Multiple Small Feedings of the Mind

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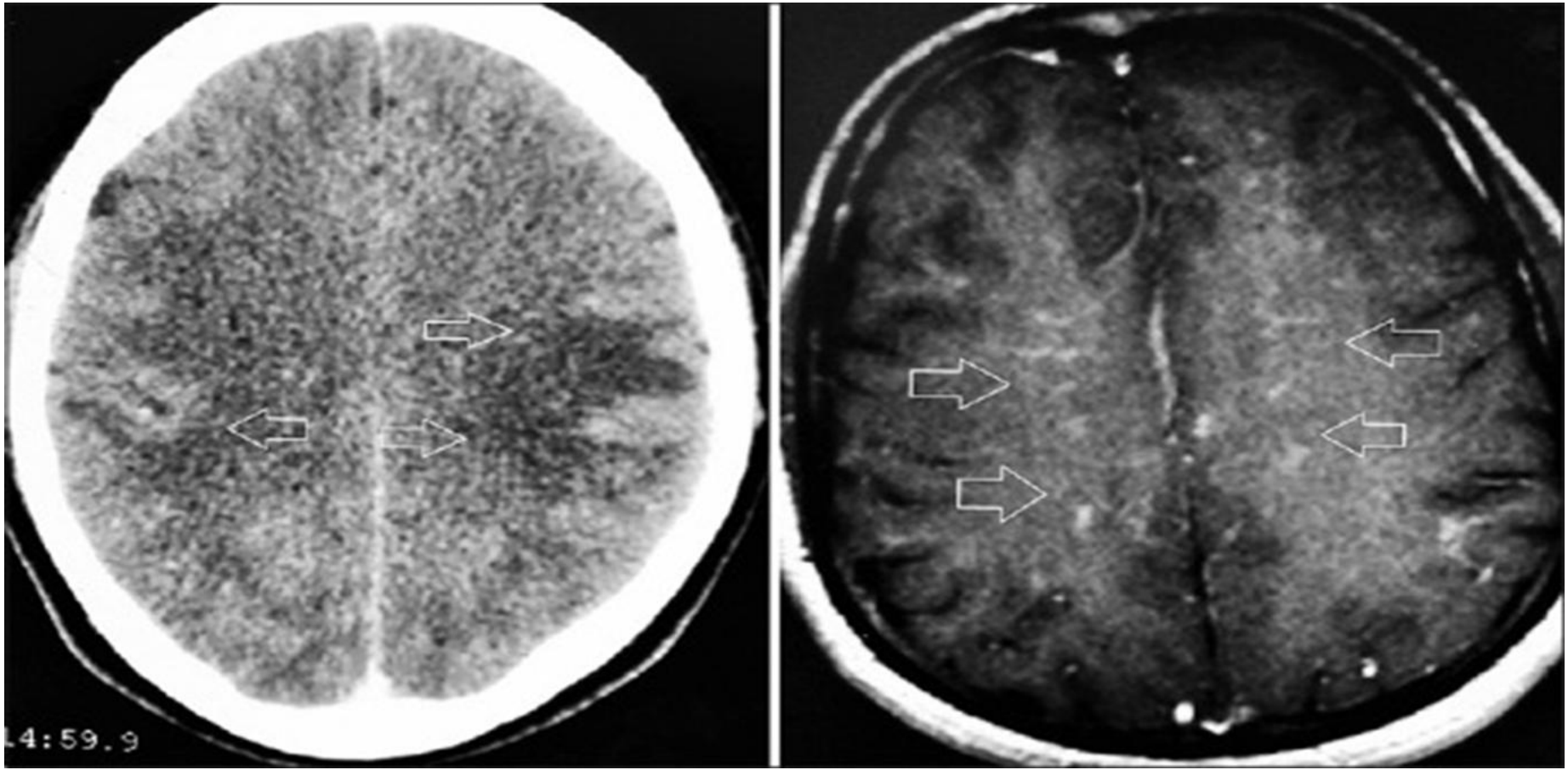
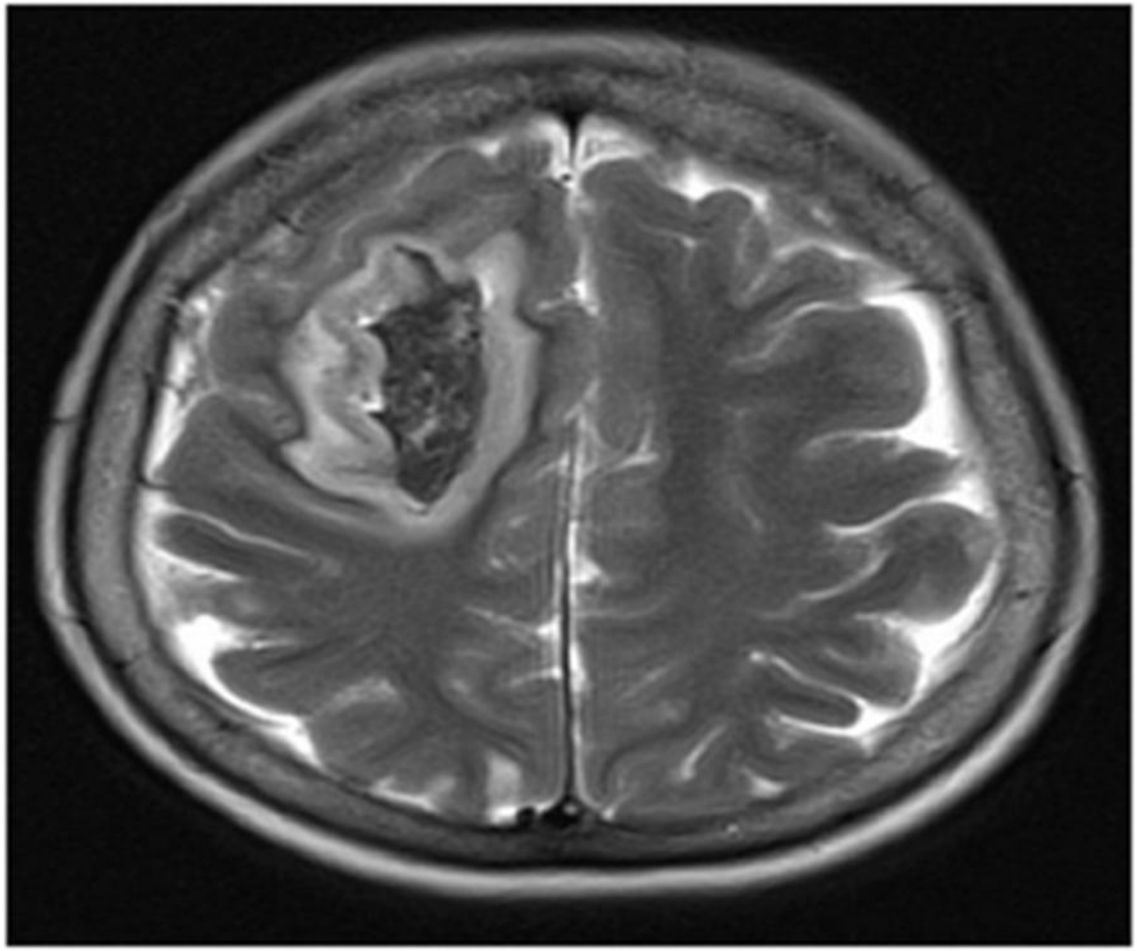
Case 1

A 28-year-old non-hypertensive, non-diabetic, male presented with recurrent episodic throbbing headache for 4 years and generalized tonic-clonic seizures for around 1 year.



