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Surgical management and long term outcome of pediatric patients with epilepsy and associated cerebral cavernous malformations

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Sufficient data on surgical treatment and seizure outcome of paediatric patients with different types of epilepsy, especially drug resistant epilepsy and associated cerebral cavernous malformations is scarce. The aim of this study was to carefully evaluate the seizure outcome using the ILAE classification with regard to the presurgical symptom duration.

Fifty one paediatric patients < 19 years with cerebral cavernous malformations of all CNS localisations have been operated at our institution. Twenty two patients with seizures or epilepsy harbouring cortically located supratentorial cerebral cavernous malformations underwent surgical treatment and were retrospectively analysed.

More extensive resections were used in 82% of all patients with epilepsy symptoms of more than two years. Eighty two percent of patients with shorter symptom duration < two years underwent circumscribed lesionectomy including the surrounding hemosiderotic rim. The overall rate of mild permanent, non anticipated post-operative deficits was 4.5%; the rate of anticipated neurological deficits was 9%. Mean follow up was > 117 months in all groups. Seizure outcome was excellent in the group with shorter symptom duration (< two years; 100% ILAE class 1). Seizure outcome was significantly worse in the group with longer symptom duration (P = 0.02) Seven patients were seizure free after surgery. Seizure outcome was stable over the years.

Since seizure outcome is worse with longer seizure duration prior surgery early and if needed interdisciplinary intervention is recommended. Even in case of multiple CCM and epilepsy surgery should be considered.