

Complications of Bacterial Meningitis: The Utility of Diffusion-weighted Imaging

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DWI in complicated course of bacterial meningitis

- **11 patients**
- **6 males**
- **5 females**
- **Age R=7days to 81 years**

DWI in complicated course of bacterial meningitis

- **Group B streptococcus** **2 pt**
- **Strepto Pneumoniae** **3 pt**
- **E coli** **2 pt**
- **St meningitides** **1 pt**
- **Bacillus sp** **1 pt**
- **Fusibacterium** **1 pt**
- **?** **1 pt**

MR patient evaluation

- **DWI and ADC maps (b=0, 1000sec/mm², 3 orthogonal orientations)**
- **T1, T2-weighted images**
- **Gd-enhanced T1-weighted images**
- **FLAIR**
- **MRA**

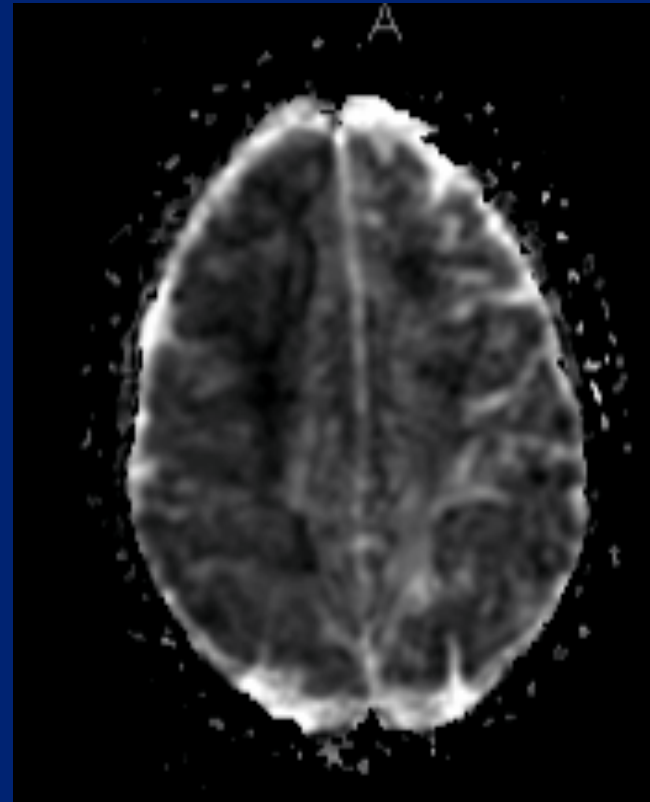
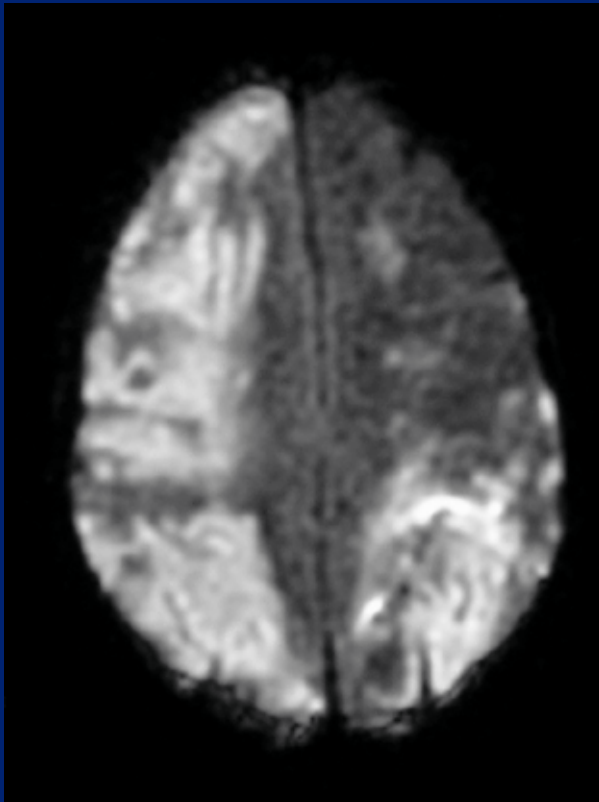
MR examination related to clinical presentation

- **9 pt = 2-6 days**
- **2 pt = 15-20 days**

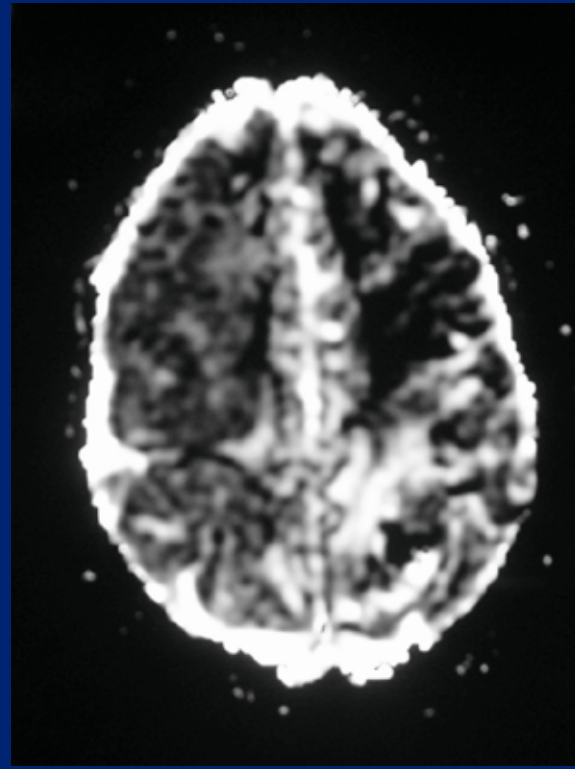
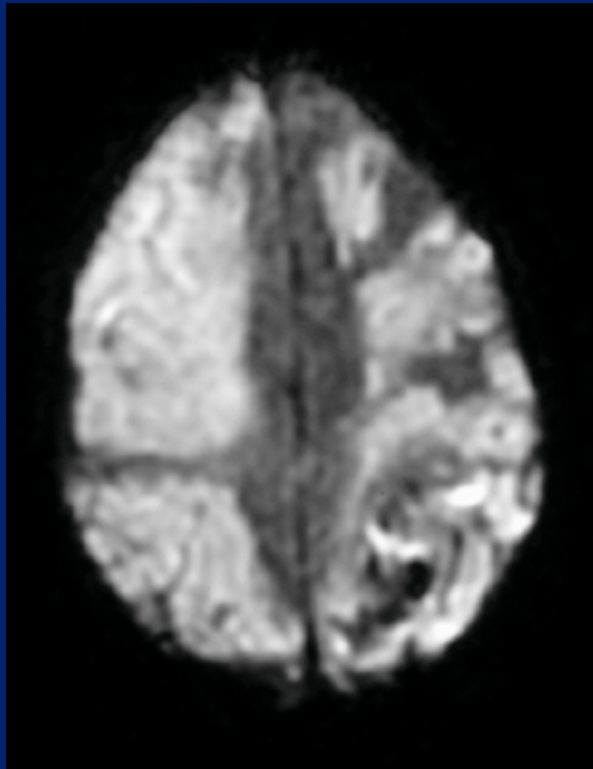
Results

