REVIEW ARTICLE
https://doi.org/10.30773/pi.2020.0201
Print ISSN 1738-3684 / On-line ISSN 1976-3026
OPEN ACCESS

Pseudotumoral Presentation of Cerebral Amyloid-Beta Angiopathy: Case Report and Review of Literature

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Objective Cerebral amyloid angiopathy-related inflammation (CAA-RI) is a rare and potentially treatable encephalopathy that usually affects people older than 50 years old and has an acute or subacute clinical presentation characterized by rapidly evolving cognitive decline, focal deficits and seizures. In a small subset of patients the disease can adopt a pseudotumoral form in the neuroimages that represents a very difficult diagnostic challenge.

Methods Here in we report a patient with a tumour-like presentation of histopathologically confirmed CAA-RI.

Results We also conducted a search and reviewed the clinical and radiological features of 41 cases of pseudotumoral CAA-RI previously reported in the literature in order to identify those characteristics that should raise diagnostic suspicions of the disease, there by avoiding unnecessary surgical treatments.

Conclusion The therapy of CAA-RI with steroids is usually effective and clinical and radiological remission can be achieved in the first month in approximately 70% of cases.
Psychiatry Investig 2021;18(6):479-485

Key Words Cerebral amyloid angiopathy, Pseudotumoral, Tumor-like, Neoplasm.

INTRODUCTION

Sporadic cerebral amyloid angiopathy (CAA) is characterized by deposition of β-amyloid in the media and adventitia layers of the small and medium-size cortical and leptmeningeal brain arteries and less frequently in veins and capillaries.[1] CAA is frequent in the elderly. Population-based studies show that the incidence of CAA increases with age: Masuda et al.[2] studied 400 autopsy cases from Hisayama, Japan and reported an incidence of CAA of 4% to 10% in people 50−59 years old and that rises to 42% to 45.8% in those 90 years or older. A more recent autopsy study[3] performed in 404 community-dwelling persons of an average age at death of 86.5 years old found CAA was present in almost all cases with dementia (94%) and in most of those without (77%), while only 1/5 had moderate to severe disease, which is in accordance with previous reports.[4] In Alzheimer's disease specifically the prevalence reaches 80−90%.[2,5] Classic clinical presentation includes brain hemorrhages (lobar intracerebral hematoma, cortical microhemorrhage, focal convexity subarachnoid hemorrhage and cortical superficial siderosis) and ischemic lesions (cortical microinfarctions and white matter ischemic changes).[2,6] In a subset of patients, usually younger, there is inflammation related to CAA that can encompass a range of involvement from only a perivascular lymphocytic infiltrate to a transmural granulomatous destructive angiitis.[1] Recent reports label this spectrum of inflammatory changes as cerebral amyloid angiopathy-related inflammation (CAA-RI),[7] which is the term we choose to employ. Clinical syndrome of CAA-RI manifests as subacute cognitive decline, seizures, focal deficits and head-

Received: May 29, 2020 **Revised:** August 3, 2020
Accepted: November 1, 2020

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aches.[1,7-10] These clinical symptoms correlate with asymmetric T2-hyperintense leukoencephalopathy on MRI that is responsive to immunosuppressive treatment.[1,7-9] In rare instances, CAA-RI presents as an infiltrative mass-like lesion mimicking a tumor.[10] This variant represents a diagnostic challenge and should be recognized to avoid unnecessary surgical procedures. We report a patient with CAA-RI resembling a brain tumor and review similar cases reported in the literature.

