Differentiating a simple cyst or metastatic breast cancer: A medical dilemma

Waqas Jehangir, Zorawar Singh, Abdul I Mahmad, Teena Mathew

ABSTRACT

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CASE REPORT

A 60-year-old American Hispanic female presented to the emergency room for gradual onset dizziness, associated with lightheadedness, double vision and nausea. She described her symptoms as vertigo-like. She has a known past medical history of breast cancer and was treated with surgery and chemotherapy. The patient had been in remission for over six years. Patient denied any recent travel outside United States. Physical examinations of the patient were within normal limits, apart from the dizziness. Patient did not complain of any weight changes, vision changes, or any focal neurological deficits.

Computed tomography (CT) scan of head (Figure 1) showed a large, 4.3 cm cystic mass projecting in the mid-posterior aspect of the cerebellum causing anterior displacement of the fourth ventricle. It was repeated again and the results were similar. Her last CT scan of head was done a year before which was completely normal. Magnetic resonance imaging (MRI) scan of the brain with and without contrast (Figure 2) showed multiple ring enhancing intra-axial masses, the largest centered at the vermis measuring nearly 4 cm and compressing the fourth ventricle mildly. In the differential was either a metastatic neoplasm from primary breast cancer or a

Figure 1: Computed tomography scan of head without contrast showing a 4.3-cm cystic mass projecting in the mid-posterior aspect of the cerebellum causing anterior displacement of the fourth ventricle.

Figure 2: Magnetic resonance imaging scan of brain without contrast showing multiple ring enhancing intra-axial masses, the largest centered at the vermis measuring nearly 4 cm and compressing the fourth ventricle mildly.

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parasitic infection (Table 1). Since the patient did not have any likely risk factors for parasitic infections, such as any recent traveling or interactions with cats or cat feces, the likelihood of a parasitic infection was low. The patient was subsequently treated with radiotherapy with complete resolution of symptoms.

DISCUSSION

This case illustrates the importance of suspecting a metastatic neoplasm in the brain in a patient who presents with neurological abnormalities and has a past history of a malignancy. Although the patient had been in remission from breast cancer for more than six years, and

had a normal head CT scan a year ago, this case shows how quickly a metastatic lesion can resurface and present itself. Breast cancer patients who achieve a pathological complete response after neoadjuvant chemotherapy usually have a favorable prognosis [1–3]. From this case, we can learn that the breast cancer may have been eradicated from the original source, but we should always be suspicious of the malignancy re-emerging in other parts of the body. As physicians, we also must be aware of many of the symptoms of metastasis in women who have been eradicated of breast cancer, those symptoms include, but are not limited to, severe headaches, generalized fatigue, dizziness, vertigo, blurry vision, hypotension, difficulties with balance and coordination, and even polyuria and polydipsia [4, 5].

Table 1: Differential diagnosis of cystic brain lesion

Differential Diagnosis	Computed tomography	Magnetic resonance imaging	
		T1	T2
Primary tumor/Neoplasm	Hypodense with rim enhancement	Hypointense	Hypointense
Metastasis	Hypodense with rim enhancement	Hypointense	Hypointense
Cerebral toxoplasma abscess	Ring enhancing lesions with surrounding edema. Multilobulated lesions may be seen	Core hyperintense; surrounding hypointense edema	Cavity hypointense; surrounding hyperintense edema
Neurocysticercosis	Ring enhancement of capsule, eccentric dot sign, thin regular outline	Core, iso-to hypointense	Core iso-to hypointense with hypointense rim
Hydatid cyst	Well demarcated, isodense/hypodense	Isointense	Isointense
Arachnoid cyst	Well circumscribed, same signal intensity	No contrast enhancement	No contrast enhancement
Ependymal cyst	Well-defined, thin-walled and do not contrast enhance	Isointense nonenhancing wall	Isointense nonenhancing wall
Colloid cyst	Hyperdense, hypo/isodense	Hyperintense	Hypointense
Epidermoid cyst	Well-demarcated hypodense, enhance with contrast agents	Isointense	Isointense/Hyperintense
Dermoid cyst	Well-circumscribed, hypodense masses	Hyperintense	Hypo to hyper intense
Neuroenteric cyst	Iso-/hypodense lesions	Iso-/slightly hyperintense	Hyperintense

CONCLUSION

For our patient, who presented with dizziness, we should always keep in mind that this simple symptom warrants concern. As physicians, we must always counsel our patients that they may not have the breast cancer physically at the moment but there is always a slight possibility for it to resurface in other parts of the body.

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Zorawar Singh – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Abdul I. Mahmad – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

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The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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