- **Different degree of brain infarction=6 pts**
- **Brain infarction in bilateral fronto-parietal or parieto-occipital cortices = 3 pts.**

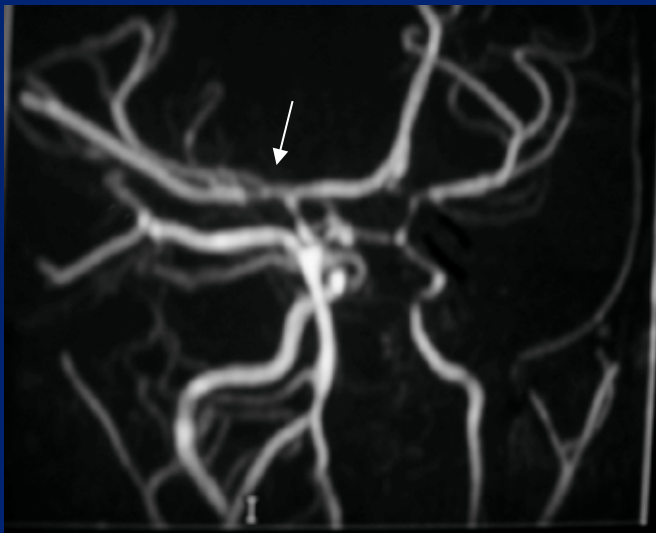
Brain Infarction



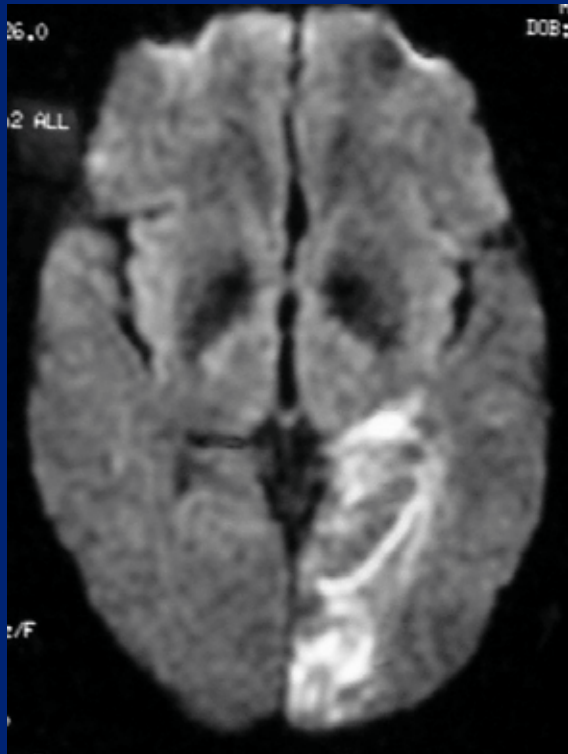