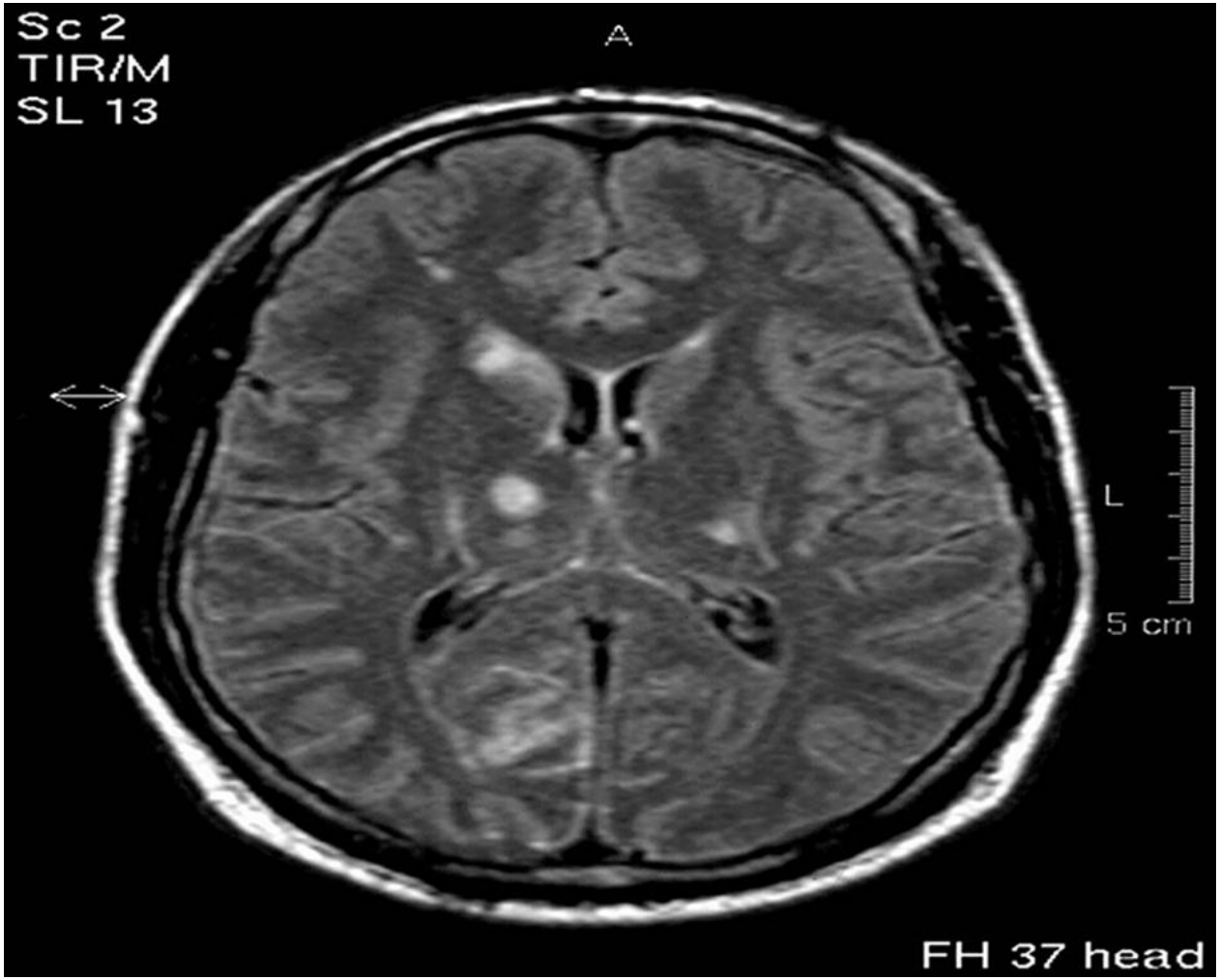
Case 2

A 55-year-old woman was presented with sudden and severe headache associated with recurrent syncope followed by left hemiparesis, aphasia, and stupor for 02 days. This is her MRI.



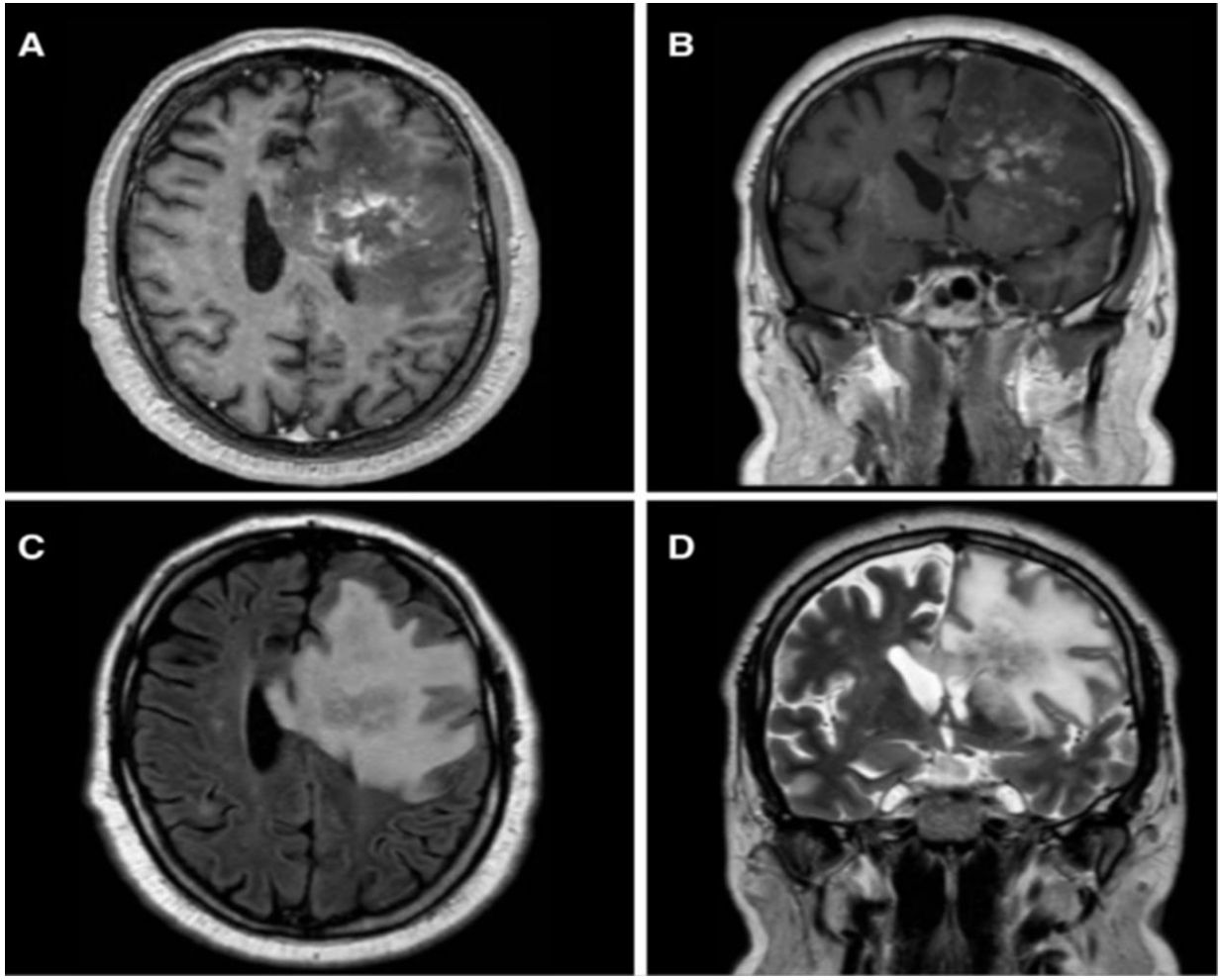
Case 3

A 28-year-old man complaining of acute hoarseness and tingling in his left upper and lower extremities with persistent frontal headache for the last 3 weeks.