CASE PRESENTATION

A 54-year-old right-handed man developed acute aphasia and confusion followed by a generalized tonic clonic seizure. His past medical history was remarkable for high blood pressure, smoking, chronic obstructive pulmonar disease, depression and a Bell's palsy three years previous to the event. His daily medication consisted of enalapril and clonazepam. Neurological examination revealed non-fluent aphasia. A brain MRI disclosed a left temporal lesion with hyperintense signal in T2-weighted and FLAIR sequences without contrast enhancement. Diffusion weighted images of temporal lesions did not show restricted diffusivity. Review of T2* weighted gradient echo sequence (GRE) disclosed a few cortical microhemorrhages inside the temporal lesion (Figure 1A-E). A proton MRI spectroscopy of the left lesion revealed no remarkable data. A ^{11}C-PiB PET revealed extensive and bilateral brain cortical deposition of β-amyloid (Figure 1F). CSF exam was normal and the CSF viral polymerase chain reactions including herpes simplex virus type 1 and 2, varicella-zoster virus and enterovirus were negative. The patient was treated with valproic acid and dexamethasone. Laboratory studies including HIV serology, VDRL, eritrosedimentation rate, collagen disease tests and thyroid and paraneoplastic antibodies were negative. An electroencephalogram showed slow left temporal waves. A stereotaxic biopsy revealed pleomorphic and disposition of abigarrated glial cells suggestive of glioma. Resection of the left temporal lesion identified that cortical and leptomeningeal small and medium-sized arterial walls were thickened by an amorphous eosinophilic PAS positive substance that partially or completely occluded the lumen of the

