CASE NOTE

Isolated metastasis to the cerebellopontine angle secondary to breast cancer

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Cerebellopontine angle (CPA) tumours are predominantly vestibular schwannomas (VS, also known as acoustic neuromas), whereas CPA metastases are rare, particularly in the absence of disseminated malignancy. We describe the case of a patient with an isolated brain metastasis in the CPA from breast carcinoma mimicking VS.

Case report

A 72-year-old woman presented with a history of progressive left sensorineural hearing loss (SNHL) and vertigo of a few weeks' duration. She had undergone a left-sided mastectomy 2 years previously for node-positive invasive ductal carcinoma of the breast and was on adjuvant tamoxifen. Magnetic resonance imaging (MRI) scans revealed a 2.2-cm heteregenous isointense enhancing lesion in the left CPA, which appeared to abut the left seventh and eighth cranial nerves and was associated with mild vasogenic edema in the middle cerebellar peduncle and adjacent left cerebellar hemisphere (Fig. 1). A computed tomography (CT) scan of her chest and abdomen as well as a bone scan showed no evidence of systemic metastasis. Tumour marker CA 15.3 was within the normal range.

We performed a biopsy to differentiate between VS and solitary brain metastasis to the CPA. Histopathology revealed carcinoma with positive hormone receptor and negative Her-2/neu expressions consistent with metastatic breast carcinoma. The patient underwent whole-brain radiotherapy and stereotactic radiosurgery (SRS), and we switched her hormonal treatment to an aromatase inhibitor. The patient's symptoms improved substantially, and a follow-up MRI 2 months after SRS revealed a residual 8-mm lesion (Fig. 1).

Discussion

Brain metastases are not uncommon during the course of breast cancer; about 10%–16% of women with metastatic breast cancer experience symptomatic brain metastasis, and up to 30% of patients at autopsy have brain metastases.[1] Risk factors include young age, hormone receptor negative disease and Her-2/neu positive expression. Brain metastases are more commonly located in the supratentorial compared with the infratentorial region and are usually multiple (78%) as opposed to solitary (14%) or leptomeningeal (8%). They tend to present 2–3 years on average from the initial breast cancer diagnosis and typically occur in the setting of systemic metastasis.

Cerebellopontine angle tumours are predominantly VS, although an alternative diagnosis is found in 10%–20% of patients.[2–4] Metastatic lesions in the CPA are rare and are commonly associated with breast or lung carcinomas. In a retrospective series of 1345 patients with CPA lesions the common underlying diagnoses were VS (91.3%), meningiomas (3.1%), epidermoids (2.4%) and

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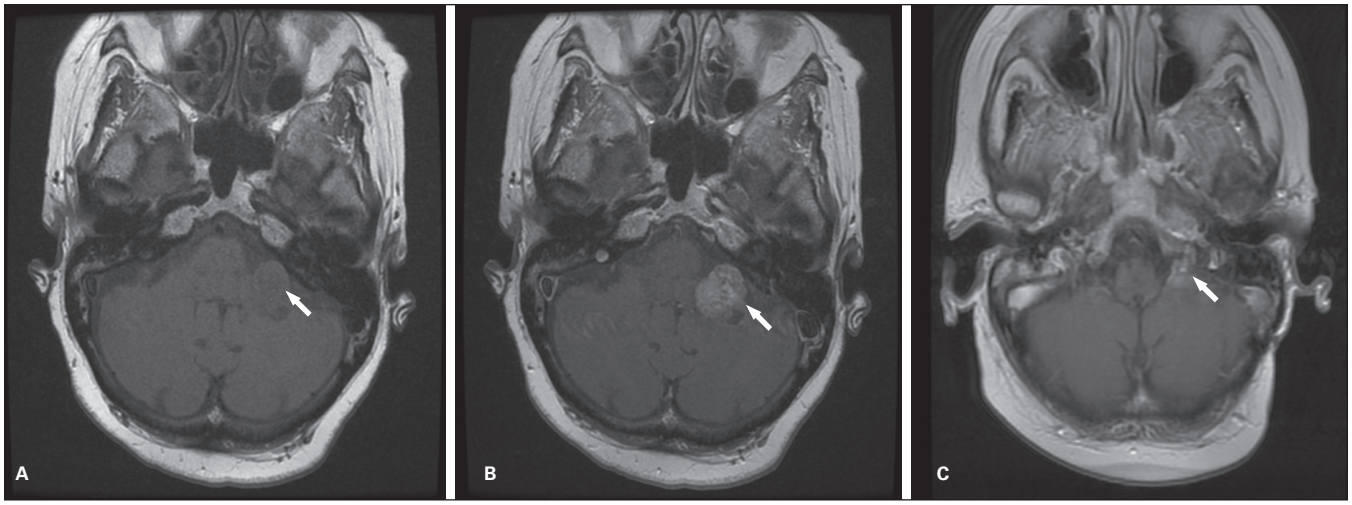

Fig. 1. T_1-weighted magnetic resonance imaging (MRI) scans (**A**) with and (**B**) without contrast show a 2.2-cm heteregenous isointense enhancing lesion in the left cerebellopontine angle, which appeared to abut the left seventh and eighth cranial nerves and was associated with mild vasogenic edema in the middle cerebellar peduncle and adjacent left cerebellar hemisphere. (**C**) A follow-up MRI scan 2 months after stereotactic radiosurgery revealed a residual 8-mm lesion.

facial nerve schwannomas (1.2%). Other rare causes (2%) included lipomas, gliomas, dermoids, arachnoid cysts, hemangiomas, hemangioblastomas, medulloblastomas, chondrosarcomas, malignant teratomas and metastasis.[2] In another series of 305 CPA tumours, most were also VS, although 20% were owing to other pathological diagnoses such as meningiomas, primary cholesteatomas, glomus jugulare tumours and other rare tumours.[4]

Isolated metastases to the CPA represent a diagnostic challenge to differentiate them from the more commonly occurring CPA lesions, particularly in the absence of metastatic disease.[5] In a small series of 14 patients with metastasis to the CPA, this was the initial presentation of the underlying malignancy in 4 (28%).[3] Features suggestive of metastasis as opposed to schwannoma were acute onset, rapid progression of symptoms, associated seventh and/or eighth nerve deficits, bilateral involvement or systemic metastasis. Useful MRI findings included small and/or bilateral CPA enhancing lesions with relative isointensity to brain parenchyma on precontrast MRI and associated findings of multiple and/or bilateral cranial nerve and/or leptomeningeal lesions.

In our patient's case, the acute onset and rapid progression of symptoms along with the recent history of treated high-risk breast carcinoma were suggestive of CPA metastasis. In the absence of systemic metastases, however, a histopathological diagnosis will invariably be required to confirm the rare diagnosis of isolated metastasis to the CPA.

Competing interests: None declared.

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