows uptake increase (arrow).

Biopsy of clivus mass was performed and the pathologic report confirmed metastatic adenocarcinoma. Dexamethasone 16 mg /day IM was begun immediately, diplopia recovered and the patient was referred for radiation therapy. On the first visit the patient did not have any symptom (headache, diplopia, etc.). A tumoral mass with calcification on clivus and skull base was seen on simulation radiographic view (figure 3).

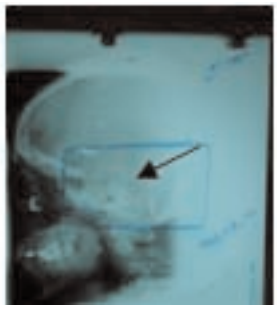

Figure 3. Lat skull view (simulation) before radiation therapy shows a lytic skull base mass (arrow).

DISCUSSION

The second most common site of distant metastases after lung is bone (60-70%) and pain is the most common presentation of the metastasis to the skeleton[1].

Breast cancer metastases are usually multiple and frequently involving more than one organ site[4] The initial pain pattern of metastasis mimics primary bone tumor and osteonecrosis. Metastasis most commonly occurs in heavily vascularized parts of skeleton including ribs and vertebral column, as well as proximal ends of long bones (femur and humerus) and pelvis[1]. Metastatic disease is characterized by the presence of multiple bone lesions. Single bone metastasis occurs rarely and must be differentiated from primary bone tumors[1]. Other primary cancers and benign diseases may be clinically indistinguishable from metastatic breast cancer, especially in those who have a single bone lesion, when in doubt; diagnosis should be made by needle biopsy[5].

The solitary metastases are usually from thyroid and renal cancers. Plain radiographs remain the most specific test for diagnosis bone disease. Bone scan can be further assistance in planning a biopsy[1]. Bone scan is more sensitive than X-rays for detecting metastases, because it detects functional rather than structural changes[3].

Solitary bone lesions warrant a biopsy before treatment, because lytic phases of dedifferentiated chondrosarcoma, Paget sarcoma and metabolic bone disease can mimic metastatic disease. Due to large scale of difference, all of these entities must be distinguished from metastatic disease. CT-guided needle biopsy is usually satisfactory, offering a diagnostic accuracy of 80%[1]. As in our case that biopsy ruled out all other diagnosis.

A few patients present with metastasis at a solitary site and can be rendered disease free by surgery or radiotherapy, although their value has not been established in such cases. Despite successful Local therapy, about 80% will die of metastatic cancer within 5 years[5]. Regarding skull base and clivus metastasis, there are few case reports. One of them is from India, describing a 44 year old woman presented with an isolated unilateral hypoglossal nerve paralysis due to skull base metastasis from breast cancer[6]. Another report is from Japan, describing a similar case of a 48 year old female with an isolated unilateral hypoglossal nerve paralysis caused by a skull base metastasis from breast cancer[7]. Also there is another case report from Germany describing a 68 year-old woman with Garcin syndrome on basis of skull from a mammary carcinoma[8]. The largest case series are reported by M.D.

Anderson cancer centre, between August 1972 and March 1981. In this case series eight of ten patients with extensive metastases at skull base had cranial nerve compression, and in two others there were no sign of bone involvement but they were suspicious of soft tissue disease. Retro-orbital space involvement was suspicious in one of them and skull base involvement in other patient[9]. Also, there is another case from Japan, a 51-year-old woman presenting 9th to 12th cranial nerve palsies on the right side[10]. However, our case presented diplopia as the only sign of the cranial nerve involvement, and this presentation is very rare even in skull base metastases from breast cancer. Radiotherapy is a very effective treatment for breast cancer patients with skeleton metastases but no clear evidence for a dose response has emerged for the short-term relief of bone metastasis.