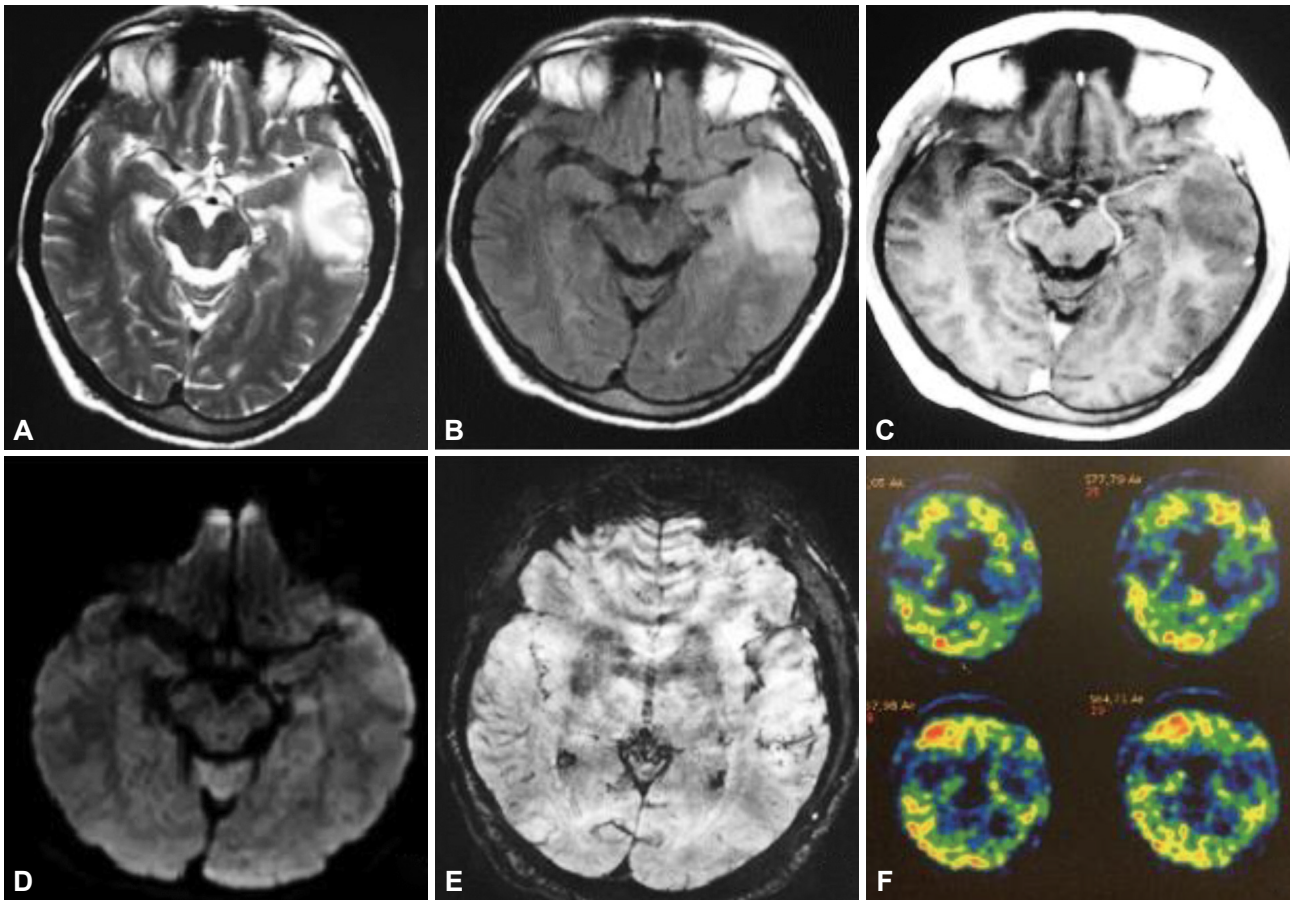

Figure 1. Left anterior temporal lesion with mass effect shows high signal in T2 W (A) and FLAIR (B) and hypointensity in T1W, with lack of contrast enhancement (C). High signal in DWI sequence (D) and ADC map (not shown) is due to vasogenic edema. Scattered intralesional foci of microhemorrhages can be seen in SWI (E). C-PiB PET: Extensive and bilateral cortical deposits of Beta amyloid (F). MRI: magnetic resonance imaging, DWI: diffusion-weighted magnetic resonance imaging, FLAIR: T2-weighted-Fluid-Attenuated Inversion Recovery, ADC map: apparent diffusion coefficient, C-PiB PET: C-Pittsburgh compound B Positron Emission Tomography.

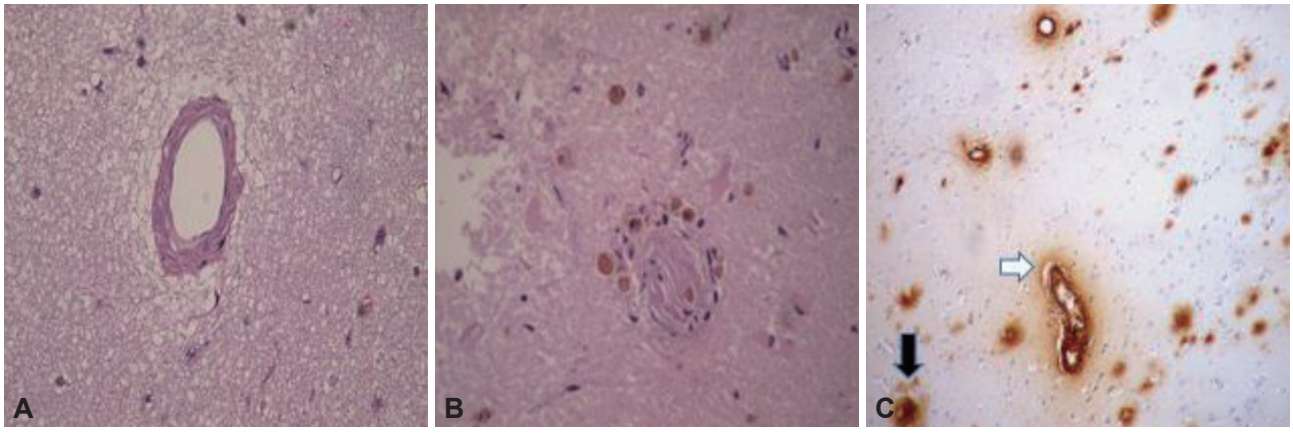

Figure 2. Brain biopsy, hematoxylin-eosin stain where it is observed. A: Homogeneous eosinophilic thickening of the vascular wall. B: Eosinophilic thickening of the parietal wall with peri adventitial hemosiderin deposits (old microhemorrhage). C: Positive immune staining of β amyloid in the vascular walls (black arrow) and in plaques within the parenchyma.

vessels. Immunolabeling of arterial wall deposits with β-amyloid antibodies was strongly positive (Figure 2). Eosinophilic thickening of the parietal wall with peri adventitial hemosiderin deposits (old microhemorrhage) was disclosed. Steroids were gradually tapered. The patient has remained symptom-free after 24 months of follow up and has returned to work.