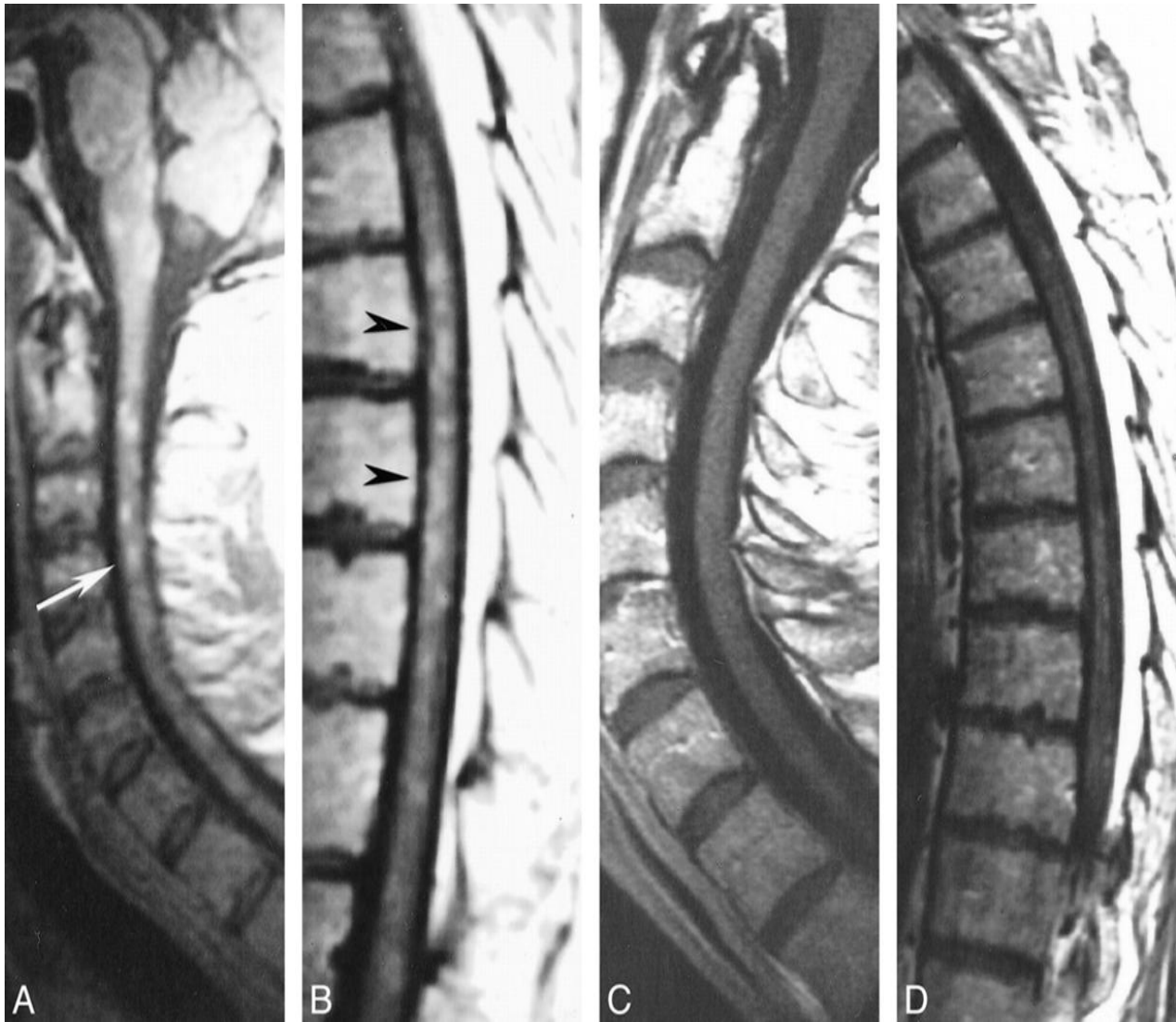
Case 4

33-year-old patient with presented with recurrent Loss of consciousness with convulsion associated with headache.



Case 5

A 50-year-old man presented with progressive weakness of both legs for 6 months. He was suffering from headache for 02 years.



Case 1 : Primary CNS Vasculitis

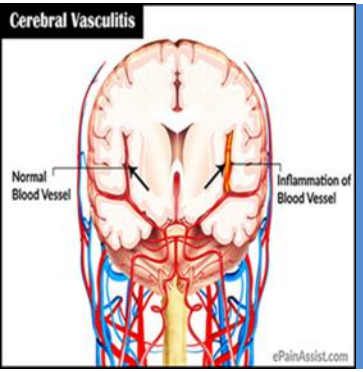
Case 2 : Primary CNS Vasculitis

Case 3 : Primary CNS Vasculitis

Case 4 : Primary CNS Vasculitis

Case 5 : Primary CNS Vasculitis

Primary CNS Vasculitis: The story of a great masquerader

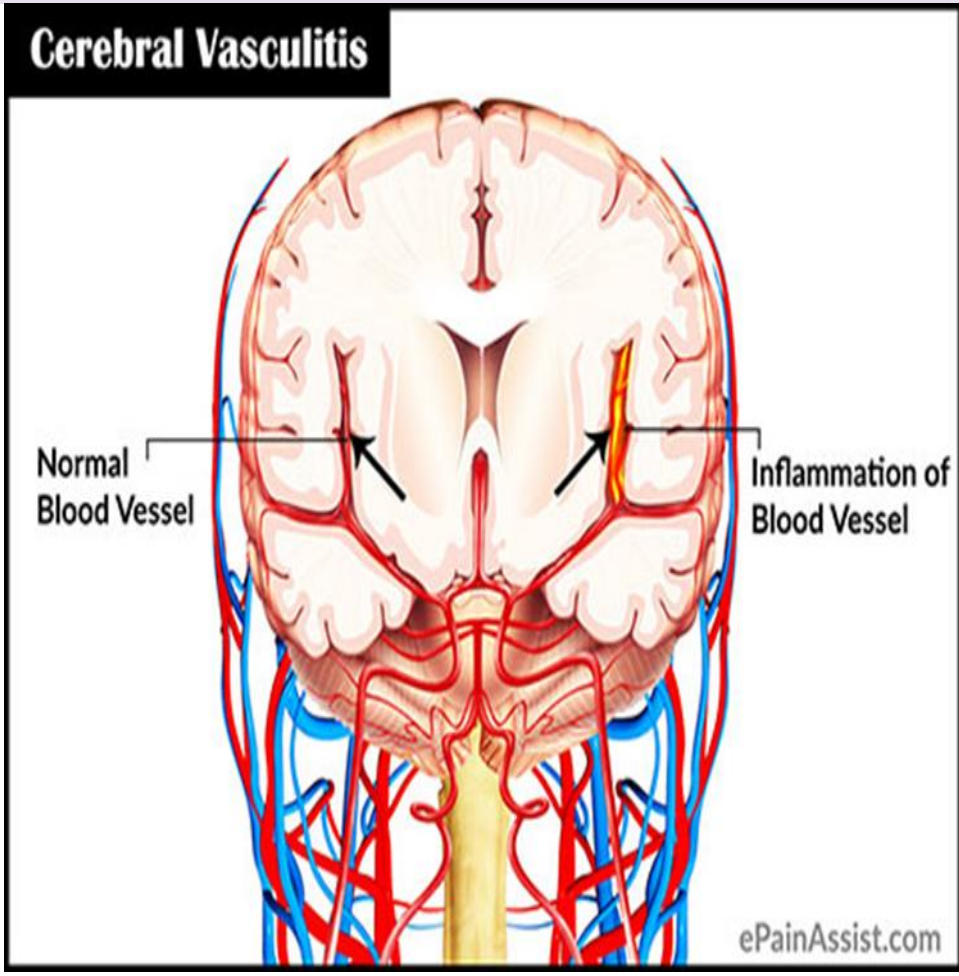


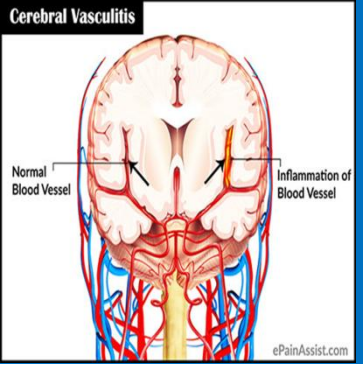
History

- Mid 1950, cravioto and Feigin described several cases of non infectous granulomatous angitis with the nervous system.