Brain Infarction



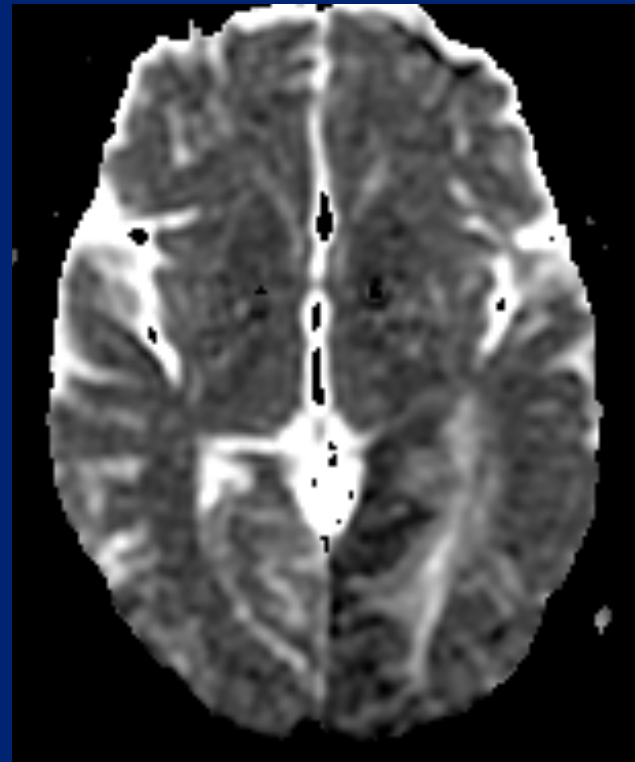
MRA COW



DWI

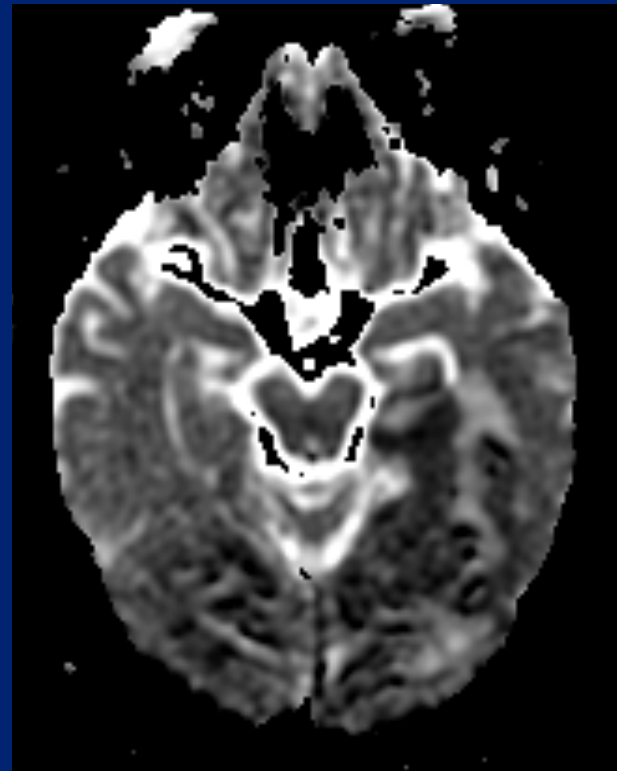
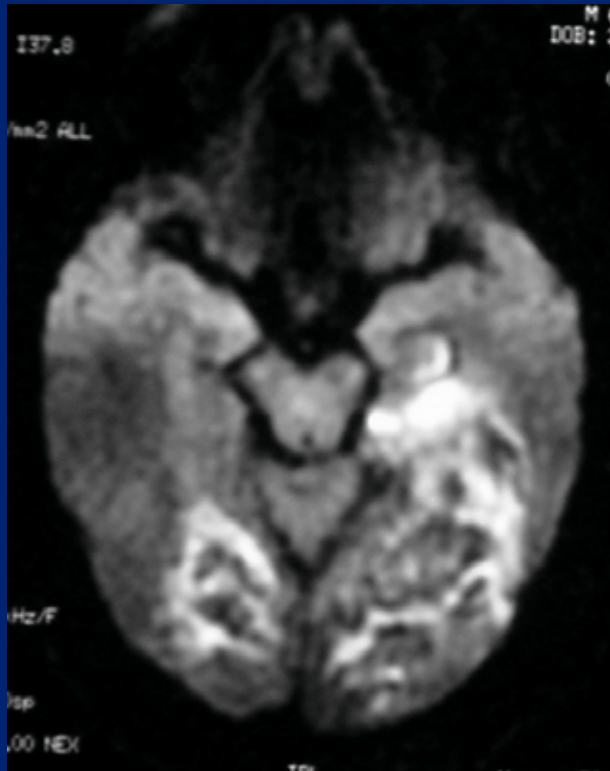


ACD



DWI

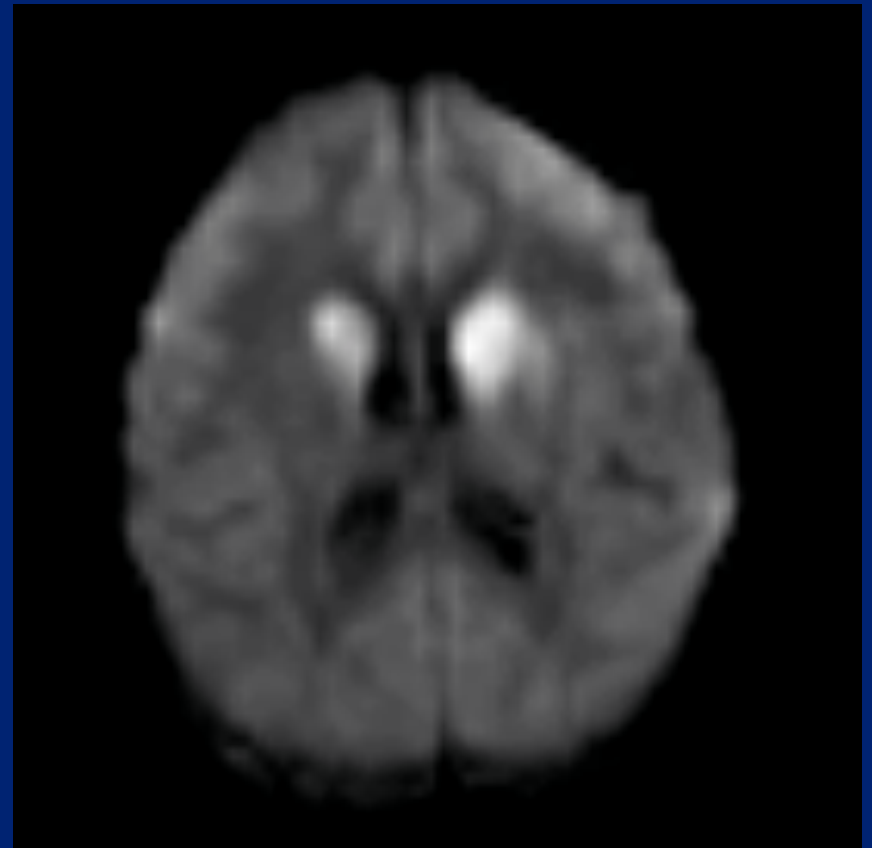
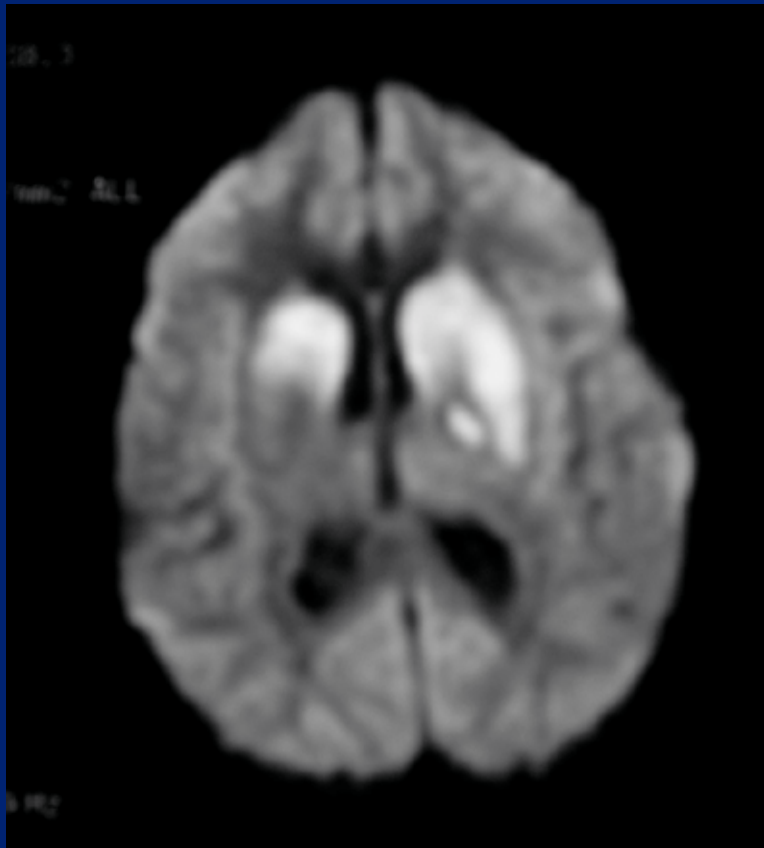
ADC