LITERATURE REVIEW-METHODS

We searched in Pubmed for relevant articles dating from January 1970 to January 2017 using the following key words: "cerebral amyloid angiopathy" and "pseudotumoral," "tumor-like," "neoplasm," or "mass effect." We decided to include only cases with MRI evaluation and pathologically proven diagnosis of CAA with or without related inflammation, as well as those that met diagnostic criteria proposed by Chung et al.[7] for probable CAA-RI. All relevant articles were retrieved and checked. We found 27 publications that met inclusion criteria, from which information was extracted for 41 patients. We added our patient, and data was analyzed for age, gender, clinical presentation, brain MRI findings, treatment received and evolution for the 42 cases as a group.

RESULTS

Our patient presented sudden aphasia and seizures secondary to a tumor-like lesion that resembled a low grade glioma but that finally corresponded to pathology-confirmed CAA-RI. This tumefactive mass-like aspect has been described in the literature in 15% of CAA-RI and 14% of CAA without inflammation.[1] Most of these latter are probably inflammatory forms of CAA, but a patchy distribution of perivascular lymphocytic infiltrates,[7] or the possible disappearance of inflammatory infiltrates due to onset of steroid treatment before the performance of cerebral biopsy, could lead to misdiagnosis of CAA-RI as without inflammation.[11] In a more recent review of CAA-RI, Danve et al.[9] reported that up to 26% of CAA-RI cases had mass-like lesions that were usually asymmetrical and either non-enhancing or minimally enhancing. The most frequent brain malignancies suspected in cases of pseudotumoral presentation of CAA-RI were low grade gliomas,[12-20] lymphomas,[21,22] multifocal glioma,[23,24] oligodendroglioma,[25] gliomatosis cerebrii[26] and metastases.[27] The pseudotumoral form of CAA-RI can be a challenging diagnosis, as its clinical and radiological presentation is not specific.[10] The acute onset of focal neurological deficits in a patient older than 50 years can be initially misdiagnosed as an acute stroke,[28] especially if the patient has vascular risk factors, as had occurred in our case. However, acute clinical presentation is not infrequent in CAA-RI patients, as it has been described in up to 54% of them,[9] including aphasia in 16.7%[8] to 26%[7] of cases, and seizures in 31%[7] to 36%.[8] These percentages are similar for the pseudotumoral form of the disease according to our review of 42 cases from the literature: aphasia in 10/42 (23.8%) and seizures in 16/42 (38%). However, subacute cognitive decline is the most frequent clinical presentation in our series 29/42 (69%), as in others.[10,19,29-31] Therefore, CAA-RI and its pseudotumoral variant should also be taken into account as a differential diagnosis in any case of rapidly evolving dementia.[32,33] Headache was present in only 9/42 (21.4%), and 62% of patients in our review presented more than one neurological symptom (Table 1).

Pathogenesis of CAA-RI is not clear. CAA-RI appears to be caused by an autoimmune response to Aβ amyloid. The autoimmune mechanism of the disease is supported by the finding of autoantibodies against beta amyloid 1−40 and 1−42 in blood[34] and CSF[35,36] of patients with CAA-RI. DiFrancesco et al.[36] reported higher titers of autoantibodies against β- amyloid 1−40 and 1−42 in CSF of a patient with CAA-RI compared

Table 1. Clinical, imaging and histopathological findings in 42 patients with pseudotumoral presentation of amyloid angiopathy

	Total (%) (N=42)
Age (range), years	64.74 (38–82)
Clinical presentation	
Subacute cognitive decline	16 (38.09)
Confusion	13 (30.95)
Headache	9 (21.43)
Aphasia	10 (23.81)
Motor deficits	11 (26.19)
Seizures	16 (38.09)
Others (hemineglect, hemianopia, sensitive deficit, gait disorder, hallucinations)	9 (21.43)
More than one symptom	26 (61.90)
Brain MRI	
Unilateral lesion	26 (61.90)
Bilateral lesions	16 (38.09)
Contrast enhancement:	19 (45.24)
Parenchymal	8 (19.05)
Leptomeningeal	11 (26.19)
Microbleeds*	16/17 (94.12)
Vasogenic edema in DWI†	9/9 (100)
Diagnosis	
Histopathological in 38 patients	
CAA	13/38 (39.21)
CAA-RI	25/38 (65.79)‡
Clinical and MRI diagnostic criteria for probable CAA-RI in 4 patients	4
Pharmacological treatment	
Steroids	27/42 (64.28)
CP or MTTX adjuvant to steroids	7/42 (16.66)
Surgical treatment (resection of lesion)‡	11/42 (26.19)
None treatment	9/42 (21.43)

