

Metastatic Intracranial Papillary Adenocarcinoma Forming Collision Tumor with Incidental Intracranial Meningioma

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Received: July 25, 2022 Published: August 10, 2022

Abstract

Background: Meningioma has been considered the most common primary intracranial tumor to contain tumor-to-tumor metastasis. Tumor to tumor metastasis should be suspected in cases of meningioma in a patient with background cancer, regardless of meningioma parameters or cancer status.

Discussion: The phenomenon has been reported in the literature for over a century. However, it remains uncommon. Virtually any benign or malignant tumor can be a recipient, but meningioma has been implicated as the most common. Our case histopathology revealed collision tumor between the incidentally found meningioma and metastatic papillary carcinoma of the endometrium.

Conclusion: Uterine papillary adenocarcinoma metastasis is a rare event; with the tumor to tumor metastasis to incidentally diagnosed intracranial meningioma is also considered uncommon event and so as neurosurgeon we should know and consider such events when dialing with intracranial meningioma.

Keywords: Intracranial tumor, tumor to tumor metastasis, Intracranial Meningioma

Introduction

Intracranial tumor-to-tumor metastasis phenomenon has been described previously in the literature a long time ago.

Meningioma has been considered as the most common primary intracranial tumor to contain tumor-to-tumor metastasis. The most common cancer origins of tumor to tumor metastasis were breast and lung carcinoma, followed by kidney, prostate, and GI tract carcinoma. Tumor to tumor metastasis should be suspected in cases of meningioma in a patient with background cancer, regardless of meningioma parameters or cancer status(1).

The most common pattern of tumor-to-tumor metastasis for intracranial neoplasms is the type in which an aggressive high-grade malignancy serves as the source of tumor and a more benign neoplasm serves as the recipient tumor. Although rare, neurosurgeons should be aware of the entity of tumor-to-tumor metastasis.

Uterine papillary serous adenocarcinoma of the endometrium has a low propensity to metastasize to the brain. Most endometrial cancers (75%) are diagnosed in early stages (stages I and II), in which abnormal uterine bleeding is the most frequent clinical sign. When the diagnosis is performed in stage IV, the most common sites of metastasis are the lungs, liver and bones. So Central nervous system (CNS) metastasis is a rare condition (2)

Case presentation

50 year old lady with free medical background and free of chronic illness, presented with recent history of visual disturbances inform of blurring of vision associated with attacks of headache frequent and mainly felt over the occipital head region not responding well to the simple analgesia after which both complaints followed by unsteadiness in gait and all three last only for 25days before seeking medical advice.

Reviewing other systems were unremarkable. No past medical history of such complaint or relevant events unremarkable social and drug history.

On clinical assessment patient was vitally stable, afebrile. On general neurological assessment she was fully conscious, cooperative and oriented in self and surrounding with intact speech and memory, intact cranial nerves with intact motor and sensory function of both upper and lower limb. Visual assessment clinically revealed defective visual acuity otherwise unremarkable. On assessment of her gait, she had unsteadiness with walking especially alone but is corrected with assistance during mobilization. No positive signs for cerebellar dysfunction during assessment.

Patient is investigated accordingly with MRI brain with contrast (figure1, ABC) in addition to the routine workup and result of brain imaging showed intra axial lesion with heterogenous enhancement located in the right occipital lobe with small ipsilateral high parietal homogenously enhancing lesion. The first lesion has the radiological feature of glioma and the second one has the feature of meningioma. Other investigation or relevant workup was unremarkable. Patient is planned for surgical intervention targeting both lesion in one session which is achieved via occipital craniotomy with gross total resection done for both lesions and patient passed through uneventful postoperative period which was short inpatient and after which patient is discharged in good clinical condition and ongoing improvement in the presenting complaints histopathology report showed feature of metastatic carcinoma in the occipital biopsy and meningioma in the second parietal lesion with feature of tumour to tumour metastasis (collision tumor) from the carcinoma to the meningioma which is a rare events. Based on this patient underwent work up for possible primary focus. CT chest and abdomen done and they were negative for any relevant lesion. Follow up CT brain done postoperative and showed total excision of both lesion (figure2).