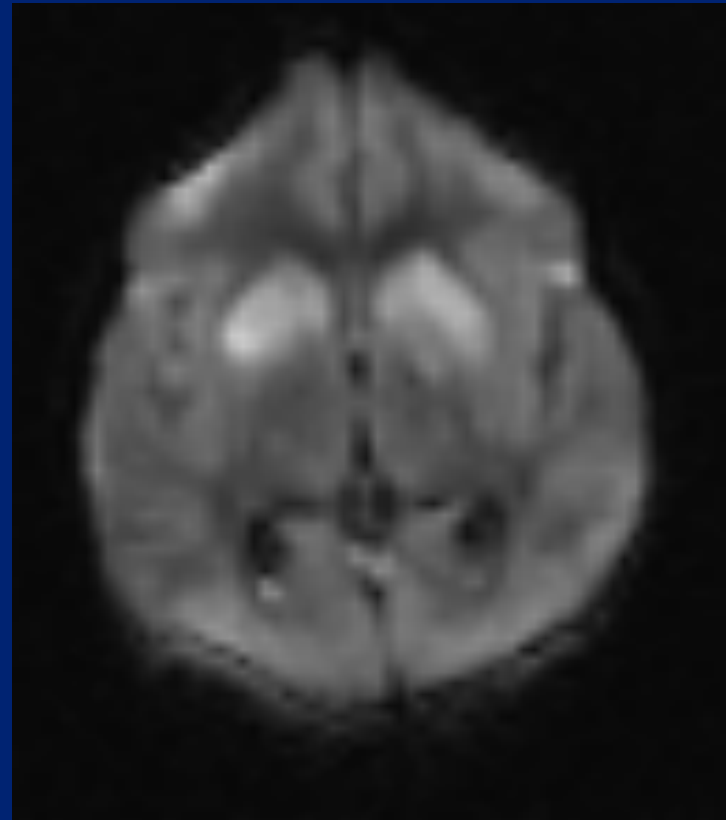
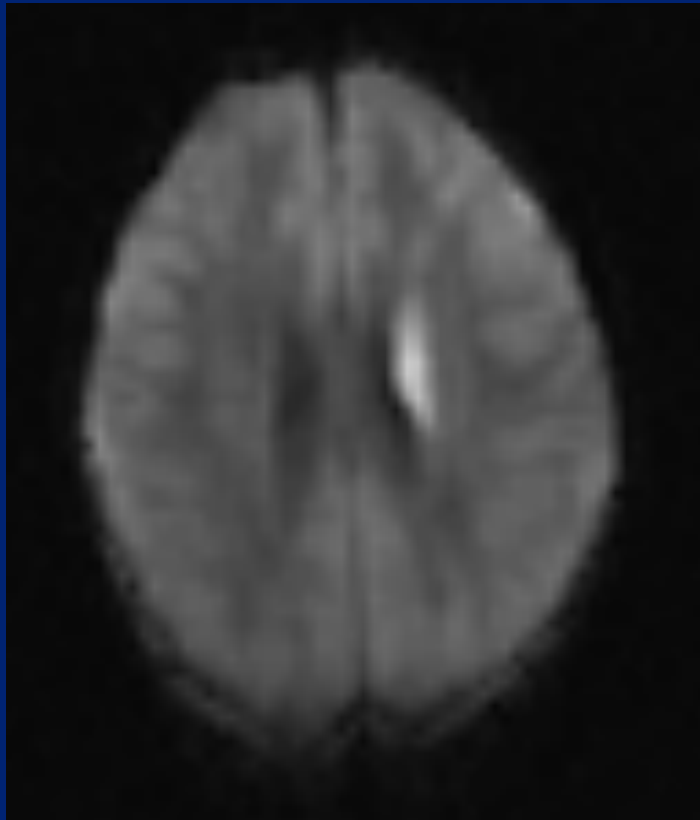
Results

- **Different degree of brain infarction=6 pts**
- **Brain infarction in bilateral fronto-parietal or parieto-occipital cortices = 3 pts.**
- **Bilateral basal ganglia, deep white matter or corpus callosum = 3 pts.**

