



**Supplementary Fig. 1.** Representative case of “local” recurrence. A 68-year-old woman with newly diagnosed GBM in the right medial frontoparietal region. A-C : Gross total removal was done followed by BCNU wafer implantation with adequate closing of the ventricle. D-F : Four years after surgery, recurrence occurred next to the resected cavity. G and H : Second surgery confirmed GBM recurrence. GBM : glioblastoma, BCNU : bis-chloroethyl-nitrosourea.