

On-line Table 1: Clinical details and MRI findings in the PMG cohort

No.	Age (yr)/Sex	Clinical Details										MRI Findings									
		Cognitive Level	Early Development	Neurologic Examination	Age at Seizure Onset (yr)	Seizure Type/Frequency	Epilepsy Syndrome	EEG at the Time of Study	Topographic Pattern		PMG Character		Vascular Abnormalities		Associated Abnormalities						
									3T/7T	7T	3T	7T	3T	7T	3T	7T					
1	2/F	Mild impairment	Severe language delay	Mild L hemiparesis	4	CPS/remission since 5 yr	Focal	R T sharp waves, diffuse SW during HPN	Diffuse	Bilateral/sym	Bilateral/sym	Delicate/coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	Bilateral hippocampal malrotation, ventricular dilation	Same as seen at 3T				
2	33/M	Normal	Normal	Normal	16	CPS/monthly	Focal	L T SW with possible contralateral spreading	Perisylvian	Unilateral	Bilateral/asym	Coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	None	None				
3	21/F	Normal	Mild language delay	Opercular syndrome	15	CPS/monthly	Focal	Bilateral C T SW	Perisylvian	Bilateral/asym	Bilateral/asym	Coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	None	None				
4	33/M	Normal	Normal	Normal	16	CPS/yearly	Focal	R hemisphere spikes with possible contralateral spreading	Perisylvian	Unilateral	Unilateral	Delicate/coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	R T NH, cavum vergense, ventricular dilation	Same as seen at 3T				
5	24/M	Moderate impairment	Mild motor delay, moderate language delay	Mild R hemiparesis	4	Focal, atypical absences since 4 yr/remission since 6 yr	ESES	L hemisphere spikes with possible contralateral spreading	Perisylvian	Unilateral	Bilateral/asym	Coarse	Undulated profile	L intraorbital cavernous hemangiomas, L soft-tissue hemangioma, R Sylvian vein hypertrophy, mesial temporal medullary vein hypertrophy	L intraorbital cavernous hemangiomas, L soft-tissue hemangioma, R Sylvian vein hypertrophy, mesial temporal medullary vein hypertrophy	L hippocampal atrophy	Same as seen at 3T				
6	21/M	Borderline functioning	Mild language delay	Dysarthria, dyspraxia, mild R hemiparesis	1	Focal seizures 1-7 yr, negative myoclonic seizures since 6 yr/remission since 9 yr	Focal, ESES	Vertex spikes	Perisylvian	Unilateral	Bilateral/asym	Delicate/coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	Absence of septum pellucidum, bilateral ventricular dilation	Same as seen at 3T				
7	53/F	Normal	Normal	Mild L hemiparesis	9	CPS/weekly	Focal	Bilateral C T spikes and diffuse SW	Perisylvian	Unilateral	Unilateral	Coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	L hippocampal dysplasia, R TO NH	Same as seen at 3T				
8	26/F	Mild impairment	Mild motor delay	Awkwardness, dysarthria, dyspraxia	8	CPS/remission since 10 yr	Focal	Diffuse SW	Perisylvian	Unilateral	Unilateral	Coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	R Sylvian fissure and folding of the R Sylvian fissure and frontal opercular sulci, R and L T gyrus	Abnormal thickening and folding of the R Sylvian fissure and frontal opercular sulci, R and L T gyrus				
9	39/F	Mild cognitive impairment	Mild motor delay, moderate language delay	Dysarthria, dyspraxia, mild R hemiparesis	0.7	SPS/monthly	Focal	Bilateral PO spikes	Perisylvian	Bilateral/asym	Bilateral/asym	Coarse	Not detectable	None	Increased No. and dilation of superficial veins in PMG cortex	R P open-lip SCZ, absent septum pellucidum, L bilateral ventricular dilation	R P open-lip SCZ, absent septum pellucidum, L bilateral ventricular dilation				
10	28/F	Normal	Mild motor delay	Mild L hemiparesis	17	Focal/remission since 17 yr	Focal	Normal	Perisylvian	Unilateral	Bilateral/asym	Delicate/coarse	Undulated profile	None	Increased No. and dilation of superficial veins in PMG cortex	None	None				