What is PACNS??

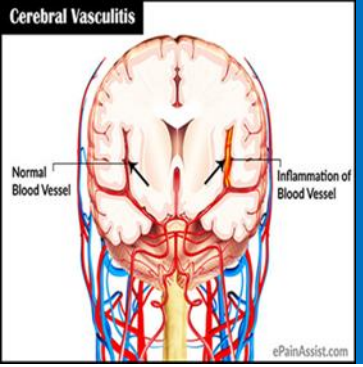
- The primary CNS vasculitis also called primary angiitis of the central nervous system (PACNS) is disorder of unknown cause.
- It causes inflammation and destruction of vessels of the brain and spinal cord, without evidence of vasculitis outside the CNS.





Epidemiology

- Mayo clinic series- In USA 2.4 cases per 1million person/ year.
- No gender predilection.
- Median age is about 50 years.
- It has protean manifestations and may present with ischemic and/or hemorrhage stroke, cognitive impairment, parkinsonism, ataxia, ocular movement abnormalities, myelopathy, headaches, seizures and other manifestations.



Diagnostic criteria

Proposed Criteria for Primary Angiitis of the CNS

1. The presence of an acquired and otherwise unexplained neurologic deficit

2. With presence of either classic angiographic/histopathologic features of angiitis within the CNS

3. And no evidence of systemic vasculitis or any condition that could elicit the angiographic or pathologic features

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Original Article

Primary central nervous system vasculitis: analysis of 101 patients

Carlo Salvarani MD, Robert D. Brown Jr MD ✉, Kenneth T. Calamia MD, Teresa J. H. Christianson BS, Stephen D. Weigand MS, Dylan V. Miller MD, Caterina Giannini MD, James F. Meschia MD, John Huston III MD, Gene G. Hunder MD

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Adult Primary Central Nervous System Vasculitis Treatment and Course

Analysis of One Hundred Sixty-Three Patients

Carlo Salvarani,[1] Robert D. Brown Jr.,[2] Teresa J. H. Christianson,[2] John Huston III,[2] Caterina Giannini,[2] Dylan V. Miller,[2] and Gene G. Hunder[2]

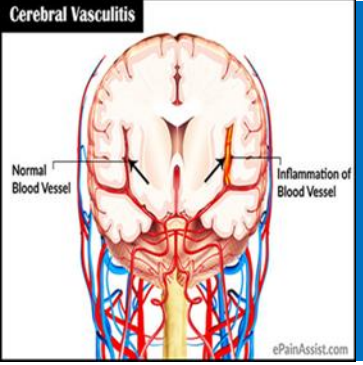
Clinical Manifestations:

- ✓ Headache (most common)
- ✓ Cognitive impairment- Insidious onset
- ✓ Focal neurological manifestations.

!!!! Constitutional symptoms (fever and weight loss) are uncommon.

Characteristics	All Patients (N = 101), n (%)	Patients Diagnosed by Biopsy (n = 31), n (%)	Patients Diagnosed by Angiography (n = 70), n (%)
Headache	64 (63)	16 (52)	48 (69)
Altered cognition	50 (50)	22 (71)	28 (40)
Hemiparesis	44 (44)	6 (19)	38 (54)
Persistent neurological deficit or stroke	40 (40)	8 (26)	32 (46)
Aphasia	28 (28)	11 (36)	17 (24)
Transient ischemic attack	28 (28)	5 (16)	23 (33)
Ataxia	19 (19)	5 (16)	14 (20)
Seizure	16 (16)	2 (7)	14 (20)
Visual symptom (any kind)	42 (42)	9 (29)	33 (47)
Visual field defect	21 (21)	5 (16)	16 (23)
Diplopia (persistent or transient)	16 (16)	5 (16)	11 (16)
Blurred vision or decreased visual acuity	11 (11)	0 (0)	11 (16)
Monocular visual symptoms or amaurosis fugax	1 (1)	0 (0)	1 (1)
Papilledema	5 (5)	2 (7)	3 (4)
Intracranial hemorrhage	8 (8)	2 (7)	6 (9)
Amnestic syndrome	9 (9)	4 (13)	5 (7)
Paraparesis or quadriparesis	7 (7)	4 (13)	3 (4)
Parkinsonism or extrapyramidal sign	1 (1)	0 (0)	1 (1)
Prominent constitutional symptom	9 (9)	4 (13)	5 (7)
Fever	9 (9)	4 (13)	5 (7)
Nausea or vomiting	25 (25)	6 (19)	19 (27)
Vertigo or dizziness	9 (9)	3 (10)	6 (9)
Dysarthria	15 (15)	2 (7)	13 (19)
Unilateral numbness	13 (13)	0 (0)	13 (19)

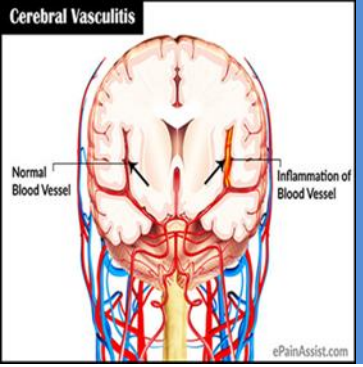
Making a Diagnosis



Serology

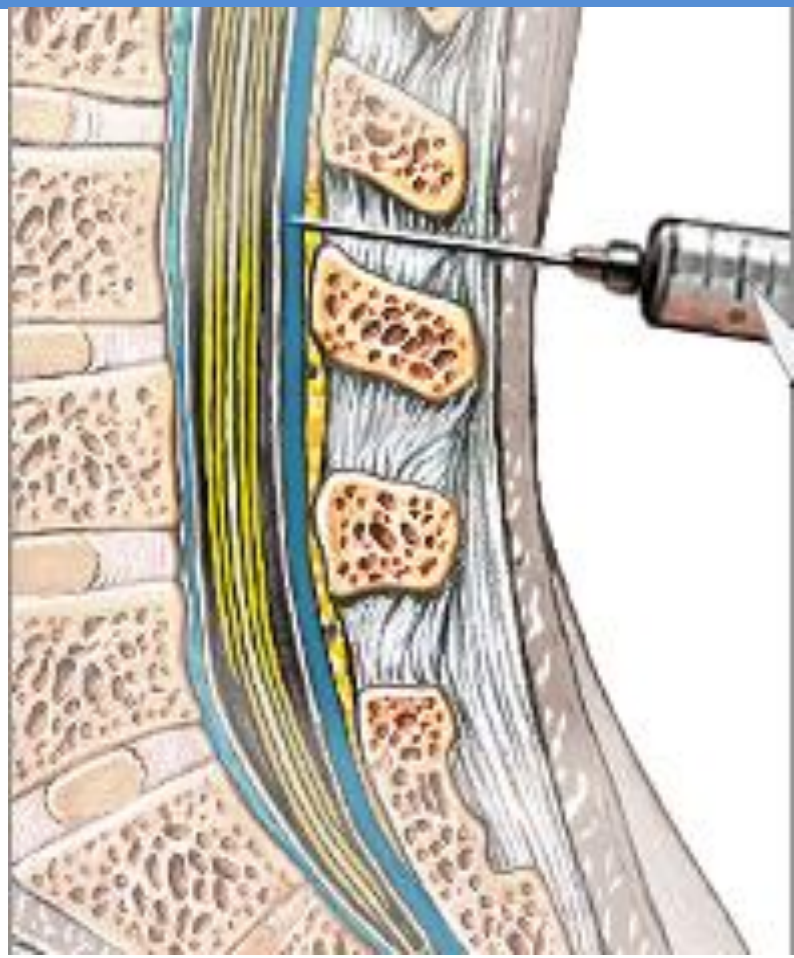
Tests	Results
ANA RF Ro/SSA, La/SSB, Sm, RNP DsDNA ANCA Serum C3 and c4 Serum cryoglobulin Serum and urine protein electrophoresis Quantitative Ig levels (IgG, IgM, IgA)	Normal