*T2GRE or other susceptibility magnetic sequences were performed/informed in only 17 patients, †DWI was performed /informed in only 9 patients, ‡five of the 11 patients that underwent surgical resection of brain lesion also received steroids. MRI: magnetic resonance imaging, DWI: diffusion-weighted magnetic resonance imaging, CAA: cerebral amyloid angiopathy, CAA-RI: cerebral amyloid angiopathy-related inflammation, CP: cyclophosphamide, MTTX: methotrexate

with age-matched controls that, interestingly, decreased in response to steroid treatment. These autoantibodies might serve as a biomarker of the disease and allow improvement in diagnosis and monitorization of therapeutic response. It remains unclear whether inflammation is triggered by Aβ amyloid or its associated components like ApoE.[9] There seems to be a strong association of CAA-RI with ApoE genotype ε4/ε4, as approximately 76% of patients affected by the disease are homozygotic for this genotype, while only 5% of subjects with pathologically confirmed noninflammatory CAA present it [odds ratio (OR) 61.7, 95% CI 7.2 to 706, p<0.0001].[30] We could not perform these tests in our patient.

Brain MRI in CAA-RI cases usually shows a distinctive pattern of asymmetric confluent T-2 hyperintense lesions extending through the cortical and subcortical regions with signal suggestive of vasogenic edema and the presence of multiple cortical or subcortical microbleeds in T2*GRE/SWI with variable and patchy leptomeningeal and/ or parenchymal contrast enhancement.[30] Although definitive diagnosis of CAA-RI is still histological, Kinnecom et al.[30] suggested that a diagnosis of probable CAA-RI might be made on the basis of typical clinical and radiological findings without the performance of a brain biopsy. MRI diagnostic criteria for probable CAA-RI was then proposed by Chung et al.[7] and recently modified and validated by Auriel et al.[37] (Table 2).

This diagnostic criteria for probable CAA-RI yields a diagnostic sensitivity and specificity of 82% and 97%, respectively.[37] MRI in our patient showed an isolated lesion that was atypical because of its pseudotumoral aspect and the scarcity of cortical microhemorrhages. This latter was a confounding factor in our case: despite performing susceptibility-weighted imaging (SWI) sequences, brain MRI disclosed only a few gathering intralesional microhemorrhage foci that gliomas usually present[38] and not the multiple cortical or subcortical microhemorrhages inside and outside the lesion that are commonly described in cases of CAA-RI. Other authors have also found the absence of this cortical microhemorrhage in 13%[9] to 59%[8] of cases. This absence therefore does not discard the diagnosis of CAA-RI. However, as microbleeds can be missed if T2* weighted GRE or other SWI are not performed, we do recommend the inclusion of these sequences as part of MRI protocol to evaluate patients with tumor-like lesions. Only 17 of 42 patients in our series had T2*GRE /SWI sequences, and microbleeds were present in 16 (94%) of them.[38]

DISCUSSION

Our patient underwent an open brain biopsy immediately previous to the surgical resection of the brain mass. Although cortical and leptomeningeal tissue was obtained, as it is required to achieve histologic confirmation,[10] brain biopsy was non-diagnostic in our patient probably because adequate techniques to detect Aβ amyloid were not performed due to lack of diagnostic suspicion. After the surgery, immunolabelling of resected tissue vessels with Aβ amyloid antibodies confirmed amyloid angiopathy, and C-PiB PET imaging revealed extensive Aβ amyloidotic cortical deposits in spite of absence of microhemorrhages in those localizations. MR spectroscopy of

Table 2. Diagnostic Criteria for Probable CAA-RI[37]

1. Age ≥40 years.
2. Presence of ≥1 of the following clinical features: headache, decrease in consciousness, behavioral change, focal neurological signs and seizures. The presentation is not directly attributable to an acute intracerebral hemorrhage.
3. MRI shows unifocal or multifocal white matter lesions (corticosubcortical or deep) that are asymmetric and extend to the immediately subcortical white matter; the asymmetry is not due to past ICH.
4. Presence of ≥1 of the following corticosubcortical hemorrhagic lesions: cerebral macrobleed, cerebral microbleed, or cortical superficial siderosis.
5. Absence of neoplasms, infections, or other cause.

the lesion did not reveal any increment of cholina in this case and was unremarkable in the only 7 patients of our series that underwent this technique.

