Tumor cyst

Tumor cysts may be a nutrient reservoir for brain tumors, securing tumor energy metabolism and synthesis of cell constituents.

Serum is one likely source of cyst fluid nutrients. Nutrient levels in tumor cyst fluid are highly variable, which could differentially stimulate tumor growth. Cyst fluid glutamate, lactate, and phosphate may act as tumor growth factors; these compounds have previously been shown to stimulate tumor growth at concentrations found in tumor cyst fluid.¹⁾.

see Cyst formation.

Types

Cystic brain metastases.

Epidermoid cyst

Cystic glioblastoma

Cystic meningioma

Cystic craniopharyngioma

Cystic prolactinoma

Cystic schwannoma

Cystic vestibular schwannoma.

Cystic lesions in the atrium (trigone) of the lateral ventricle may become symptomatic due to obstruction of physiological CSF circulation and/or from mass effect on adjacent structures.

Radiographic features

The main challenge in discrimination between intracranial cystic lesions is to differentiate benign inflammatory cystic lesions (as cerebral abscess) from malignant cystic lesions (as cystic metastases and cystic glioma) which have totally different management.

CT well defined intra-axial cystic lesion with peripheral ring enhancement usually presents with mass effect. mild perifocal oedema. enhancing margin as well as the soft tissue component. MRI T1: homogeneously hypointense T1 C+ (Gd) solid component usually enhances T2: hyperintense FLAIR: cystic areas show hyperintensity relative to CSF due to higher protein contents DWI: no restriction for the cystic component; the solid component may show restriction according to the grade MR spectroscopy: high Cho/Cr ratio MR perfusion: no appreciable perfusion changes could be usually seen

Differential diagnosis

Cerebral abscess.

Cystic metastases

intracranial hydatid cyst

other intra-axial cysts, e.g. intra-axial arachnoid cyst, neuroglial cyst, porencephalic cyst

1)

Dahlberg D, Struys EA, Jansen EE, Mørkrid L, Midttun Ø, Hassel B. Cyst Fluid From Cystic, Malignant Brain Tumors: A Reservoir of Nutrients, Including Growth Factor-Like Nutrients, for Tumor Cells. Neurosurgery. 2017 Jun 1;80(6):917-924. doi: 10.1093/neuros/nyw101. PubMed PMID: 28327992.

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