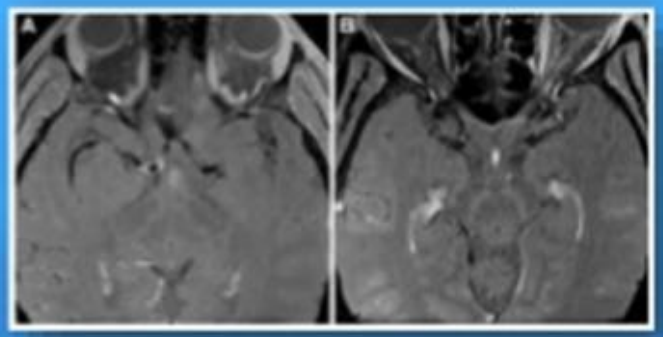
ESR, CRP usually normal.
If elevated- Raise the suspicion of systemic process (Inflammation or Infection)



CSF analysis

- To exclude infectious or malignant process
- Is abnormal in 80—90% of patients; increased protein with lymphocyte count.





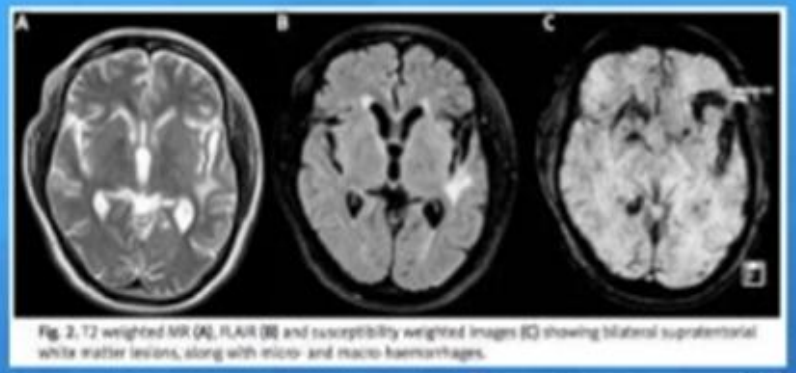
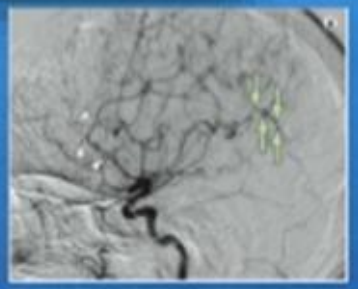
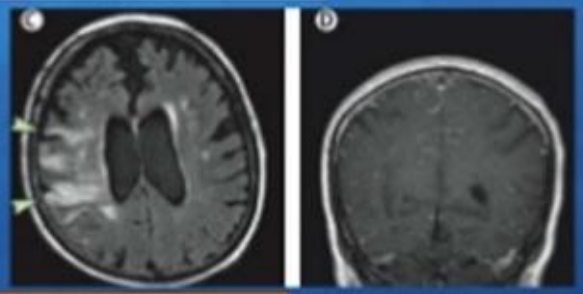


Fig. 2. T2 weighted MR (A), FLAIR (B) and susceptibility weighted images (C) showing bilateral supratentorial white matter lesions, along with micro- and macro-haemorrhages.