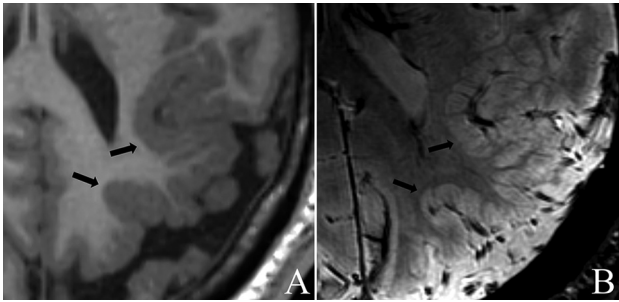
Note:—Asym indicates asymmetric; C, central; CPS, complex partial seizures; EEG, electroencephalography; ESES, electrical status epilepticus during sleep; HPN, hyperventilation; L, left; NH, nodular heterotopia; O, occipital; P, parietal; PMG, polymicrogyria; R, right; SCZ, schizencephaly; SPS, simple partial seizures; Sym, symmetric; SW, spike waves; T, temporal.

On-line Table 2: Synopsis of the parameters of the 3T and 7T imaging techniques used^a

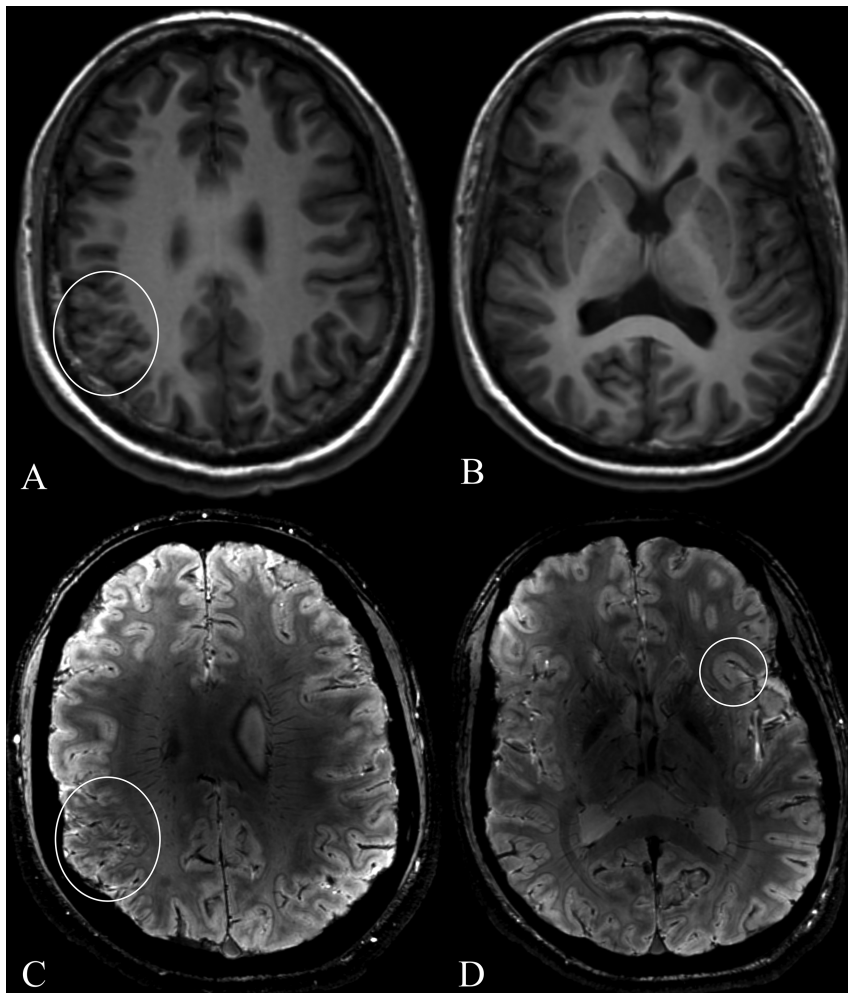
	Sequence		TR (ms)	TE (ms)	TI (ms)	Voxel size (mm ³)	FA	RBW (kHz)	FOV (mm)	Sections/Partitions	Section Thickness (mm)	Scan Time
	Type											
3T	T1WI FSPGR	3D	6.6	2.8	450	1 × 1 × 1	13°	31.3	256	156	1	4 min, 12 s
	T2 FLAIR	2D	9027	155	2250	0.75 × 0.75 × 4	90°	50	240	24	4	5 min, 50 s
	T2WI FSE	2D	2840	78.8	—	0.75 × 0.75 × 4	90°	62.5	240	24	4	2 min, 45 s
	White matter-suppressed FSE-IR	2D	5000	39.5	350	0.94 × 0.94 × 2.5	90°	31.2	240 × 180	30	2.5	5 min, 16 s
7T	T1WI FSPGR	3D	6.3	2.3	450	1 × 1 × 1	12°	50	224	96	1	5 min, 47 s
	SWAN	3D	54.1	5.6, 12.0, 18.3, 24.7, 31.1, 37.5, 43.9	—	0.5 × 0.5 × 1	15°	50	224	66	1	9 min, 38 s
	T2*WI targeted dual-echo GRE	2D	500	10, 20	—	0.25 × 0.25 × 2	30°	31.25	112	15	2	7 min, 32 s
	T2WI FSE	2D	6000	87	—	0.5 × 0.5 × 2	90°	20.83	224	10	2	5 min
	Gray-white matter TBE FSE-IR	2D	4875	7.9	700	0.5 × 0.5 × 2	90°	62.5	224	10	2	8 min, 18 s

