Fibrous meningioma

Fibrous meningiomas (also known as fibroblastic meningiomas) are the second most common histological subtype of meningioma, found in ~50% of all meningiomas, usually along with meningothelial histology (40%) or in isolation (7%). They are, for some reason, the most common intraventricular meningioma histological subtype.

Pathology

Fibrous meningiomas are characterised by spindle shaped tumour cells, with narrow rod-shaped nuclei. These cells are embedded in abundant collagenous or reticulum background. Whorls are far less common than in meningothelial meningiomas, and psammoma bodies are only occasionally encountered.

Radiographic features

Although generally they have very similar appearances to meningothelial meningiomas (most commonly they are mixed in, and known as transitional meningioma), in very collagenous tumours, fibrous meningiomas can have lower T2 signal.

Differential diagnosis

It should be noted that in very fibrous tumours, which have lower T2 signal, the differential specifically includes:

Solitary fibrous tumors of the dura.

Erdheim Chester disease.

Solitary fibrous tumor/hemangiopericytoma (SFT/HPC) and meningioma exhibit similar radiographic features, however, they differ in their prognoses. Preoperative differentiation between them is important for determining the treatment and follow-up plan.

Age and myo-inositol level calculated from MRS are useful factors for distinguishing SFT/HPC from meningioma preoperatively [1].

1)
Ohba S, Murayama K, Nishiyama Y, Adachi K, Yamada S, Abe M, Hasegawa M, Hirose Y. Clinical and radiographic features for differentiating solitary fibrous tumor/hemangiopericytoma from meningioma. World Neurosurg. 2019 Jun 21. pii: S1878-8750(19)31646-8. doi: 10.1016/j.wneu.2019.06.094. [Epub ahead of print] PubMed PMID: 31233926.