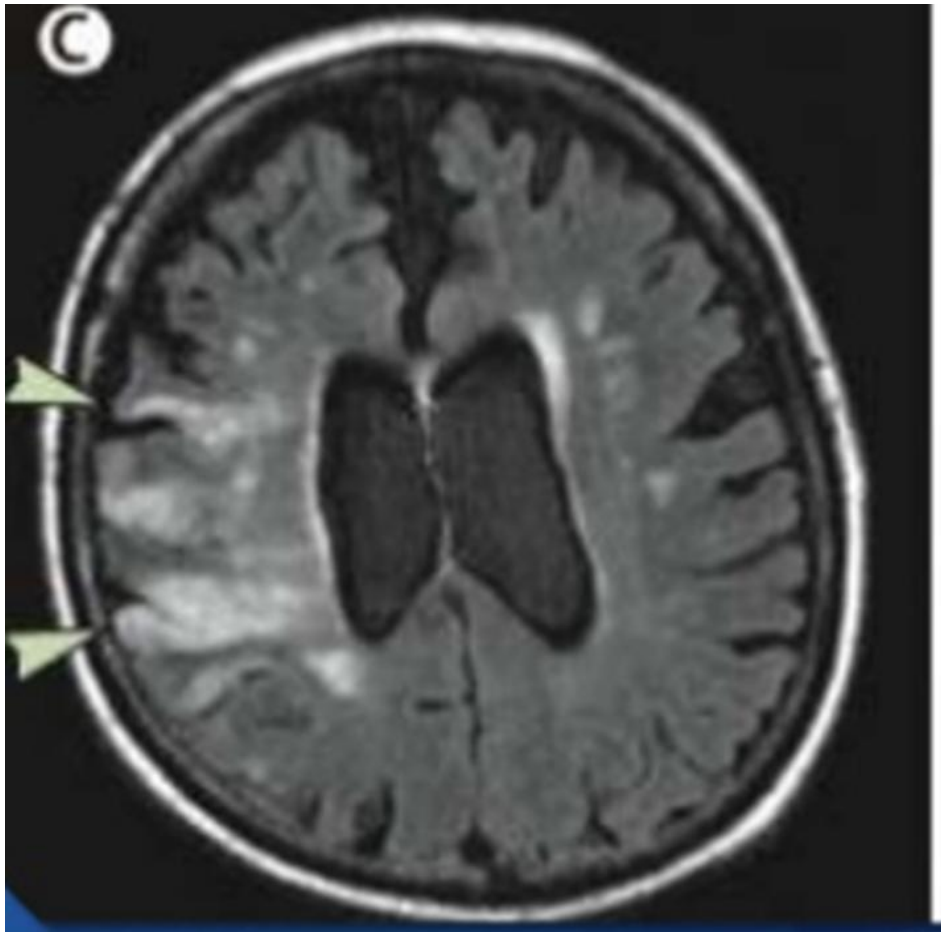


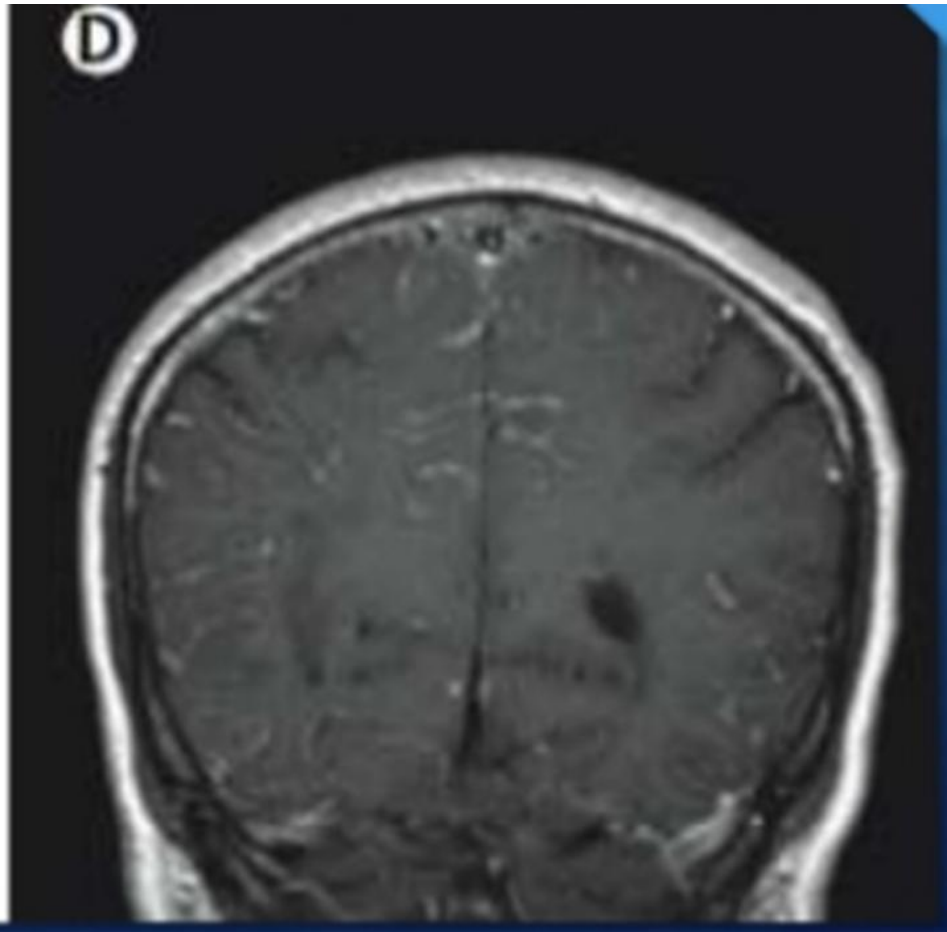
NEUROIMAGING

MRI

- ✓ MRI is the main neuroimaging modality
- ✓ Sensitivity upto 90-100% but non specific.
- ✓ Normal MRI is rare.

Type of MRI Lesion
Normal (Rare)
Progressive confluent white lesion
Cortical and subcortical T2 lesion
Multiple diffusion positive lesion
Large hematoma
Multiple microhemorrhage
Single/multiple mass lesion
Enhanching small vessel lesion
Leptomeningeal enhancement





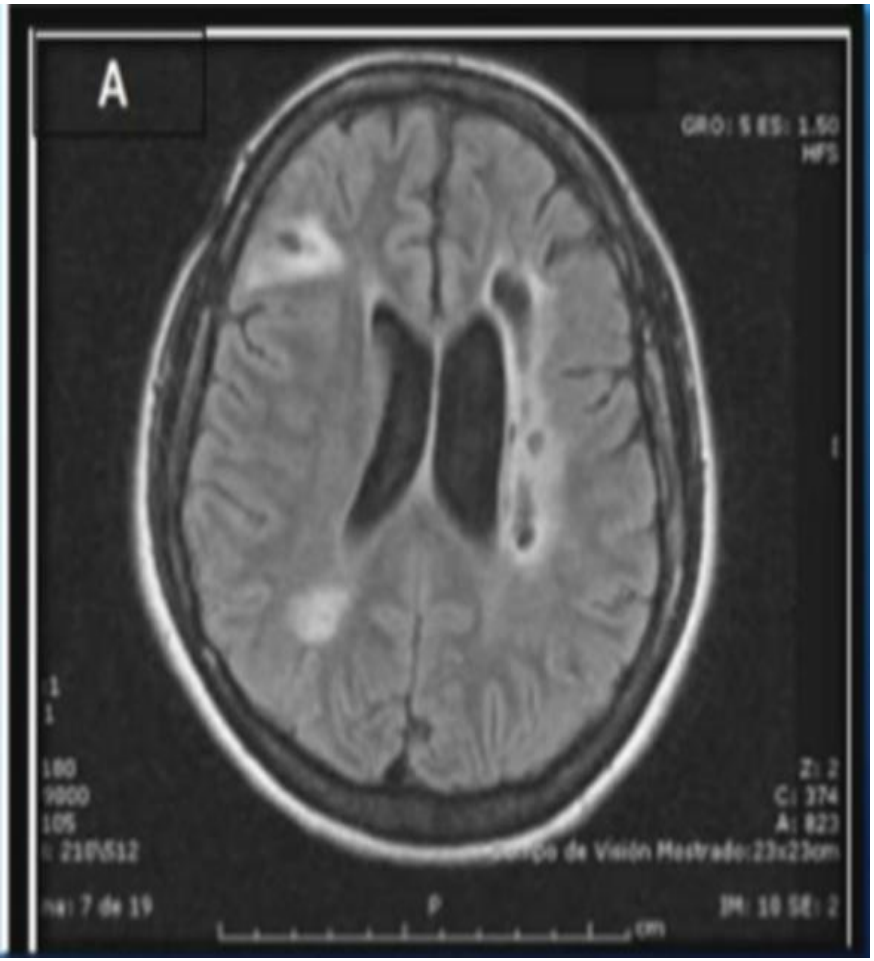
Ischemia

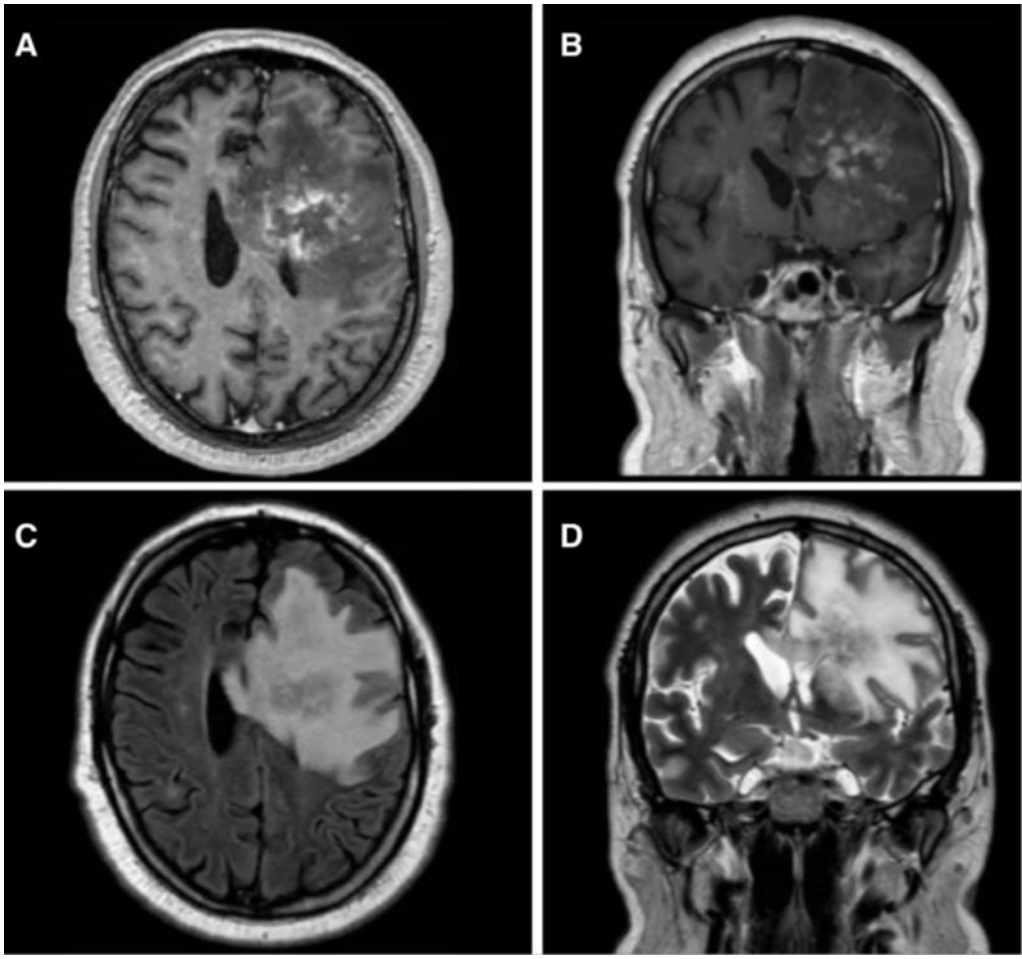
Fluid attenuation inversion recovery (FLAIR)-weighted MRI shows a large abnormality within the right cerebral hemisphere consistent with ischaemia

Leptomeningeal enhancement

MRI shows diffuse, asymmetric, nodular, and linear leptomeningeal enhancement, with dura only slightly affected.