The suggestive dose for bone and brain is 30Gy in ten fractions[2]. In one randomized trial good risk patients were rendered free from disease with surgery and Radiotherapy. They had considerably longer disease-free survival when given tamoxifen 20 mg/day, in comparison to surgery and radiation therapy only[5]; yet, there are not many controlled trials to support this practice.

Our case was treated with whole brain field radiotherapy with the dose of 30Gy in 10 fractions.

She tolerated the treatment very well with no complaints and remained healthy with no evidence of disease one year after radiotherapy (figure 4).

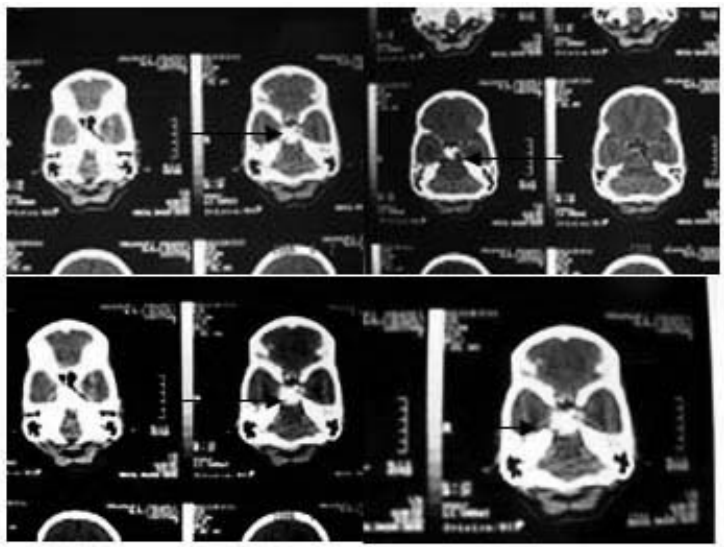

Figure 4. Brain CT scan 6 months after radiation therapy shows tumor mass reduction (arrows) on all pictures.

REFERENCES

1. Brown H K and Healey J H (2001) Metastatic cancer to bone. 6th ed. Principales & practice of oncology. Lippincott Williams & Wilkins, Philadelphia, USA; pp: 2713-2727.
2. Yarnold J (1995) Treatment of Breast Cancer. 3rd ed. Alden Press, Osney Mead; pp: 429-432.
3. Powers WE and Vaneerat R (1998) Palliation of Bone Metastases. 3rd ed. Principles and practice of Radiation Oncology. Lippincott-Raven; pp: 2204-2210
4. Fisher B, Kent C, Osboprne R, Margolise G (1997) Neoplasms of the Breast. 4th ed. Cancer Medicine. Lippincott Williams & Wilkins, Philadelphia, USA; pp: 2366-2368.
5. Heikki JS and Hudson S (2002) Treatment of locally advanced and metastatic breast cancer. 2nd ed. Oxford text book of oncology, Oxford University Press, pp:1767-1781.
6. Pavithran K, Doval DC, Hunkku S (2001) Isolated hypoglossal nerve palsy due to skull base metastasis from breast cancer. *Australas Radiol Nov,* ***45:*** *534-5.*
7. Fukumoto M, Osaki Y, Yoshida D, Yoshida S (1998) Dual-isotope SPECT diagnosis of a skull-base metastasis causing isolated unilateral hypoglossal nerve palsy. *Ann Nucl Med,* ***12:*** *213-6.*
8. Benedetti J, Russel A, Brnard H (1989) Garcin syndrome; A case report. *Schweiz Rundsch Med. Prax,* ***78:*** *1045-8.*
9. Hall SM, Buzdar AU, Blumenschein GR (1983) Cranial nerve palsies in metastatic breast cancer due to osseous metastasis without intracranial involvement. *Cancer,* ***52:****180-4.*
10. Nagata H, Sato S, Tanaka K, Ban S, Ogata M (1980) Skull base metastasis of breast cancer causing the colletsicard syndrome – a case report. *No To Shinkei* ***32:*** *695-700.*