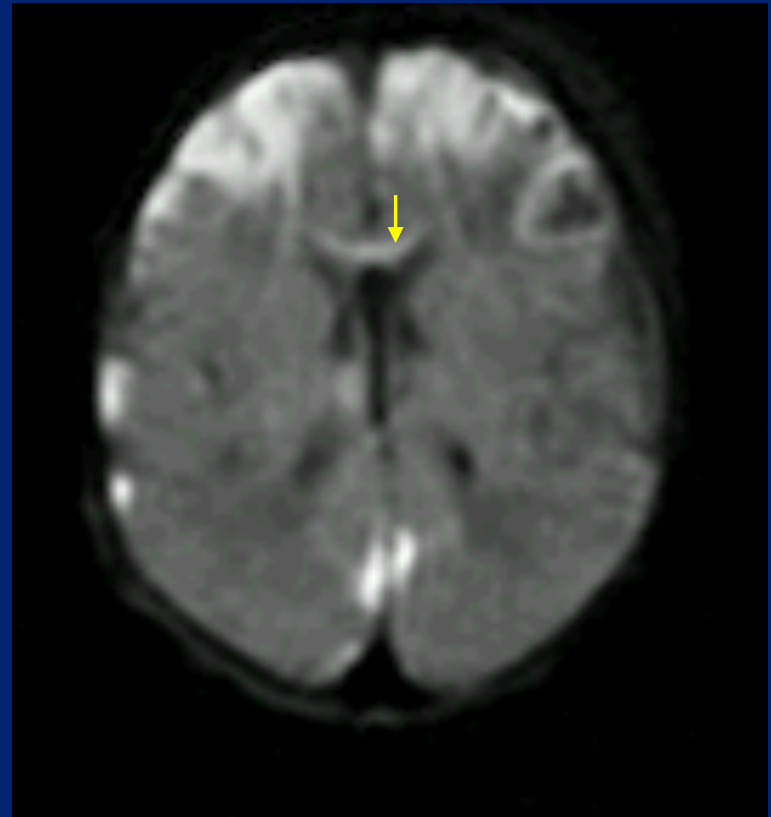
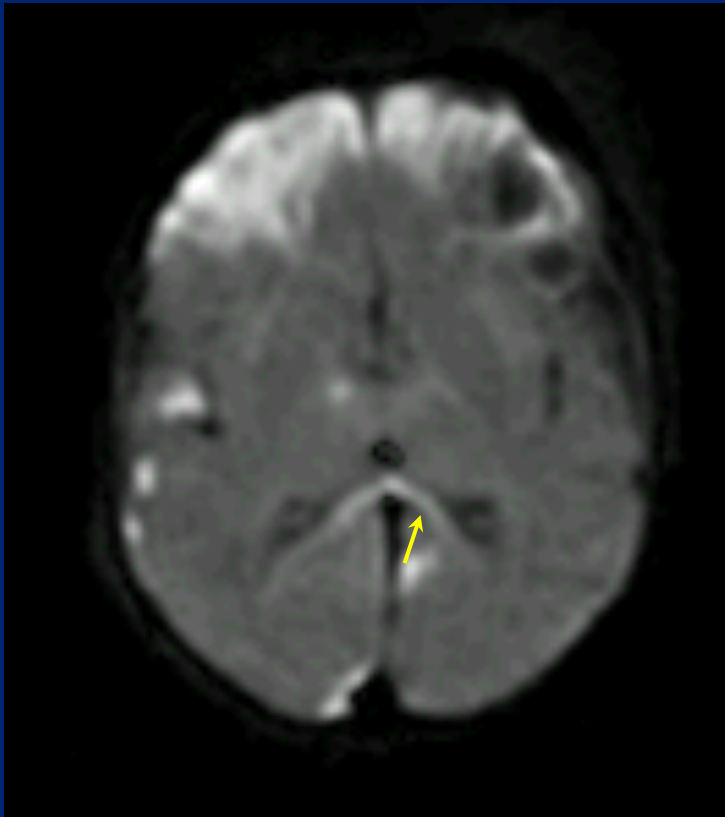
DWI



DWI



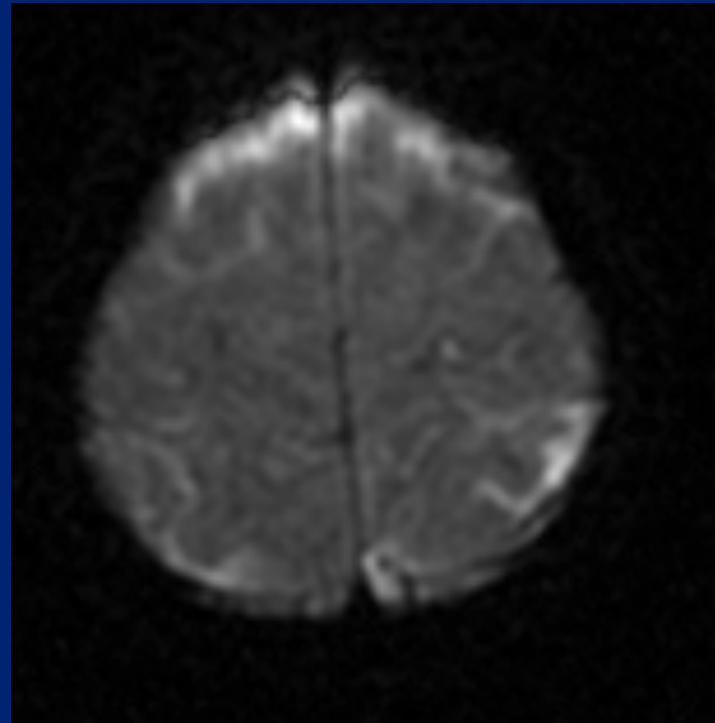
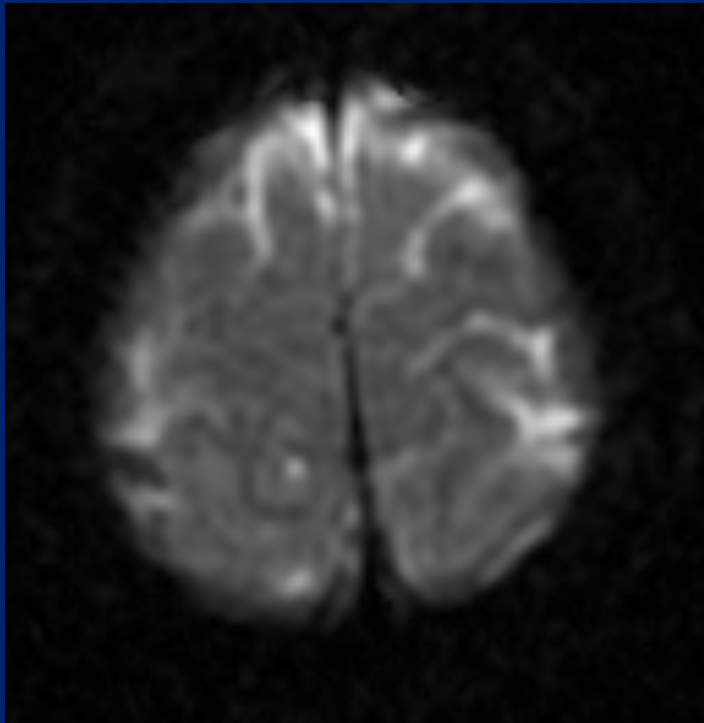
DWI