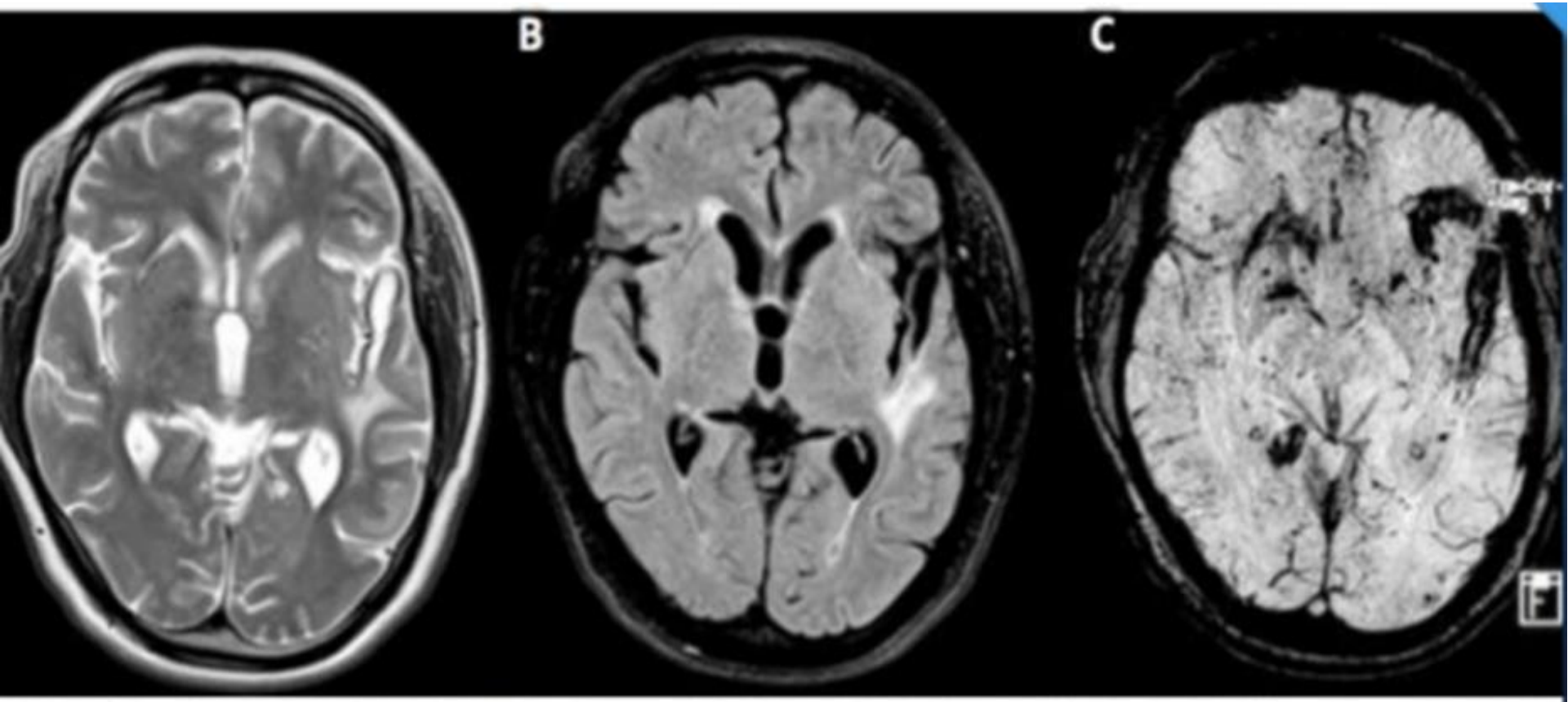
Salvarani C, Brown R, Hunder G. Adult primary central nervous system vasculitis Lancet 2012; 380: 767–77





Periventricular and juxtra cortical lesion

Tumor like lesions



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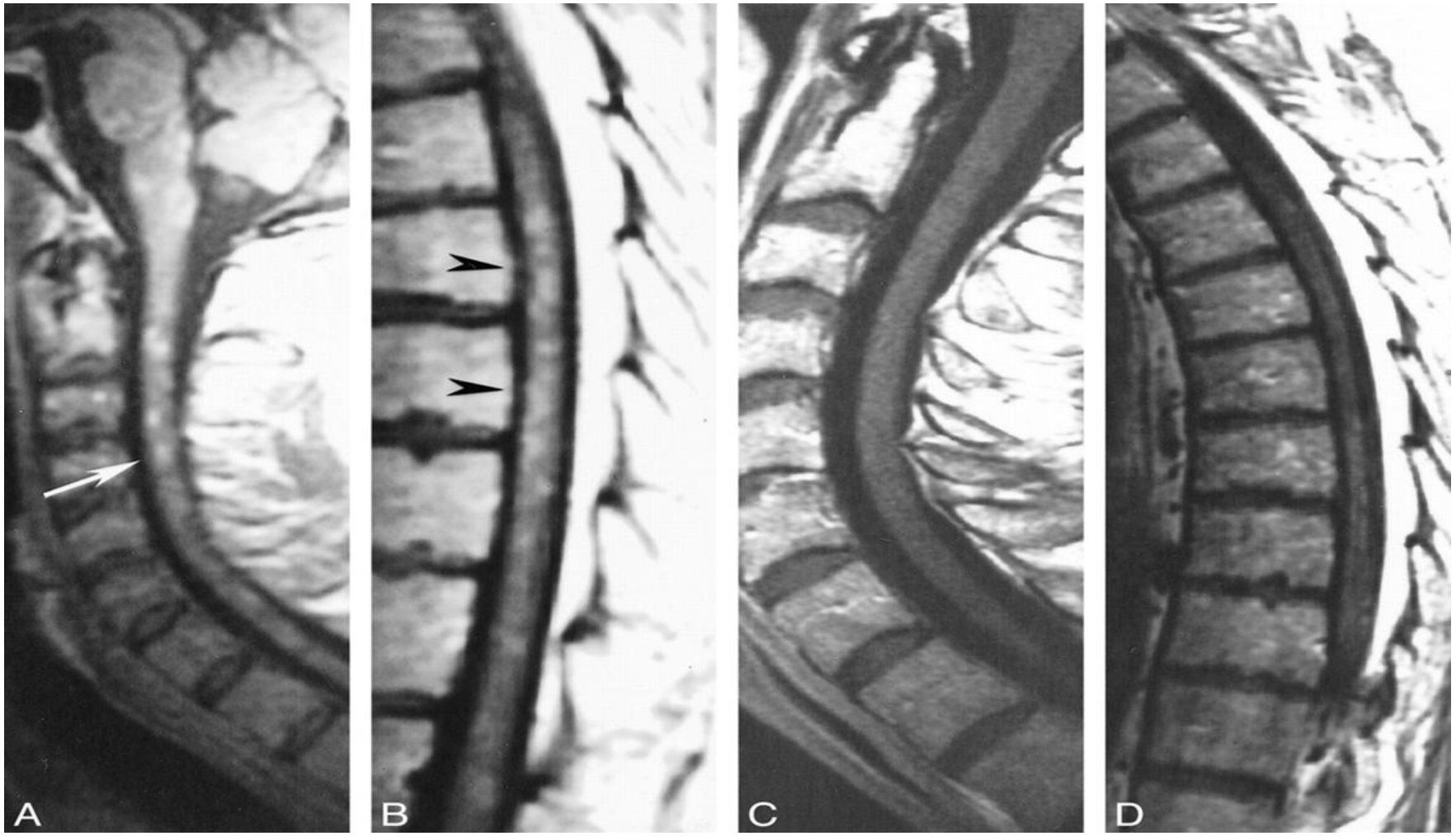
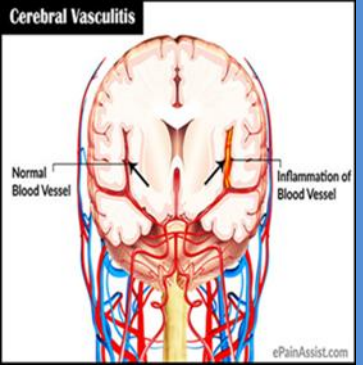
White matter lesion; Micro and macro hemorrhages