Treatment of CAA-RI with steroids is usually effective, and clinical and radiological remission can be achieved in the first 3 weeks in approximately 70% of cases.[7,9] Many patients remain symptom-free after several years of follow up[10,13,14,25] but relapses can occur in 26% of cases,[9] generally after reduction or cessation of immunosuppression[20,27,39] therefore, clinical surveillance is necessary, and cyclophosphamide or azathioprine can be added in relapsing disease.[20,39] In the present pseudotumoral CAA-RI series, 27/42 patients received steroids as therapy, and in 15 of these, steroids were the only pharmacological treatment; 7/27 were also treated with cyclophosphamide or methotrexate as adjuvant therapy. While a review of the literature shows that only approximately 5% of cases of CAA-RI were surgically treated,[8] in this series of pseudotumoral form cases of CAA-RI 26% (11/42) of patients underwent surgical resection of the lesion due to suspicion of underlying malignancy. No treatment was delivered to 9/42 patients. The outcome was favorable (a significant or complete resolution of symptoms) in 19/22 patients treated with only pharmacological therapy, in 6/11 patients that underwent a surgical procedure, and in 5/9 patients that did not receive any specific treatment. Therefore, 71.43% of patients with pseudotumoral form of CAA-RI in this series had a good outcome. A bad outcome (ongoing deterioration or death) was evident in 14.28% of cases (1/22 patients in the steroid group, in 3/11 patients surgically treated, and in 2/9 patients in the non-treated group). Our patient has not required any further treatment after the initial course of two months of steroids, as he has been symptom-free after 24 months of follow up (Suplementary Table 1 in the online-only Data Supplement).[40-45]

CONCLUSION

CAA-RI can have an acute clinical presentation that mimics stroke and, in neuroimages, can resemble a tumour.[31] Differential diagnoses must be done with low grade gliomas and CNS lymphoma. Brain MRI T2 GRE/ SWI sequences should be carefully evaluated when searching for the presence of cortical microbleeds, as they suggest CAA-RI as a possible etiology; however, their absence does not rule out inflammatory amyloid angiopathy. Although in a typical clinical and radiological scenario of CAA-RI a therapeutic trial with steroids is recommended by some authors,[7,30,37,39] the gold standard for the diagnosis of CAA-RI is still brain biopsy. The pathologist should be aware of clinical suspicions of CAA-RI in order to perform the specific techniques to detect Aβ amyloid.

Supplementary Materials

The online-only Data Supplement is available with this article at https://doi.org/10.30773/pi.2020.0201.

Acknowledgments

None.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

Author Contributions

Conceptualization: Gustavo Sevlever. Data curation: Rafael Torino. Formal analysis: Marta Ines Bala. Investigation: Migue Saucedo. Methodology: Lucrecia Bandeo. Project administration: Luciana Leon Cejas. Resources: Sol Pacha. Supervision: Pablo Bonardo. Validation: Pablo Dezanzo. Visualization: Carlos Rugilo. Writing—original draft: Claudia Uribe Roca, Fabio Maximiliano Gonzalez. Writing—review & editing: Manuel Fernandez Pardal, Ricardo Reisin.

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Supplementary Table 1. Pseudotumoral amyloid angiopathy cases reported in literature (Modified from[10])

