Metastatic squamous cell carcinoma to the brain: an unrecognized pattern of distant spread in patients with HPV-related head and neck cancer.

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Abstract

Head and neck squamous cell carcinoma (HNSCC) is notorious for local recurrence and metastatic spread to regional lymph nodes. Distant spread is uncommon, and brain involvement is rare. Over the past decade there has been a rising incidence of HPV-related HNSCC, but it is not known if this escalation has had any impact on trends relating to brain involvement. Cases of metastatic squamous cell carcinoma (SCC) to the brain were identified from a computerized search of the surgical pathology files of The Johns Hopkins Hospital between 1985 and 2012. The medical records were reviewed to document primary site of tumor origin, treatment, and patient outcome. P16 immunohistochemistry and HPV in situ hybridization were performed on those metastases arising from the head and neck. Of the 38 metastatic SCCs, 7 (18%) originated in the head and neck. HPV-16 was detected in 4 (57%) of the metastatic HNSCCs. All 4 HPV-positive metastases were from oropharyngeal primaries. The time from treatment of the primary to development of the brain metastasis ranged from 19 to 57 months (mean, 45). Following aggressive treatment (surgery and radiation), two patients died of disease progression (7 and 34 months), and two are alive with recurrent brain metastases (4 and 10 months). Although HPV positivity is regarded as a favorable prognostic indicator, it does not safeguard from spread to the brain. In our experience, just over half of the HNSCCs that metastasized to the brain were HPV-related. The potential for developing a brain metastasis long after curative therapy argues for extended patient follow-up. The development of a brain metastasis is an ominous finding signaling rapid clinical deterioration.