

Cerebral Hemispheric Tumors in Children

| Tumor | Key Findings | généralités | Pathology | Imaging |
|--|--|--|--|---|
| Astrocytoma | Most common tumor (30%) low grade (welldefined) -> high grade MR appearance varies with grade/histo | All age (7-8y) first (30%) | deep in Hemisph, large solid+/-necrosis+/-cystic-nod Pas de ca++ | CT: solid= iso or hypo => C+ solid part or mural nodule MR: hypoT1 et hyperT2 => C+ solid part or mural nodule |
| Giant cell tumor (Astrocytoma) | Develop from ventricular wall Usually near foramen of Monro | All age (5-10y) with STB subependym =>HC! | from ventricular wall (monroe) well-defined , intraventric or deep periventric | CT: solid= iso or hypo => C+ homogene MR: hamartomas & hyperT2 => C+ homogene |
| Ependymoma | Peritrigonal, heterogeneous MR appearance varies homo => hetero DD: choroid carcinoma | 1-5y 30% supratento rarely intraventric!! (P et T) glial way!! | well-defined (DD astrocytoma) 50% Ca+++ frequent cystic (large lesion) | CT: solid = hyperdense 50% cyst + Ca++ => solid part C+ MR: large hetero extensive oedema as astro high grade pfs homo as astro low grade peritrigonal solid isoGray + DWI normal |
| PNET | Young children, heterogeneous Solid part: gray matter intensity renal US (PNET) | 0-5y 90% undiff cells HISTO= MBome ATRT NBome SUBTYPE: MEome, GNBome, EBome DD: glioma HGrade, ependymoma,ATRT | deep in Hemisphere, large " well-defined "(larger than seen) Heterogenous 50% necrosis 50% Ca+++ M+ => LCR, liver, bone, lungs 10% Hemorr | CT: solid = hyperdense / microCa+++=> solid C+ (homo/hetero/ring) MR: solid part isoGray & DWI up cystic part hypoT1 hyperT2 hypoFLAIR necrosis part hypoT1 hyperT2 hyperFLAIR Hemorr part hyperT1 hyperFLAIR |
| Astroblastoma | Peripheral hemisphere. Lobulated. Solid/cystic. Little edema. Solid part: gray matter intensity on T2 | Children and teens (14y) Other neuroepith tumor TM <=> TB NON DIFF ON IMAGING | solid (+/- cystic) Large well-defined, lobulated Periph hemisphere | CT: hyperdense Ca++ + oedema heteroT2 (microcysts) small vasogenic oedema (pfs important) hétéro C+ solid part (ring around cost) |
| Mixed neuronal-gliar tumors (GGome; GCome) | 3% T+ SNC Cortical + calvarium erosion Calcification, cysts common | 8-12 y +/- hippocampal sclerosis T & P (DD astro/ ODGome) 3°V pineal HT (DD astro) | Small firm defined microCa+++ cystic | CT: well-defined cortical, hypo + small oedema + cyst + Ca+ +/-C MR: hyperT2 (solid or cyst or mixed or mural nodule) +/-C |
| Oligodendroglioma | rare pédia slow growing => calvarium erosion | hemispheric F & T | Ca+ frequent | CT: round sharply defined hypo-isoGRAY CA+ & cyst (40%) +/-C MR: aspecif (sharply defined, Ca+) BUT small or no C+ (DD astro!) |
| Desmoplastic neuroepithelial tumors | Periph / Large cysts, solid part invades dura desmoplastic stroma (fibroblasts) | <u>Young</u> infants (5m) | Large invading dura cysts + always cortical solid | CT: solid = hyperdense => solid intense C+ MR: isoT1 et isoT2 => solid intense C+ |
| Dysembryoplastic neuroepithelial tumor (DNET) | Cortical location , Marked T2 hyperintensity | TB, Asympto or refractory epilepsy | 60% temporal: solid+ cyst or microcyst (floating neuron) near cortical dysplasia | CT: well defined, lobulated, hypodense -C MR: hypoT1 et hyperT2 + 40% Ca++ & cyst DWI up / spectro N |
| Atypical teratoid/rhabdoid tumor | Young infants. Often large at presentation Cortical intensity on T2, cysts | 0-10y (<4y) Embryonal T+ (as MBome & PNET) | 50% supratento, large++ (5cm) undefined =>non surgical solid +/- necrosis +/- cystic (histo: varying cell type+++) | CT:solid = hyperdense => hétéro C+ solid part MR: solid isoGray + necrosis + cyst + Ca++ DWI up NON DIFF ON IMAGING ATRT, EPENDYMOMA (<2Y) OR PNET |
| Medulloepithelioma | No enhancement | 0-5y <i>subtype PNET</i> | periventric (or suprasellar, cvt) well-defined homogenous TM++ (hemorr) | CT: iso or hypo => C- MR: hypoT1 et hyperT2 => C- |
| Plasma cell granuloma | inflammatory pseudotumor (lung, cns) calvarium erosion or hyperostose if paradural (DD meningioma) | All ages | everywhere, inside parenchyma or outside If inside, preferentially peripheral EX: plexus choroid, cavernous sinus | CT: hyperdense Round, sharply defined MR: HypoT2 C+ homogenous |
| Meningioangiomatosis | Benign hamartomatous NF2 | 10-15 y | peripheral mass without effect mass Ca++ & cysts | CT: hyperdense MR: Hypointense with hyperT2 peripheral C+ hetero |
| Germinoma | Basal ganglia | | Hetero with solid and cystic areas; solid portions | isointense to gray matter on T2 and uniformly C+ |
| Posttransplant lymphoproliferative disorder in ID | Markedly enhance | | Marked vasogenic edema | Multiple foci of gray matter intensity on T2slightly hyperintense to gray matter on FLAIR Markedly enhance |
| Teratoma | 0-1 y | Midline | hétéro with fat Ca** cyst | hétéro with fat |