Results

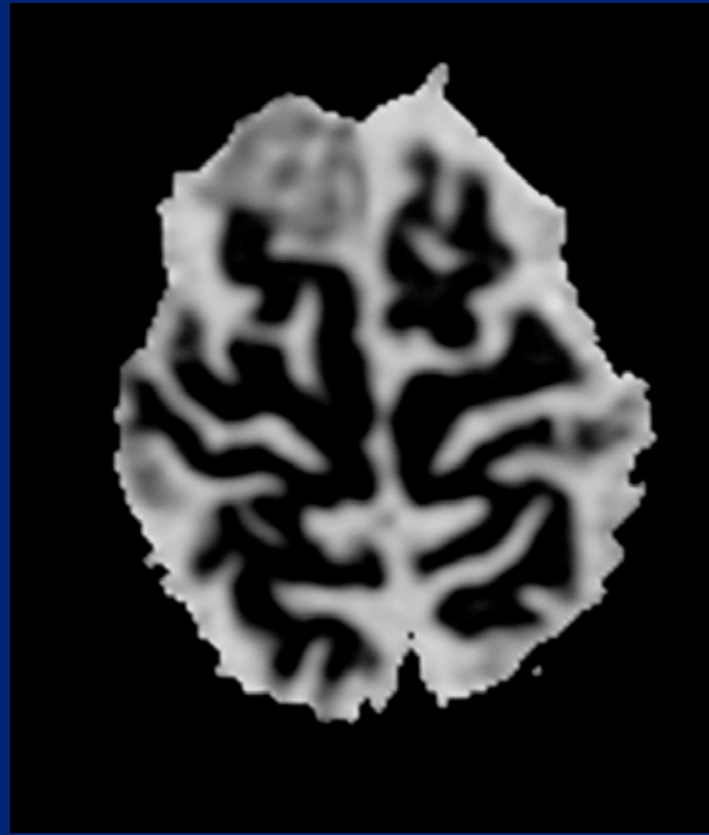
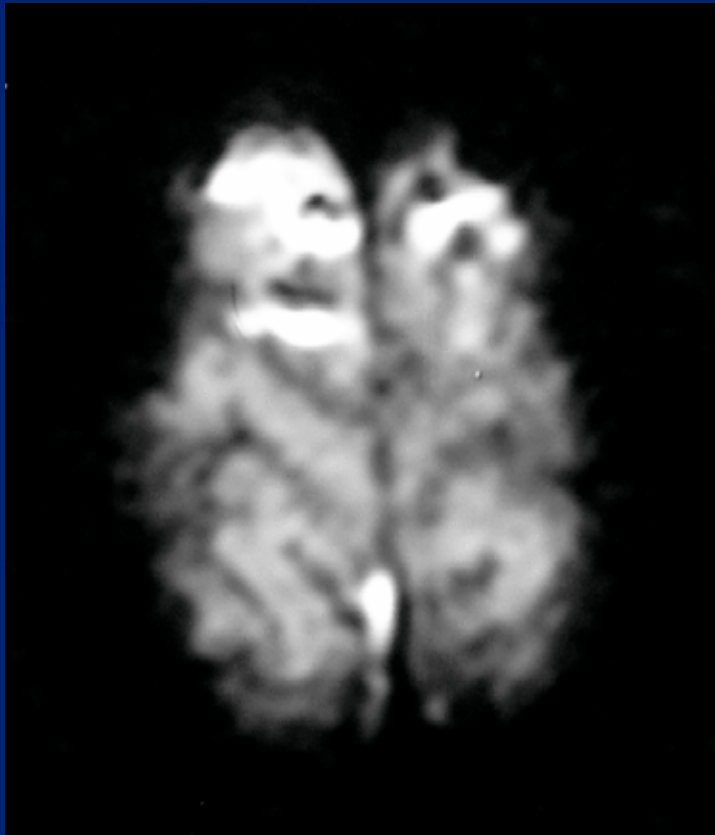
- **Purulent meningitis = 4 patients**
Convexity Hyperintensities with
decrease ADC compared to CSF

