

# Reading Epilepsy in Senegalese Young Woman: A Case Report

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**Abstract** Reading epilepsy is an epileptic syndrome in which silent and/or aloud reading is the main triggering factor. It is rare in clinical practice. We report here a recent case of reading epilepsy in a Senegalese young woman. It is a young woman of 25 years old, student, third of a sibling of five children, without a known pathological history, having an up-to-date vaccination status and a good psychomotor development. She had attended a French-Arabic bilingual school at the age of five, which would have gone well until the age of 14, disrupted by the first A brief tremor of the mouth during a reading in class accompanied by a feeling of generalized embarrassment difficult to describe against a backdrop of physical asthenia and apathy. This crisis would have taken place in less than two minutes and would have yielded spontaneously to stop reading. At the age of 19 years during a prolonged reading a crisis similar to the previous ones had turned, this time, into a generalized tonic crisis. This is how she was brought to the neurological clinic for consultation in a picture of discomfort. From the cost a first the electroencephalogram was performed and showed maximum diffuse theta activities on temporal projections on a normal background rate. At the test of reading, appeared waves predominantly temporo-occipital left. The activation tests (hyperpnea and intermittent light stimulation) had no effect. After three (3) weeks of treatment by Phenobarbital, we observed a good clinical-electrical improvement. Reading epilepsy is very rare in our practice; its early diagnosis allows treatment and avoid the impact on the students' academic future.

**Keywords** Reading, Epilepsy, Young, Phenobarbital

## 1. Introduction

Reading epilepsy is an epileptic syndrome in which silent and/or aloud reading is the main triggering factor [1]. It is rare in clinical practice. We report here a recent case of reading epilepsy in a Senegalese young woman in our Neurology department at Fann National Teaching Hospital in Dakar, Senegal (West Africa).

## 2. Case Report

It was a young woman of 25 years old, student, third of a sibling of five children, without a known pathological history, having an up-to-date vaccination status and a good psychomotor development.

She had attended a French-Arabic bilingual school at the age of five, which would have gone well until the age of 14, disrupted by the first A brief tremor of the mouth during a

reading in class accompanied by a feeling of generalized embarrassment difficult to describe against a backdrop of physical asthenia and apathy. This crisis would have taken place in less than two minutes and would have yielded spontaneously to stopping reading.

Since then similar crises occurred frequently and exclusively during the reading periods, becoming more and more handicapped before any attempt to read even outside the school. These crises had been seen as a difficulty for parents to read. There was no relationship between the language of the text read, the outbreak and the duration of the crises. These crises had no impact on her intellectual development.

At the age of 19 during a prolonged reading a crisis similar to the previous ones had turned, this time, into a generalized tonic crisis. This is how she was brought to the neurological clinic for consultation in a picture of discomfort. From the cost a first the electroencephalogram was performed and showed maximum diffuse theta activities on temporal projections on a normal background rate. At the test of reading, appeared waves predominantly temporo-occipital left. The activation tests (hyperpnea and intermittent light stimulation) had no effect.

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A carbamazepine treatment for a few weeks was introduced. This led to a worsening of the symptoms and an increase in the frequency of seizures, motivating the realization of a new electroencephalographic tracing with video, which had shown acute slow waves on the anterior regions potentiated by the decrease of vigilance on a rhythm Poorly structured background. The reading of a text had almost instantaneously triggered the appearance of generalized wave bursts. The video showed myoclonus of the diffusing face to the upper limbs without secondary generalization. Magnetic resonance imaging was performed and was normal in appearance.

Thus, substitution with phenobarbital at a dose of 100 mg per day was performed. This resulted, after three (3) weeks of treatment, a good clinical-electrical improvement by a complete disappearance of the pathological crises and grapho-elements.

### 3. Discussion

Reflex epilepsies are quite uncommon, occurring in only 5% of all epilepsies. Most of these epilepsies are genetic in origin [2]. A reflex seizure is a condition in which seizures can be provoked habitually by an external stimulus or, less commonly, internal mental processes, or by activity of the patient. It is most commonly precipitated by visual stimuli. Other somatosensory occurrences, including thinking, reading, listening to music, and eating may also induce reflex seizures [3, 4].

Reading epilepsy is a distinct type of reflex epilepsy in which all or almost all seizures are precipitated by reading [5, 6]. Since 1954 when Bickford wrote his first paper on the “sensory precipitation of seizures” there have been recorded 18 cases of reading epilepsy [7].

The age of onset reported in the literature ranges from 6 to 28 years with seizures starting in most patients during the teenage years [8, 9] The Seizures of our patient started at 14 years with an exacerbation of the age of 19. Which converges with the age described in the literature. The occurrence of the seizures at this age affects the scolarity of the students. Our patient had not continued to study because of this reading epilepsy. Cognitive impairment is regarded as the link between epileptic conditions and the inability to learn in school [10]. However, in reading epilepsy, this inability to learn is caused by the cognitive impairment as in our observation each reading caused the seizures so the learning is not possible. The learning disabilities may be evaluated on observations made during classroom performance [10]. Indeed, reading is a complex cognitive process that includes visual analysis, memory functions, and grapheme-tophoneme conversion, followed by articulation and acoustic monitoring. Debate continues as to precisely which cognitive step or component of the reading process is epileptogenic, but there is substantial variability between patients, with eye movements, comprehension, emotional content, production of speech, and proprioceptive feedback

all reported as effective triggers (panel) [11, 12].

This shows the disability of reading epilepsy. That is why its diagnostic must be established precociously.

About the diagnosis, besides the clinical arguments we conducted a first the electroencephalogram (EEG) which showed maximum diffuse theta activities on temporal projections on a normal background rate. At the test of reading, appeared waves predominantly temporo-occipital left. The activation tests (hyperpnea and intermittent light stimulation) had no effect. It has been described in the literature that the subcortical areas might be linked closely to areas of hyperexcitable cortex within the normal reading network or to physiological motor function. Analyses of data from spike-triggered EEG-fMRI (Functional magnetic resonance imaging) and magnetoencephalography show substantial activation in the left precentral gyrus, near or directly in Brodmann area 6, and bilaterally in the central sulcus and globus pallidus [12]. The fMRI has not been made in our patient.

Regarding the management, levetiracetam is considered to be the as a first-line treatment for primary and secondary reading epilepsy [13]. Our patient received Phenobarbital and allowed a good evolution a disappearance of crises and a modification of the EEG recording. Phenobarbital is the most widely used antiepileptic drug in our context because of its financial access and efficiency in our clinical practice.

### 4. Conclusions

Reading epilepsy is very rare in our practice; its early diagnosis allows treatment and avoid the impact on the students' academic future. That's why awareness on different forms of epilepsy is necessary in our African countries where epilepsy remains a mystical disease.

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