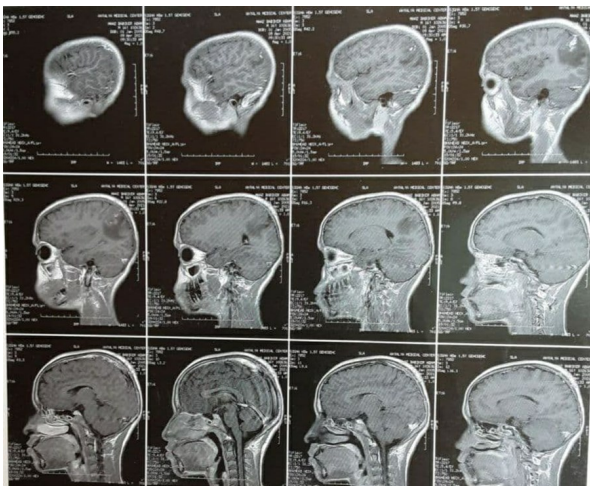


Figure 1A: MRI brain T1 weighted image with contrast, sagittal cut shows the metastatic carcinoma in the occipital region and the small parietal parasagittal incidentally found meningioma.

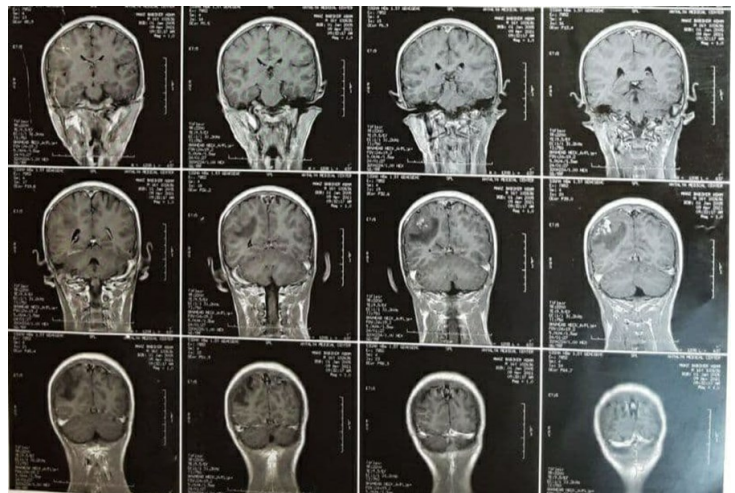


Figure 1B: MRI brain T1 with contrast coronal cut of the same lesion.

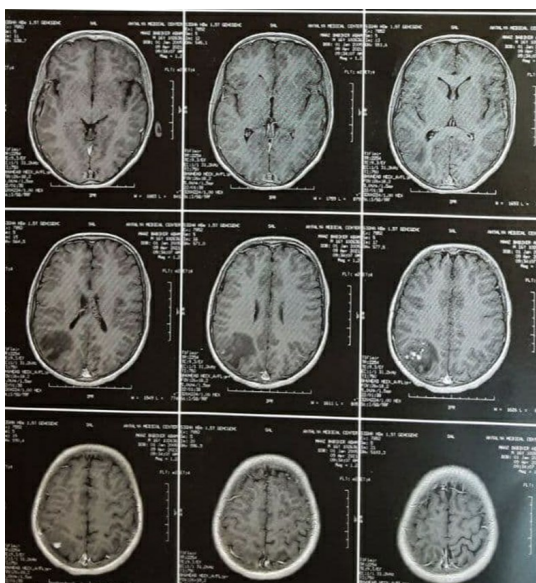


Figure 1C: MRI brain T1 with contrast axial cut of the same lesions.