DWI



DWI

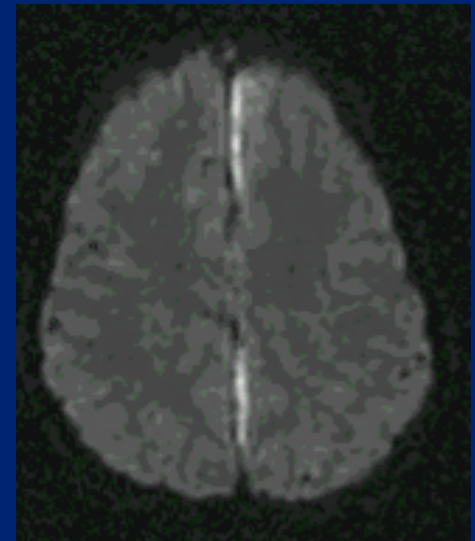
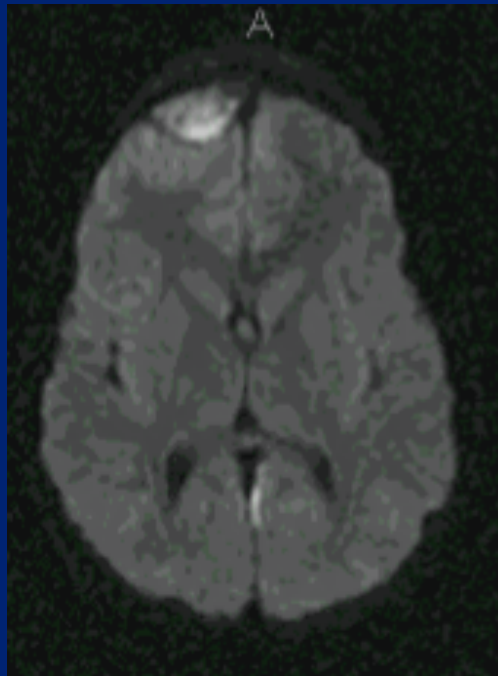
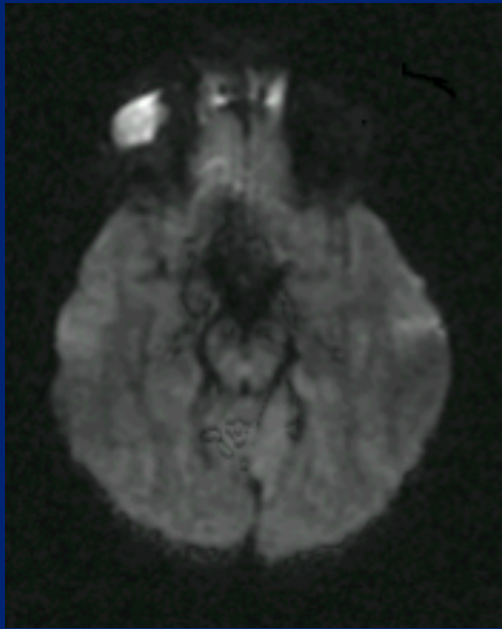
ADC



Results

- **Purulent meningitis = 4 patients**
- **Subdural empyema = 1 patient**
- **Epidural empyema = 1 patient**
- **Periorbital abscess = 1 patient**

DWI



Results

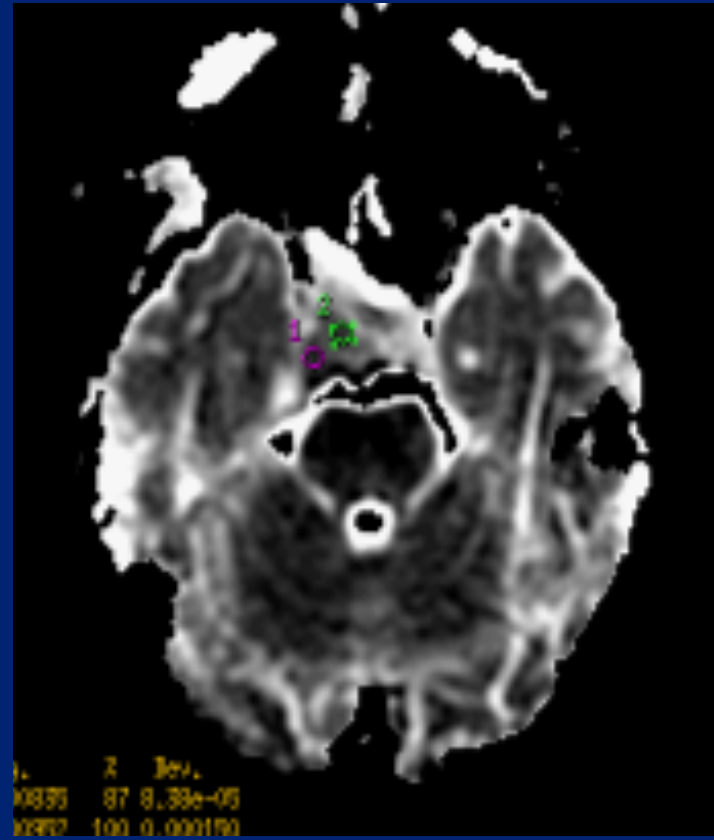
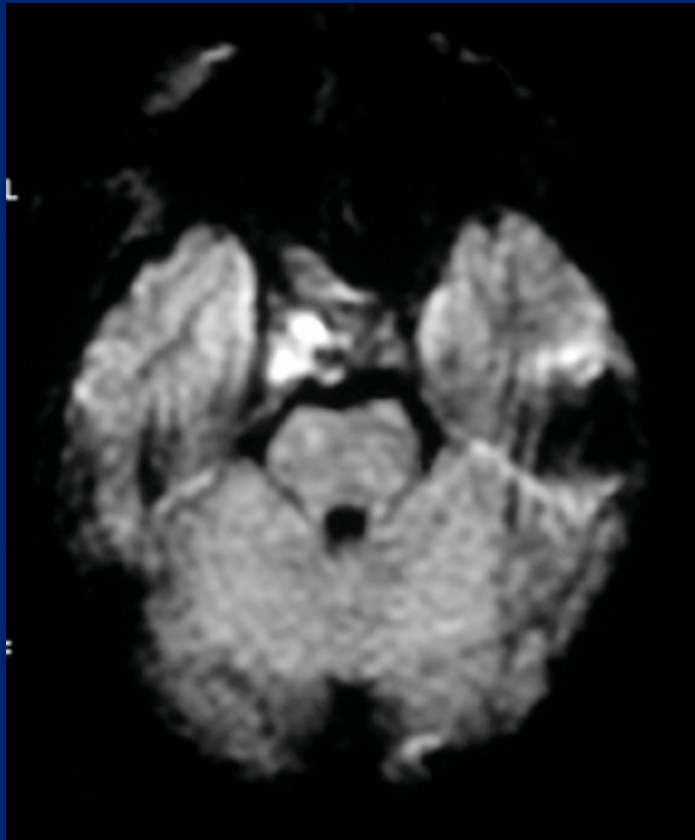
- **Purulent meningitis = 4 patients**
- **Subdural empyema = 1 patient**
- **Periorbital abscess = 1 patient**
- **Lemierre's syndrome = 1 patient**

