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Calcified Brain Metastases from Ovarian Cancer*

Brain metastases from ovarian cancer are rare, and the CT demonstration of calcium within these lesions has not been reported previously. Recently, we encountered two patients who had multiple calcified enhancing brain lesions on head CT scans that subsequently proved to be metastatic ovarian cancer.

Case Reports

Case 1

A 65-yearold woman with no known malignancy had lower extremity swelling, fever, and weakness of the left extremity. She gave a history of multiple trips to Mexico. Plain and enhanced head CT scans showed multiple calcified enhancing lesions located throughout the brain parenchyma (Fig. 1). The presumptive diagnosis was infectious disease, such as tuberculosis, fungal infection, or cysticercosis. However, further workup, including serum titers for cysticercosis, was negative for an infectious disease.

Approximately 3 months later, axillary and subcutaneous nodules developed. Biopsy of these lesions showed metastatic grade-IV adenocarcinoma with psammomatous calcifications and papillary features most consistent with an ovarian primary tumor. Clinical and CT examination of the pelvis showed a large adnexal mass, and the disease, such as tuberculosis, fungal infection, or cysticercosis. However, further workup, including serum titers for cysticercosis, was negative for an infectious disease.

Case 2

A 59-year-old woman with known stage-III ovarian cancer was admitted because she had had weakness of the right extremities, dysphagia, and slurring of speech for 2 weeks. Head CT scans showed two calcified enhancing masses, one located in the right inferior cerebellum and the other in the medulla (Fig. 2). Open brain biopsy confirmed calcified metastatic papillary adenocarcinoma consistent with the patient's known ovarian primary tumor.

Discussion

Ovarian cancer only infrequently involves the brain; the reported incidence is less than 1%. A collected series of 576 autopsies of patients with ovarian cancer identified brain metastases in only five cases [1]. Mayer et al. [1] also reported that of 1441 patients with brain metastases from various sites, ovarian cancer was the cause in only 14. Another study by Barker et al. [2] found only four instances of brain involvement in 430 patients who had ovarian cancer. However, brain involvement may become more frequent in patients whose survival is prolonged because of improved treatment regimens.

CT evidence of calcifications within brain metastases is an uncommon finding. The lungs, colon, and breast are the most frequently reported primary sites that result in calcified intracranial metastases [3]. Other reported primary tumors have included esophageal tumors, chondrosarcomas, and mediastinal sarcomas [3–5].

Because CNS involvement by ovarian cancer is uncommon and radiographically demonstrable calcifications have not been described previously, our head CT findings on these patients presented a diagnostic dilemma. As subsequently proved by open brain biopsy, metastatic ovarian cancer can calcify, and the calcifications may be mistaken for infectious diseases, vascular malformations, or primary brain malignancy. This condition may become more common because of a greater occurrence of CNS relapse in patients with ovarian cancer whose survival is prolonged. Therefore, awareness of this possibility is necessary to avoid delayed or mistaken diagnosis in these patients.

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Fig. 1.—Plain CT scan shows multiple calcified lesions in both cerebellar hemispheres and in lower aspect of frontal lobes. Contrast scans showed enhancement in many of these lesions.

Fig. 2.—Plain (*A*) and enhanced (*B*) CT scans show calcified masses with marked enhancement of right cerebellar and medullary lesions.