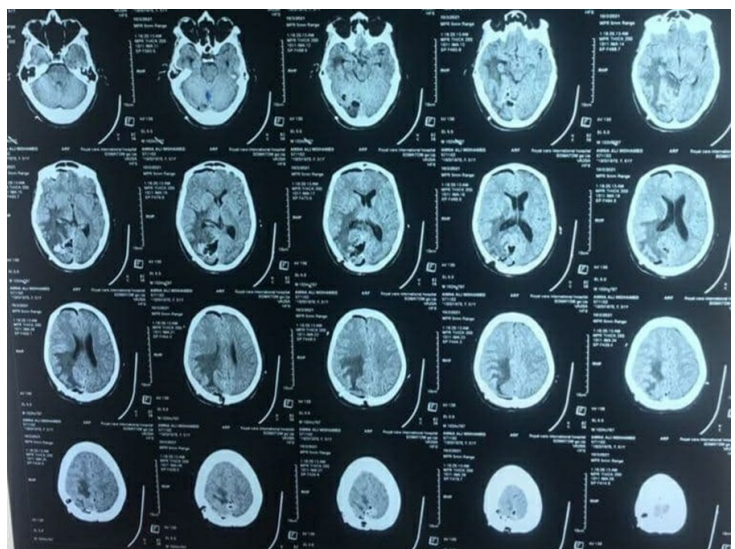


Figure 2: Plain CT brain done as follow up scan shows totally excision of both lesions.

Discussion

The phenomenon of tumor-to-tumor metastasis has been reported in the literature for over a century. However, it remains fairly uncommon, with fewer than 100 cases being described during that time. Virtually any benign or malignant tumor can be a recipient, but meningiomas have been implicated as the most common intracranial neoplasm to harbor metastasis. The donor neoplasm is most frequently lung or breast carcinoma, while rare cases of metastasis from other primary tumors have been reported.

There are two cases reported in the literature, the first is adenocarcinoma found in the GI tract, pancreatic, biliary or lungs and second case was breast carcinoma. The proposed pathophysiology behind the phenomenon is that meningioma has significant hypervascularity with increased cerebral perfusion and low metabolic activity which all provide a rich environment for the metastasis. Literature noted that primary breast neoplasms are more likely to spread to meningioma due to the estrogen and progesterone receptors found in the meningioma (3).

Our case histopathological examination showed collision tumor between the incidentally found meningioma in the parietal region and metastatic carcinoma which is serous papillary mostly comes from the uterine endometrium. In the literature there are reported cases of brain metastasis from the endometrial carcinoma and it is considered uncommon and severe complication. The way of spread is through hematogenous and mostly associated with widespread disseminated disease. Brain metastasis considered usually a late event in the course of the disease. Prognosis after the diagnosis of brain metastases showed dismal, no satisfactory guidelines for therapy are available. Surgical resection followed by whole brain radiotherapy is considered the best option in patients with solitary and/or respectable metastases in presence of control of systematic disease (4). Data available in the literature portraying brain metastasis as a poor prognostic sign with a low survival (2).

Conclusion

Uterine papillary adenocarcinoma metastasis is a rare event firstly; with its second tumor to tumor metastasis to incidentally diagnosed intracranial meningioma is also considered uncommon event mentioned in the literature and needs reporting and documentation. So as neurosurgeon we should know and consider such events when dialing with intracranial meningioma and primary lesion of such origin and to consider the event of intracranial metastasis with possibility of tumor to tumor metastasis so as to help in the plan of management especially the surgical excision which should be done for both intracranial lesion if they are both accessible in one session like in our case.

Conflict of Interest

The authors declare no conflict of interest.

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Citation: Eljili F, Zaidan A, Imam M, Mustafa M, Awad A. "Post Metastatic Intracranial Papillary Adenocarcinoma Forming Collision Tumor with Incidental Intracranial Meningioma". *SVOA Neurology* 2022, 3:4, 154-156.

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