Lemierre's syndrome

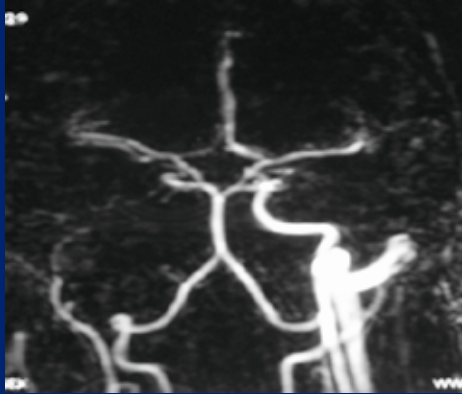
- **R jugular vein thrombosis**
- **R sigmoid sinus thrombosis**
- **R cavernous sinus thrombophlebitis and abscess formation**
- **Severe narrowing of the R ICA and watershed infarction.**

DWI

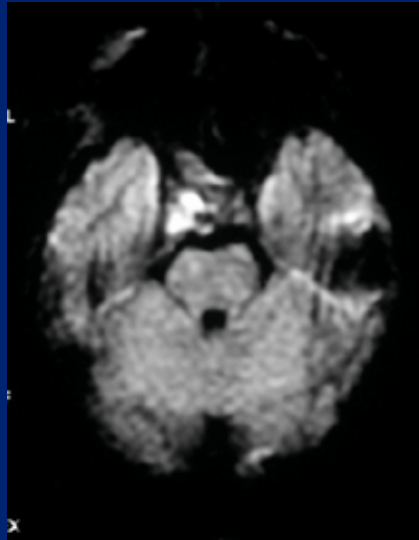
ADC



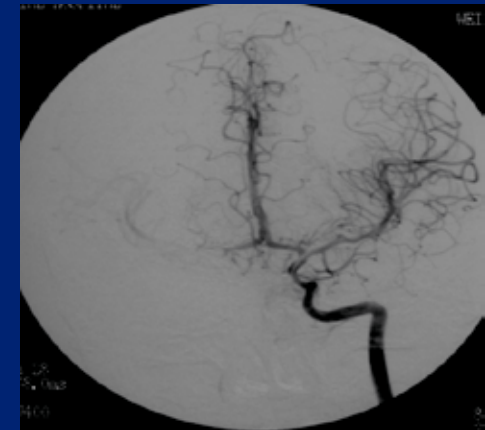
MRA



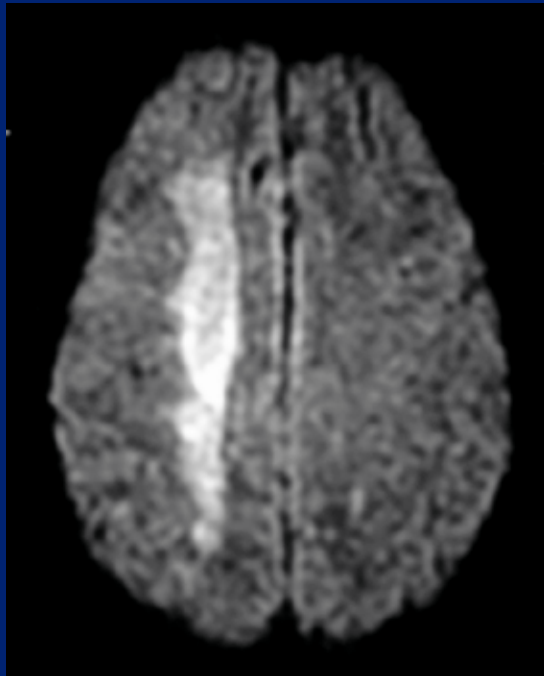
DWI



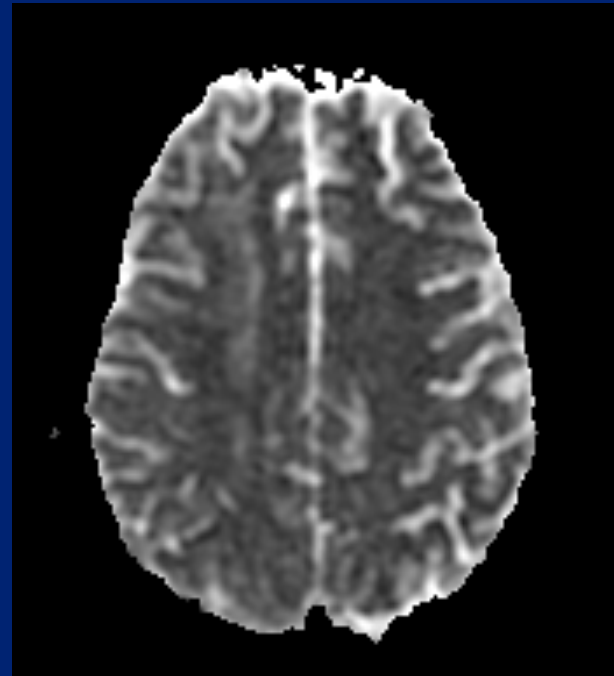
DSA



DWI



ADC



Conclusions

- **DWI and ADC maps are useful to characterize complications of meningitis such as:**
 - **Cerebral infarction**
 - **Purulent leptomeningitis**
 - **Subdural empyema**
 - **Cavernous sinus abscess formation**