III • 5 Infantile spasms and West syndrome (1)

Context

11-month-old child referred because of repeated crying. In fact, this child had had flexor spasms since the age of 7 months 1/2, with 2 or 3 daily series, accompanied by crying. The parents noted an arrest of development. With therapy, spasms and hysparrhythmia ceased quickly, and the child resumed his development. The etiological workup remained negative.

What to note

On the left, the child is awake. The background is totally disorganized. There are high-amplitude delta waves intermixed with spikes and spike-waves. The changes are asynchronous and multifocal. The tracing shows hypsarrhythmia. On the right, the child is asleep. Compared to waking, the sleep recording shows a fragmentation of hypsarrhythmia with changes that become bilateral with some polyspike-waves.

Comment

The aspect of hypsarrhythmia differs according to the age at onset of the West syndrome. In older infants, there is more synchrony between the hemispheres.

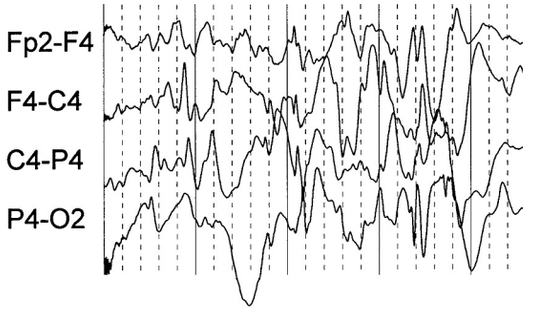


Figure a / Hypsarrhythmia with high-amplitude slow waves mixed with multifocal spikes.

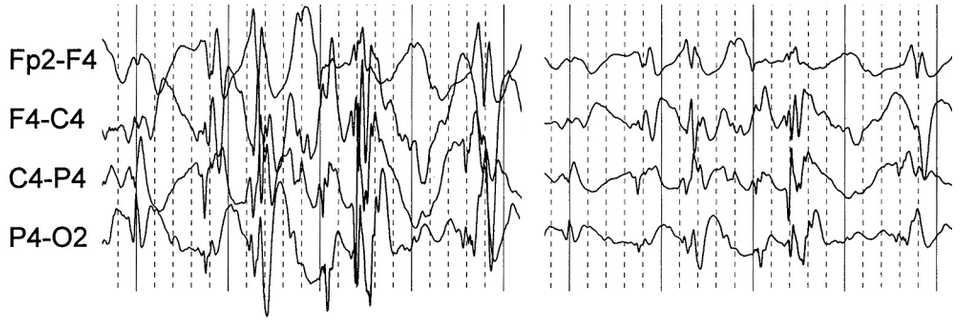
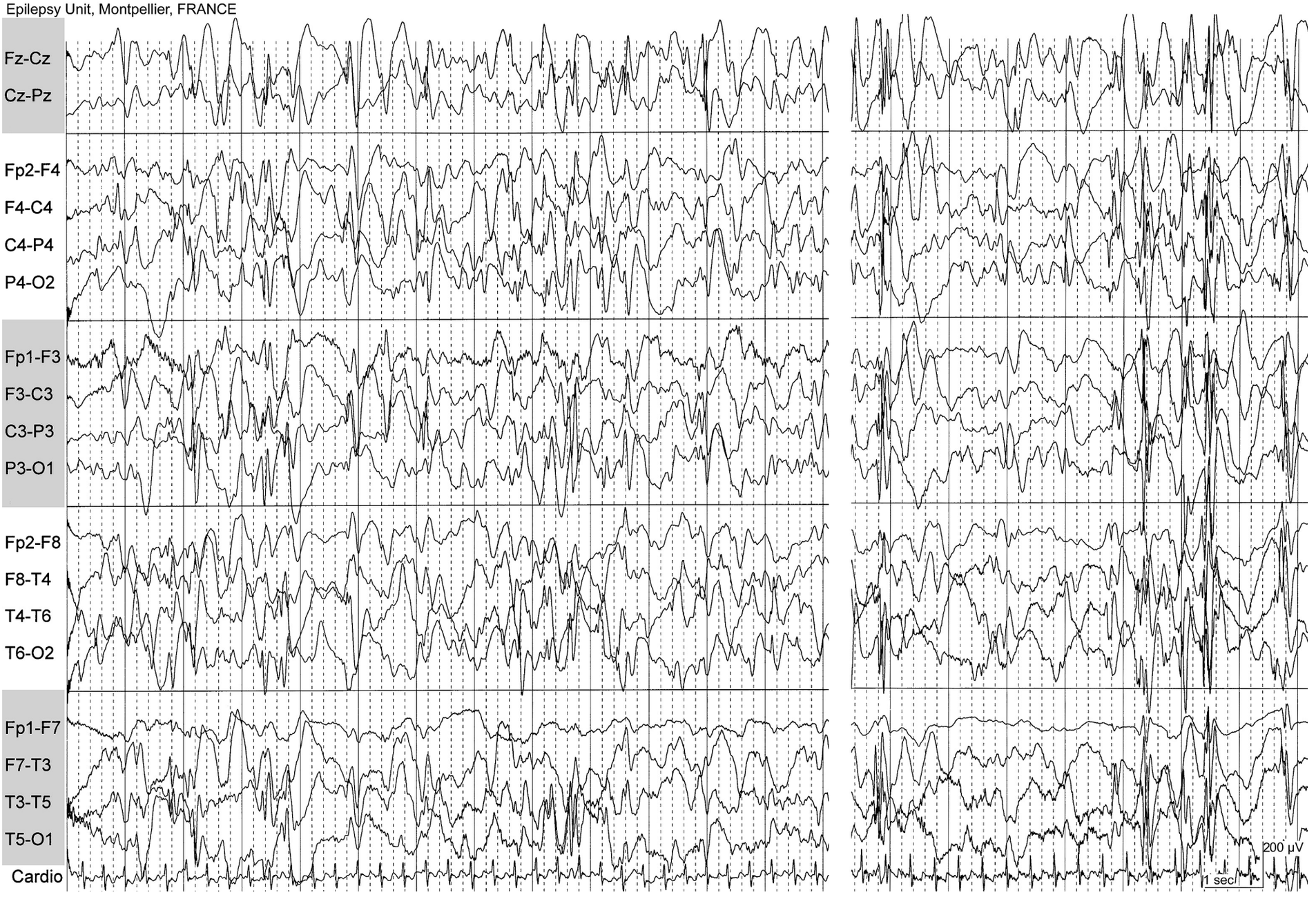