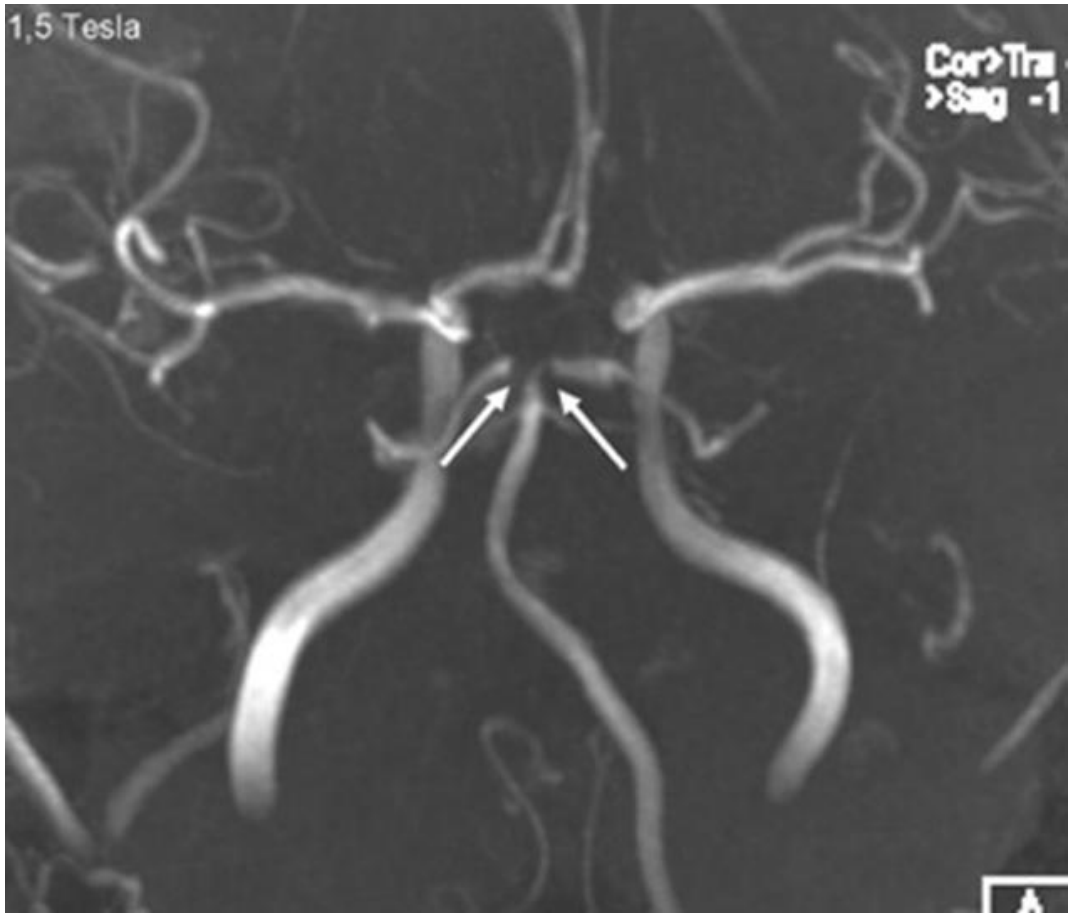


High signal lesion in spinal cord



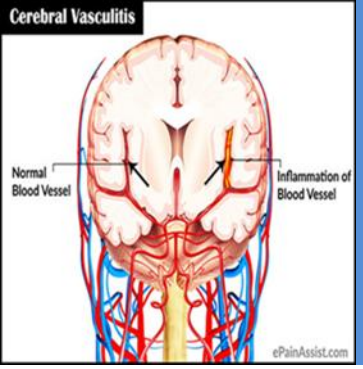
Cerebral angiography

- Is the mainstay for diagnosis.
- Classic findings of ectasia and stenosis referred to as 'beading' usually in the small and medium sized arteries with involvement of several sites of the cerebral circulation.



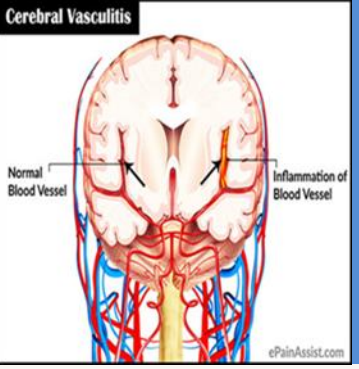
Angiogram in PCNSV

Smooth wall Narrowing and dilatation of cerebral arteries



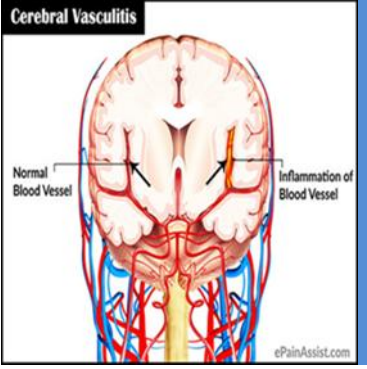
Brain and leptomeningeal biopsy

- The gold standard for diagnosis.
- Optimal sample- Dura, leptomeninges, cortex and white matter.
- Biopsy should be done in radiologically abnormal area. If not present, temporal tip of nondominant hemisphere is preferred.
- Histopathology: Transmural inflammation of vessels, lymphocyte infiltration.



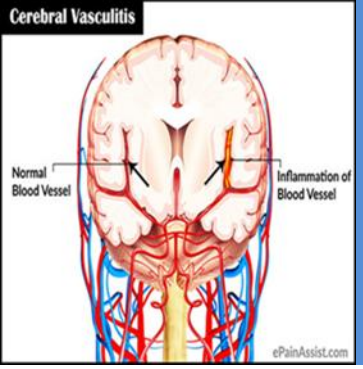
Treatment

+ No randomized clinical trial
+ Derived from therapeutic strategies used in other vasculitides/ case reports/from cohort studies.
+ Induction:
  - High dose prednisolone 1 mg/kg with
  - Oral Cyclophosphamide 2mg/kg
  - IV Cyclophosphamide 1000mg/day
  - Duration: 3-6 months until remission.
+ Maintenance: 12-18 months with
  - Azathioprine 1-2mg/kg/day
  - MMF 1-2 g/day
  - MTx 20-25 gm/wk



Monitoring

- Serial MRI/MRA :
  - ✓ 4-6 weeks after beginning of treatment,
  - ✓ then every 3-4 months during 1st year of treatment.
- In a patient with stable imaging but worsening clinical symptoms, repeat CSF examination and angiography should be done.



Prognosis

- ✓ Relapse occurs in about a quarter of cases. With correct treatment the prognosis is much better than in the past.
- ✓ If diagnosed quickly there is a greater chance of a more complete recovery.
- ✓ If diagnosis is significantly delayed it is more likely that the patient will be left with permanent neurological problems.

Thank you