Case report

A rare case of malignant meningioma

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ABSTRACT

AIMS & OBJECTIVES: Atypical and malignant meningiomas are uncommon tumors with aggressive behavior and higher mortality, morbidity, and recurrence compared with benign tumors. We report a case report of malignant meningioma. MATERIALS & METHODS: A 53 year old male patient, presented with history large ulcerative swelling over the scalp for the past 5 years, with complaints of altered and aggressive behaviour and headache. Patient gives history of operation for benign meningioma 4 years back.Patient underwent MRI & CT Brain plain and contrast. RESULT: Patient underwent MRI & CT Brain plain and contrast, showed a large heterogeneously enhancing extraxial mass lesion with irregular margins, significant extracalvarial spread and mushrooming into the brain parenchyma in the temporal & parietal regions. The lesion showed intratumoral cysts within it. On MRS significant choline, lipid and lactate peaks with near total dampening of NAA, Cr, MI peaks. The mean ADC values were (0.5 - 0.8 × 10⁻³ mm²/s) was suggesting a high grade cellular lesion. CONCLUSION: Anaplastic or malignant meningioma (MMen) corresponds histologically to WHO grade III. Frankly malignant meningiomas are rare, representing only 1-3% of all meningiomas. MMen have a striking male predominance. The imaging triad of extracranial mass, osteolysis, and “mushrooming” intracranial tumor is present in most but not all cases of Malignant meningiomas.
Discussion:
Meningiomas arise from arachnoid meningothelial (“cap”) cells. Between 50-60% of meningiomas have inactivation of the NF2 gene product Merlin due to 22q loss. Allelic losses on 1p and 3p are also common in sporadic meningiomas, particularly higher grade lesions. Meningiomas can also be induced by radiation, with a dose-related time interval to tumor development that varies from 20 to 40 years. Many of these tumors have chromosome 7 monosomy.

Most meningiomas have progesterone or oestrogen receptors. Meningioma is one of the few brain tumors that exhibit a female predominance.

Meningiomas are graded into 3 grades by WHO.

I-Typical meningioma: these lesions are benign and account for 90% to 95% of lesions.

II-Atypical: these demonstrate intermediate hypercellularity and mitotic activity. They account for approximately 5% of lesions.

III-Anaplastic (malignant): they are characterized by necrosis, abundant mitoses, and parenchymal invasion. They account for 1% to 2% of meningiomas.

Histologically they can be divided into:
- Syncytial
- Fibroblastic
- Transitional
- Psammomatous
- Papillary
- Malignant meningioma
- Sarcoma of the meninges

CT and MRI play important roles in the diagnosis of meningioma. Typically, meningiomas are sharply demarcated and hyperdense on CT. On MRI, the tumor is iso- or hypointense on non-contrast T1-W, and iso- or hyperintense on T2-W. Homogeneous enhancement is observed after contrast administration.

The imaging triad of extracranial mass, osteolysis, and “mushrooming” intracranial tumor is present in most but not all cases of Malignant meningiomas.

Malignant meningiomas also show adc values in the range of (0.66 ± 0.13 × 10−3 mm2/s) which are significantly lower compared with benign meningiomas (0.88 ± 0.08 × 10−3 mm2/s).

Intratumoral cysts and necrotic areas areas are also seen in malignant variant.

MRS shows significant choline peak, absent or reduced NAA or Cr peaks, increased alanine and glutamine peaks.

Conclusion:
Anaplastic or malignant meningioma (MMen) corresponds histologically to WHO grade III.
Frankly malignant meningiomas are rare, representing only 1-3% of all meningiomas. MMs have a striking male predominance.

The imaging triad of extracranial mass, osteolysis, and “mushrooming” intracranial tumor is present in most but not all cases of Malignant meningiomas.

REFERENCES