Publication/ case number	Age sex	Clinical presentation	T2/FLAIR	T1 Gd	T2 GRE	H-MRS	Histology	Drugs treatment	Outcome/ follow up
Mandybur 1992[40]									
1	62F	Confusion	Isolated, Infiltrative HI	No CE	-	-	Biopsy: CAA-RI	Steroids+CP	Favorable
Osumi 1995[12]									
2	59F	Headache, motor deficit	Isolated, Infiltrative HI (T)	No CE	-	-	Surgery: CAA	Steroids	Death/5 months
Ortiz 1996[41]									
3	64F	Confusion, headache	Isolated, Infiltrative HI	No CE	-	-	Biopsy: CAA	Steroids	Favorable
Fountain 1996[42]									
4	66M	Confusion, cognitive decline, aphasia	Multiple, Infiltrative HI	No CE	-	-	Biopsy: CAA-RI	Steroids, CP	Stable
Polivka 1999[13]									
5	60M	Headache	Isolated, Infiltrative HI	No CE	-	-	Surgery: CAA-RI	None	Favorable/5 years
6	74F	Sensori-motor deficit	Isolated, Infiltrative HI	CE	-	-	Surgery: CAA-RI	None	NI
De Broucker 2000[14]									
7	64F	Seizures	Isolated, Infiltrative HI	No CE			Biopsy: CAA	None	Favorable/2 years
8	69F	Aphasia, motor deficit	Isolated, Infiltrative HI	LCE	MB		Biopsy: CAA	None	Favorable/1 year
Caulo 2001[23]									
9	41M	Headache, seizure	Bilateral infiltrative HI (FTPO)	No CE	-	-	Biopsy: CAA	None	NI/1 year
Oide 2002[15]									
10	69M	Cognitive decline, seizure	Multiple, extensive HI	No	-	-	Biopsy: CAA-RI	None	Ongoing deterioration
Schwab 2003[43]									
11	74M	Cognitive decline, seizure	Infiltrative HI	LCE	-	-	Biopsy: CAA-RI	Steroids	Favorable/1 year
12	70F	Seizure	Infiltrative HI	LCE	-	-	Biopsy: CAA-RI	Steroids+CP	Favorable/1 year
Tamargo 2003[44]									
13	80F	Confusion, aphasia, hemineglect	Multiple, Infiltrative HI	Mild CE	-	N	Biopsy: CAA-RI	Steroids	Favorable/1 year
Vandermissen 2003[26]									
14	46M	Cognitive decline	Isolated, Infiltrative HI	No CE	-		Biopsy: CAA	None	Stable/11 years
Safriel 2004[16]									
15	49M	Seizure	Isolated, Infiltrative HI (TO)	No CE	-	N	Surgery: CAA-RI	Steroids	Favorable/9 months
16	71F	Cognitive deterioration	Isolated, Infiltrative HI (PO)	No CE	-	N	Biopsy: CAA-RI	None	Ongoing deterioration/ 11 years
Mulvey 2005[21]									
17	53M	Hemiparesis Headaches Seizure	Bilateral extensive HI (FTPO)	No CE	-	-	Surgery: CAA	Steroids	NI
Scolding 2005[29]									
18	70F	Confusion, hallucinations, reduced conscious level	Temporal lobe swelling Multifocal WM lesions in occipital lobe	CE			Biopsy: CAA-RI	Steroids+CP	Favorable
19	72M	Hemiparesis Confusion Dysphasia Dyspraxia	Isolated FP diffuse WM HI with mass effect	No CE			Surgery: CAA-RI	Steroids	Death
Andrade 2006[17]									
20	45M	Seizure	Isolated, Infiltrative HI (F)	No CE	-	-	Surgery: CAA	None	Favorable/6 months
Mikolaenko 2006[25]									
21	50M	Seizure	Well-circumscri-bed isolated (F)	Mild CE	-	-	Surgery: CAA-RI	None	Favorable
Wong 2006[39]									
22	79F	Subtle cognitive dysfunction	Bilateral WM HI (FTP)	Mild CE	-	-	Biopsy: CAA-RI	Steroids+MTTX	Favorable (1 recidive)
McHugh 2007[27]									
23	80F	Seizures, aphasia, hemianopia, hemiparesis	Bilateral diffuse HI WM (F)	No CE	MB		Biopsy: CAA-RI	Steroids	Favorable (2 recidives)/ 24 months
Kloppenborg 2010[45]						-			
24	74M	Gait disorder, sleepiness seizure, confusion	Bilateral WM HI (F)	Mild CE			Biopsy: CAA-RI	Steroids	Favorable
