

# Brain metastases from ovarian cancer

**Ovarian cancer** is a rare cause of brain metastasis with a recently reported increasing prevalence. Progressive neurologic disability and poor prognosis is common.

A systematic literature search used the Pubmed and Yale library. A total of 66 publications were found, 57 of which were used representing 591 patients with BM from ovarian cancer. The median age of the patients was 54.3 years (range 20-81). A majority of patients (57.3 %) had multiple brain lesions. The location of the lesion was cerebellar (30 %), frontal (20 %), parietal (18 %) and occipital (11 %). Extracranial metastasis was present in 49.8 % of cases involving liver (20.7 %), lung (20.4 %), lymph nodes (12.6 %), bones (6.6 %) and pelvic organs (4.3 %). The most common symptoms were weakness (16 %), seizures (11 %), altered mentality (11 %) visual disturbances (9 %) and dizziness (8 %). The interval from diagnosis of breast cancer to BM ranged from 0 to 133 months (median 24 months) and median survival was 8.2 months. Local radiation, surgical resection, stereotactic radiosurgery and medical therapy were used. Factors that significantly increased the survival were younger age at the time of ovarian cancer diagnosis and brain metastasis diagnosis, lower grade of the primary tumor, higher KPS score and multimodality treatment for the brain metastases.

Development of brain metastasis among older patients and lower KPS score correlate with less favorable prognosis. The more prolonged survival after using multimodality treatment for brain metastasis is important due to potential impact on management of brain metastasis in future <sup>1)</sup>.

## Case series

Between January 1975 and April 2001, 8,225 patients with ovarian cancer were seen at The University of Texas M.D. Anderson Cancer Center. Brain metastases developed in 72 of these patients (0.9%). The medical records of these patients were reviewed to assess the incidence of these metastases and their correlates of survival, as well as to describe the various treatment modalities used against them and their respective outcomes. The mean age of patients at the time of brain metastasis diagnosis was 53.7 years. The median interval between the diagnosis of the primary cancer and brain metastasis was 1.84 years. Neurological deficit, headache, and seizure were the most common symptoms. The brain was the only site of metastasis in 43% of patients. Multiple metastases were seen in 65% of them, although this may be a slight underestimate, as brain metastases in 17% of patients were evaluated prior to the magnetic resonance imaging era. The median survival time after the diagnosis of brain metastases was 6.27 months (95% CI, 4.48-8.06 months). The combination of surgical resection and whole-brain radiation therapy (WBRT) resulted in a longer survival time (median, 23.07 months) than did WBRT alone (median, 5.33 months) or surgery alone (median, 6.90 months) ( $p < 0.01$  in both instances, multivariate Cox proportional hazards model analysis). The prognosis for patients with brain metastases from ovarian cancer appears to be poor. The existence of systemic dissemination at the time of brain metastasis was associated with a worse survival trend. The only significant predictor of survival in our series was the treatment modality. In particular, the resection of brain metastasis from ovarian cancer followed by WBRT appeared to be superior to resection alone or WBRT alone <sup>2)</sup>.

<sup>1)</sup>

Pakneshan S, Safarpour D, Tavassoli F, Jabbari B. Brain metastasis from ovarian cancer: a systematic review. J Neurooncol. 2014 Aug;119(1):1-6. doi: 10.1007/s11060-014-1447-9. Epub 2014 May 1. Review. PubMed PMID: 24789253.

2)

Cohen ZR, Suki D, Weinberg JS, Marmor E, Lang FF, Gershenson DM, Sawaya R. Brain metastases in patients with ovarian carcinoma: prognostic factors and outcome. J Neurooncol. 2004 Feb;66(3):313-25. PubMed PMID: 15015663.

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