Note:—FA indicates flip angle; —, not applicable; RBW, receiver bandwidth.

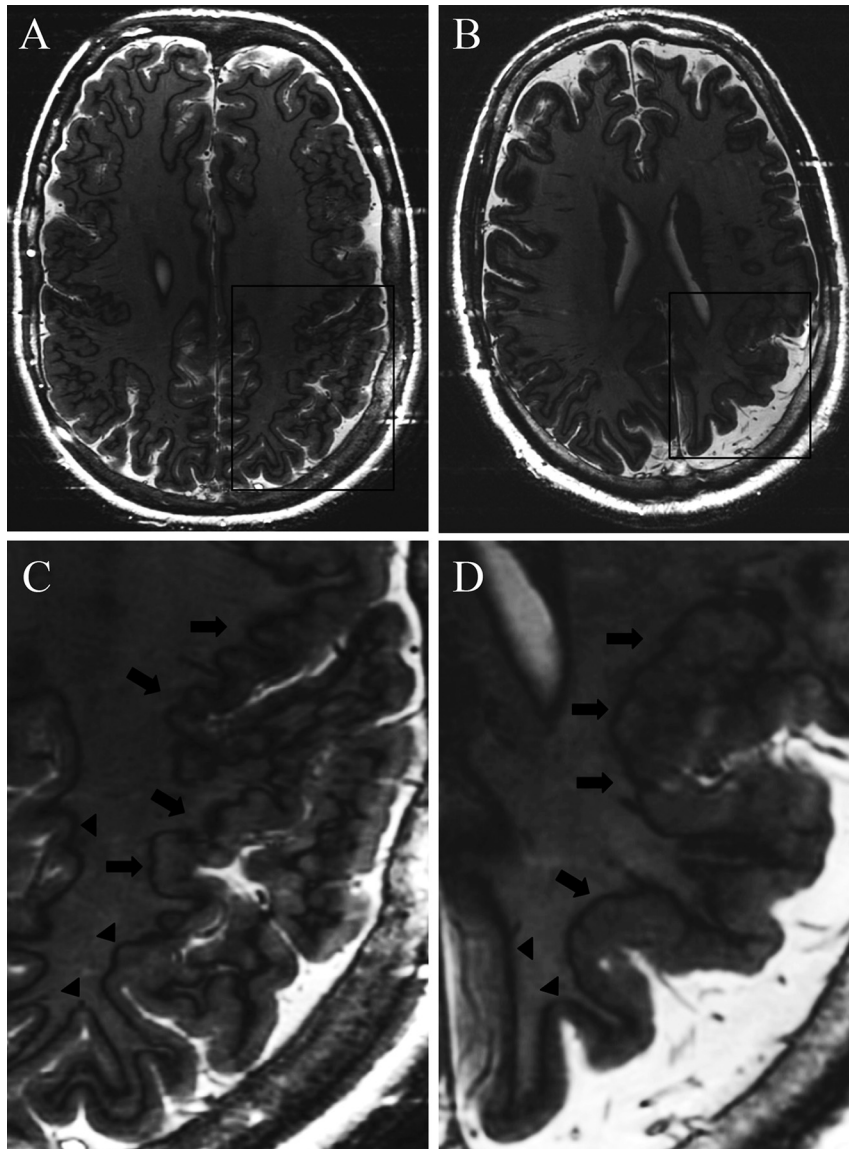
^a The final SWAN image was obtained by averaging the images obtained at each TE.



