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SIGNET-RING CELL CARCINOMA METASTASIZED INTO THE MENINGIOMA: A CASE REPORT

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Abstract:-

Metastasis of extracranial malignant neoplasms to meningioma seen very rare (“tumor to tumor metastasis”). Metastasis to meningiomas are most frequently primary tumors of the breast and lung, while metastasis from the kidney tumors, thyroid, and uterus endometrium and even from melanomas have also been reported (1-5). According to our knowledge; this case, signet-ring cell adenocarcinoma infiltration in a small focus within the intracranial meningotheial meningioma seems first in the literature.

Keywords:- “Tumor to tumor metastasis”

CASE REPORT

A sixty-four-year old patient admitted to outpatient clinic with headache localized to the parietal area. The patient's headache was for the last 2-3 months in only one region of the head. He also described weakness on the left side for about two weeks. Left hemiparesis was found in physical examination. Cranial MR images were taken; a cystic component on the left frontoparietal area as well as an extraaxial mass with a predominantly solid appearance which displayed an intense contrast involvement and measured 8.6x5.9x5 cm at its widest point. The examination of whole body PET / BT scans identified a parenchyma nodule which showed FDG involvement at malignity level in the lower lobe of the right lung, a second nodular formation in the right lateral neighbourhood of the nodule with no definite boundaries, lytic bone lesions in the skeletal system and a mass with a bilobular appearance in the right frontoparietal lobe, which did not exhibit FDG involvement. Bronchoscopic lung biopsy was performed, but it did not give sufficient results. In the detection of primary focus; GIS endoscopy was also normal and, therefore, no biopsy was undertaken. During the follow up his complaints as the neurological symptoms increased, the patient underwent brain surgery.

The operation material was macroscopically grayish white dura 4.5x4x3 cm in total, irregular shaped and membranous in some parts. In the histopathological examination; tumor tissue with a syncytial and whorling pattern consisted of meningothelial cells with a monotonous nucleus containing oval pseudoinclusion in a fibromatous stroma was found. The fibromatous stroma was associated with a membranous tissue which was calcified in parts and like thick fibrotic dura. An increase in fibrous tissue was detected in the stroma as well as cellular whorling formations in a large area and psammomatous calcification focuses. Hypercellularity, patternless growth, cytologic atypia, pleomorphism, nucleolar prominence, increase in mitotic activity, necrosis, increase to a nucleocytoplasmic extent and small cell formations were not detected. Moreover, among these tumor tissue fragments, dissociated cell groups drew our attention; atypic epithelial cells with a medium-sized vacuolized cytoplasm and an eccentrically located hyperchromatic nucleus which exhibits very sparse sequences and incomplete acinar formations were seen. Histochemical examination performed by PAS-AB and Alcian Blue positivity in the cytoplasmic vacuoles was found. In immunohistochemical staining TAG-72, MUC2, MOC31, CEA, CK7 were positive. CK 20 and TTF-1 was found positive in external control and no staining was identified in tumour cells.

As a result of these findings the case accepted as signet ring adenocarcinoma metastasis into the meningioma.

DISCUSSION

A tumour rarely metastasizes into another tumor. Among 20 cases of "tumor to tumor metastasis", 17 of had metastasis to the meningioma and 3 cases to the neurilemmoma; It was established lung-derived carcinoma in men usually metastasizes into another tumor, whereas breast-derived carcinoma in women (6). Metastasis secondary to tumors except for those meningioma and neurilemmoma, only a few cases are reported in the literature. Metastasis of cervical carcinomas of the uterus into renal-cell carcinoma, urothelial carcinoma into a solitary fibrosis tumor in the pleura, pancreas-derived carcinoma into a solitary fibrosis tumor in the central nervous system, bladder-derived carcinoma into lung adenocarcinoma and lung adenocarcinoma into ovarian serous cystadenoma are some examples (710).

