Multiple intracranial calcifications

1. common

a) choroid plexus: the most common site for physiologic calcification(in lateral ventricles where it is usually bilateral and symmetric; rare in 3rd & 4th ventricles). Increases in frequency and extent with age (prevalence: 75% by 5th decade). Rare under age 3. Underage 10, consider possible choroid plexus papilloma.

b) basal ganglia (BG): slight bilateral BG calcifications on CT are common, especially in the elderly. Considered a normal radiographic variant by some. They may be idiopathic, secondary to conditions such as hypoparathyroidism or long-term anticonvulsant use, or part of rare conditions such as Fahr's disease. BG calcifications > 0.5 cm dia are possibly associated with cognitive impairment and a high prevalence of psychiatric symptoms (including bipolar and obsessive-compulsive disorders, but no patients had schizophreniform disorders)

2. uncommon

a) Fahr's disease: progressive idiopathic calcification of medial portions of basal ganglia, sulcal depths of the cerebral cortex, and dentate nuclei

b) hemangioma, AVM, Sturge-Weber syndrome, von Hippel-Lindau disease

c) basal cell nevus syndrome (falx, tentorium)

d) Gorlin's syndrome.Associated findings: mandibular cysts, rib, and vertebral deformities, short metacarpals. Medulloblastoma is seen in several patients

e) deposition of calcium in the media of medium-sized blood vessels without compromise of the lumen. Usually asymptomatic. May become symptomatic by the time the involvement is significant enough to be visible on plain X-ray in a young person

f) cytomegalic inclusion disease

g) encephalitis(e.g.measles,chickenpox,neonatal herpes simplex)

h) hematomas(SDHorEDH,chronic)

i) neurofibromatosis (choroid plexus)

j) toxoplasmosis

k) tuberculomas;tuberculous meningitis(treated)

l) tuberous sclerosis

m) hypoparathyroidism (including post-thyroidectomy cases35) and pseudohypoparathyroidism

n) multiple tumors(e.g.meningiomas, gliomas, metastases)

o) cysticercosis cyst: maybe single or multiple, see Neurocysticercosis(p.386)

In adult patients with suspicison incipient supratentorial grade II/III diffuse gliomas, presence of calcifications and larger preoperative tumor volume might be used as preoperative indices to differentiate between malignancy grades II and III in oligodendrogliomas (IDH-mutant and 1p/19q-codeleted) and larger preoperative tumor volume might have similar utility in IDH-mutant astrocytomas [1].

Ji C, Ahn JG. Multiple intracranial calcifications as a complication of external ventricular drain placement. J Korean Neurosurg Soc. 2010 Feb;47(2):158-60. doi: 10.3340/jkns.2010.47.2.158. Epub 2010 Feb 28. PubMed PMID: 20224720; PubMed Central PMCID: PMC2836456.

1)
Fukuya Y, Tamura M, Nitta M, Saito T, Tsuzuki S, Koriyama S, Kuwano A, Kawamata T, Muragaki Y. Tumor volume and calcifications as indicators for preoperative differentiation of grade II/III diffuse gliomas. J Neurooncol. 2023 Feb 7. doi: 10.1007/s11060-023-04244-3. Epub ahead of print. PMID: 36749444.