Morishige 2010[22]									
25	78F	Aphasia Cognitive decline	Unilateral WM HI (F)	Mild CE	- NI	-	Biopsy: CAA-RI	Steroids	Favorable/ 24 months
Bekkelund 2011[20]									
26	57M	Crural monoparesis	Unilateral hemispheric HI lesion (FTPO)	LCE	MB		Biopsy: CAA-RI	Steroids+CP	Favorable (1 recidive)/ 15 months
Karbowniczek 2012[18]									
27	64F	Cognitive decline	Two well-delimited HI	No CE	-	-	Surgery: CAA	None	Cognitive deterioration
28	38M	Headache, hemiparesis, aphasia	Well-delimited HI	No CE	-	-	Surgery: CAA	None	Favorable
Kotsenas 2013[19]									
29	63F	Confusion, cognitive decline, motor and visual deficit, seizure	Isolated, Infiltrative HI (TPO)	Mild LCE	MB		Biopsy: Vascular inflammation	Steroids in 3 patients	Favorable
30	62F	Sensitive deficit	Isolated, Infiltrative HI (P)	Avid LCE	MB SS	-	Biopsy: CAA		Favorable
31	77M	Confusion, cognitive decline, aphasia	Isolated, Infiltrative HI (FP)	No CE	MB SS	-	Biopsy: Vascular inflammation	None in 2 patients	Favorable
32	74M	Confusion, cognitive decline	Isolated, Infiltrative HI (PO)	Mild LCE	MB	-	Biopsy: CAA-RI		Favorable
33	71F	Confusion, cognitive decline, headaches	Isolated, Infiltrative HI lesion (TPO)	Avid LCE	MB	-	Biopsy: CAA-RI		Favorable
Danve 2014[9]									
34	63F	Seizure	Multiple and bilateral HI lesions (FT)	Mild CE	MB within lesion	-	Biopsy: CAA-RI	Steroids+CP/ Micopheno late	Favorable/11 months
Franco-Macias 2016[11]									
35	67F	Aphasia Hemiparesis Seizure	Unilateral extense HI lesion (FTP)	LCE	No MB. SS+Old he mato ma		Biopsy: CAA-RI	Steroids	Stable (persistent aphasia, cognitive decline)
Ronsin 2016[10]									
36	70M	Confusion	Multiple , bilateral, asymmetric HI ST WM lesions (FTO)	LCE	MB, SS	-	Biopsy: CAA	Steroids	Death (ICH)/3 months
37	80M	Subacute cognitive decline	Multiple , bilateral, asymmetric HI ST WM lesions (FTO)	No CE	MB, SS	N	-	Steroids	Favorable /12 months
38	63M	Subacute cognitive decline and motor deficit	Bilateral, asymmetric HI ST WM lesions (PO)	No CE	MB	N	-	Steroids	Favorable /24 months
39	82M	Subacute cognitive decline and headache	Isolated HI ST WM lesion (PO)	LCE	MB, SS	N	-	Steroids	Favorable /18 months
40	63M	Subacute cognitive decline and headache	Extense confluent bilateral asymmetric HI ST WM lesions (FPO)	No CE	MB, SS	N	-	None	Favorable /12 months
Tolchin 2016[24]									
41	52M	Confusion, paranoia. Non convulsive status epilepticus	Multiple, bilateral, asymmetric HI ST WM lesions (FTO)	No CE	MB	-	Biopsy: CAA	Steroids	Favorable/UK
Our patient									
42	54M	Acute aphasia, seizure	Isolated, Infiltrative HI (T)	No CE	MB inside the lesion	N	Surgery: CAA-RI	Steroids	Favorable/24 months

CAA-RI: Cerebral β amyloid angiopathy related angiitis, CAA: cerebral amyloid angiopathy, CE: contrast enhancement, CP: cyclophosphamide, DWI: diffusion weighted imaging, F: Frontal, HI: hyperintense, ICH (intra-cerebral hemorrhage), IT: infratentorial, LCE: leptomeningeal contrast enhancement, M: male, MB: microbleeds, H-MRS: MRI spectroscopy, MTTX: methotrexate, N: normal, ND: non diagnostic, O: Occipital, P: Parietal, SS: superficial siderosis, ST: supratentorial, T: Temporal, WM: white matter