Solitary metastasis of breast carcinoma in the infundibulum

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Abstract

We present a rare case of a 59 years old women who had been treated for breast cancer. Post Contrast T1-weighted MR images revealed a tiny nodular enhancing lesion in the infundibulum, consistent with metastasis.

Keywords: Breast carcinoma, Metastasis, Infundibulum.

Introduction

Metastatic spread into the brain is not infrequently seen in association with epithelial neoplasms such as breast and lung cancer. Metastatic spread to the pituitary gland, specifically isolated pituitary stalk metastasis is a rarer presentation.[1] The multiplanar capability of MR imaging plays an important role in the assessment of the hypothalamic-pituitary area.[2]

Case Report:

A 59 years old post menopausal woman presented with a history of lump in the right breast. It was 3.0 x 2.5 cms in size, in the upper outer quadrant of the right breast. Multiple enlarged lymph nodes were also seen in axilla bilaterally. The left breast was normal. Fine needle aspiration cytology confirmed the lesion to be a carcinoma. Her baseline haematological and biochemical investigations, X-ray chest, bone scan and ultrasound abdomen were normal. She received neo-adjuvant chemotherapy. This was followed by a right modified radical mastectomy. The histopathology report was infiltrating duct carcinoma with axillary nodes positive for metastasis. Post operatively, she was put on Tamoxifen. She also received radiotherapy to the breast. She was asymptomatic for four years following radiotherapy. Four years later, she presented with dry cough, nausea and vomiting for the last two weeks. A Magnetic Resonance Imaging (MRI) of the brain and sella turcica revealed a thickened and enlarged pituitary stalk. After the injection of Gadopentate Dimeglumine there was a tiny nodular enhancing lesion in the infundibulum measuring 0.5 x 0.3 cms. The pituitary gland was not enlarged. T2-weighted images did not show any abnormal high signal intensity in the infundibulum or the pituitary gland. Based on the finding on MRI in a known case of carcinoma breast, a most probable diagnosis of metastatic deposit in infundibulum was suggested.

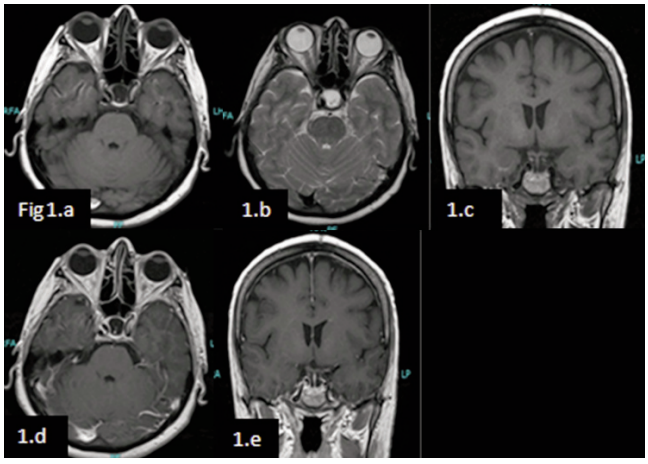

Figure-1: (a) T1-Weighted Axial Image. Showing ballooning of sella. (b) T2-Weighted Axial Image. Shows enlarged sella filled with CSF. (c) T1-Weighted Coronal Flair Image shows thickened pituitary stalk. (d) Post Contrast T1-Weighted Image shows ballooning of sella with enhancement of infundibulum. (e) T1-Weighted Coronal Image shows enhancing lesion in the infundibulum.

Discussion

MR imaging provides high resolution images of the pituitary gland, pituitary stalk and adjacent structures. The modality's multiplanar capability allows the diagnosis of various diseases and thus helps guide its treatment.[2] The incidence of metastasis to pituitary varies from 0.14% to 28.1% of all brain metastasis.[3] Isolated pituitary stalk metastasis accounts for only 2% of pituitary gland metastasis.[4] Breast cancer and lung cancer are the most common primary sites, in women and men respectively, which metastasize to the pituitary.[3] An antemortem diagnosis of pituitary stalk metastasis of breast cancer was usually made by MRI without histological confirmation.[5] Pituitary metastases more commonly affect the posterior lobe and the infundibulum than the anterior lobe.[3] The predilection of tumours to metastasize to posterior pituitary may be due to the fact that the neural portion has a blood supply directly from the systemic circulation while the anterior lobe is supplied by the hypothalamus-hypophyseal portal system.[6] In the clinical context of a known cancer patient presenting with diabetes insipidus, MRI of pituitary fossa is very useful in demonstrating metastasis to the pituitary.[7] Hypophysis, stalk, cavernous sinuses, sphenoid sinus and optic chiasma are well evaluated on coronal and sagittal T1-weighted MRI both

before and after Gadolinium injection. Loss of high signal intensity from the posterior lobe and thickening of the stalk are indicative of infiltration by metastasis.[8] The median length of patient survival following diagnosis of pituitary metastasis is 180 days.[4] Aggressive treatment including both surgical decompression and radiation therapy improves the quality of life in patients who are symptomatic. There are a number of diseases that affect the hypothalamic-neurohypophyseal axis. The causes can be classified as traumatic, inflammatory or neoplastic. Infectious or inflammatory causes include meningitis, lymphocytic hypophysitis and granulomatous inflammations such as sarcoidosis, Wegener's granulomatosis. Various neoplastic conditions such as Germinoma, Langerhans cell Histiocytosis, metastasis, leukaemic infiltration, lymphoma and teratoma.[2]

Teears et al reported that 69.3% of 88 cancer patients with hypophyseal metastasis had posterior pituitary alone or both anterior and posterior pituitary metastases and 6.8% of them had diabetes insipidus.[4]

Kurkjian C et al reported 2 patients with pituitary stalk metastasis resulting from primary breast cancer.[1]

Although metastases to the central nervous system are common in patients with metastatic breast cancer, isolated pituitary stalk metastasis remains a rare clinical setting. With the low probability of complications, the high rate of definitive diagnosis, and the chance of optimizing treatment, an early diagnostic surgery is recommended.[9]

Conclusion

In conclusion, we presented the MR findings of infundibulum metastasis from breast cancer. The infundibulum is not a site that can be readily biopsied and hence the above finding on MRI in a known case of cancer is taken as evidence of pituitary metastasis.

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