Figure b / Left segment, amplitude at 20 μV/mm. Spikes, spike-waves and polyspike-waves mixed with slow waves, the changes are fragmented compared to the awake recording. Right segment, same abstract at 30 μV/mm.


Epilepsy Unit, Montpellier, FRANCE
Fz-Cz
Cz-Pz
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T4
T4-T6
T6-O2
Fp1-F7
F7-T3
T3-T5
T5-O1
Cardio
200 µV
1 sec

III • 6 Infantile spasms and West syndrome (2)

Context

Same child as on previous plate, same recording.

What to note

On the left, the child has just woken up. At the 6th second, there is a burst of fast rhythms on all leads, followed by desynchronization with low-voltage activity. The EEG aspect is typical for an epileptic spasm. Clinically, the child has a flexor spasm. There was no polygraphic EMG lead on this standard EEG recording, as spasms were not suspected at referral. But the muscular activity can be seen on the EKG lead, its onset is just after the end of the burst of fast activity and coincides with the slow component. On the right, another spasm is recorded, in association with a burst of fast activities, followed by desynchronization of the EEG. The flexor spasms also provoke muscular artifacts on the EKG lead.

Comment

Three different EEG patterns are associated with spasm: high-voltage slow waves (the most common pattern), brief beta activity called "spindle-like" (present case) and also abrupt decremental activity corresponding to a very fast activity (Fusco *et al.*, 2019).

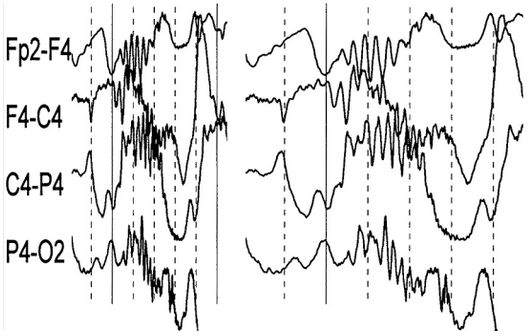


Figure a / Spasm with a burst of fast activity (15 and 30 mm/s).

Figure b / Other plate during the same recording showing the occurrence of serial spasms (*).


Epilepsy Unit, Montpellier, FRANCE
Fz-Cz
Cz-Pz
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T4
T4-T6
T6-O2
Fp1-F7
F7-T3
T3-T5
T5-O1
Cardio
200 µV
1 sec