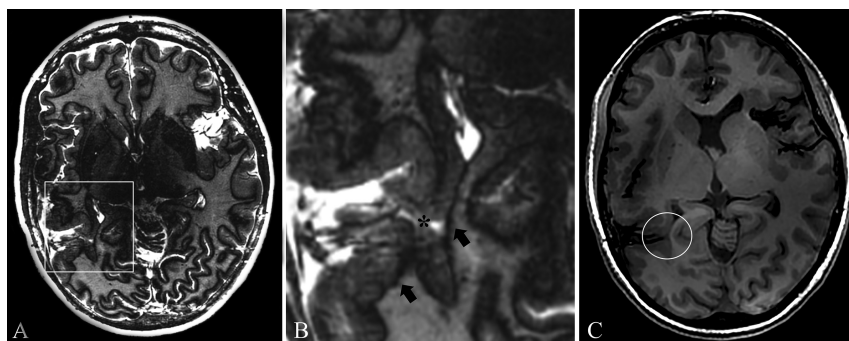
ON-LINE FIG 1. A and B, Patient 2. Comparison of 3T axial 3D FSPGR (A) and 7T axial 3D SWAN (B) images. A, A coarse, thick, and bumpy polymicrogyric cortex in the left parietal lobe (*arrows*). B, A pattern with a thinner cortex and higher periodicity of the microgyri, which are tightly packed.



ON-LINE FIG 2. Patient 6. 3T axial 3D FSPGR (A and B) and 7T axial 3D SWAN (C and D) images. A, 3T FSPGR shows unilateral polymicrogyria involving the supramarginal gyrus and the lateral sulcus of the right parietal lobe (*white circle*). B, 3T FSPGR at a lower level does not show any relevant abnormality. C, 7T SWAN confirms with high detail the unilateral polymicrogyria in the supramarginal gyrus and the lateral sulcus of the right parietal lobe (*white circle*). D, 7T SWAN imaging discloses abnormal cortical infolding at the level of the left frontal operculum (*white circle*) with respect to 3T FSPGR images.



ON-LINE FIG 3. Patients 1 (A and magnified C) and 2 (B and magnified D). 7T axial 2D TBE FSE-IR. TBE images show a hypointense line along the gray-white matter interface, which provides a better definition of the polymicrogyric border and distinction of the normal (*arrowheads*) versus polymicrogyric cortex (*arrows*).



ON-LINE FIG 4. Patient 9. 7T axial 2D FSE-IR TBE (A, magnified in B) and 3D FSPGR (C) images. TBE imaging in A enhances detection of the borders of the polymicrogyric cortex and discloses a cleft, with open lips in its most superficial aspect and closed lips in its deepest aspect, adjacent to the wall of the occipital horn. The magnified image B shows the thickened and irregular gray matter that reaches the ventricle (*arrows*) and the cleft (*asterisk*). C, FSPGR image, acquired 1 mm above the TBE image, shows a small open-lipped schizencephalic cleft with separated lips (*white circle*).