High vascularity, indolent growth, high collagen and lipid content which facilitates secondary tumor metastasis and involving immunological factors such as the expression of E-cadherin and some other surface adhesion molecules, for these reasons meningiomas have found the most common intracranial tumor to host a metastatic cancer (6, 11). Literature reviews suggests that the most frequently reported metastases are lung and breast carcinomas, while less frequent metastases are malignant melanoma, renal cell carcinoma, thyroid follicular carcinoma, gall bladder and parotid carcinomas. In our case, "signet-ring cell adenocarcinoma was identified in some small focuses within the intracranial meningothelial meningioma and. We find valuable for writing because it is a rare case.

Since the clinical and endoscopic examination performed on our case did not identify a primary focus in the gastrointestinal system and we had PET/CT findings concordant with a multiple metastatic focus in the lungs and bones apart from the focus in the brain, the ultimate differential diagnosis was made on the basis of primary lung adenocarcinoma containing a "signet-ring" cell component but TTF-1 immunohistochemical staining carried out to this end yielded no positivity that confirmed this. However, as TTF-1 positivity in less differentiated lung adenocarcinomas with a "signet-ring" cell component can be maximum 50% (12), our case was thought to have a mainly lung-derived adenocarcinoma metastasized into the intracranial meningioma and it was advised that the gastrointestinal system, particularly the lungs of the patient be subjected to detailed examination. No primary focus was detected in the patient as he died after the operation. The likelihood of carcinoma metastasis into the meningioma cannot be definitely ruled out by means of existing neuroradiological means. However, in the event of sudden clinical deterioration, rapid growth in the tumour in recent times, atypical changes in the imaging methods and a history of accompanying carcinoma and particularly the possibility of "tumor to tumor metastasis" should be considered and this possibility should be absolutely ruled out using advanced examination methods.

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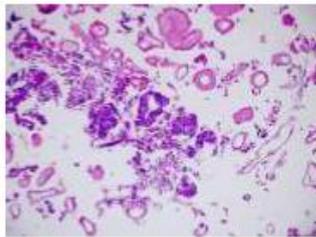


Figure 1: Frequent whorl formations and the metastatic tumor cells in "signet ring cell" morphology in a meningothelial meningioma that shows psammomatous calcifications and glands (H&E, X200)

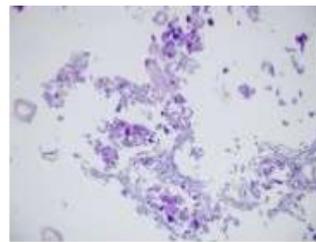


Figure 2: Cytoplasmic Alcian blue positivity in metastatic tumor cells (Histochemistry X 200)

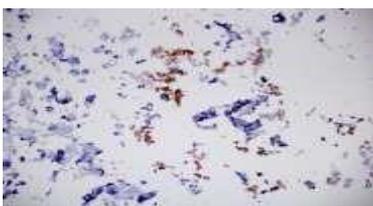


Figure 3: Positive staining with CEA in metastatic tumor cells (Immunohistochemistry X100)

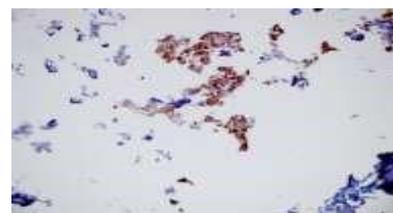


Figure 4: Positive staining with MOC 31 in metastatic tumor cells (Immunohistochemistry X200)

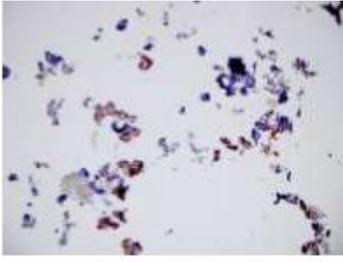


Figure 5: Positive staining with MUC2 in metastatic tumor cells
(Immunohistochemistry X 200)

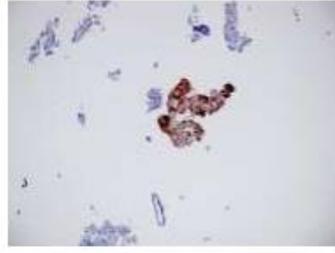


Figure 6: Positive staining with TAG72 in metastatic tumor cells
(Immunohistochemistry X 200)