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Clinical Case

A Benign Form of Multiple Sclerosis in a Native Ivoirian (West Africa)

Une forme bénigne autochtone de la sclérose en plaques chez un ivoirien (Afrique de l'Ouest)

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Abstract

Multiple sclerosis (MS) is an inflammatory demyelinating disease of the white matter of the central nervous system. It is part of chronic disabling diseases in young patients. MS is manifested clinically by encephalic tables and / or subacute spinal cord. It remains unique in black Africa. But in the Ivory Coast, the ethnic diversity of the population and geographical location with the existence of the north-south gradient may constitute predisposing genetic and environmental factors of MS. Thanks to advances in imaging, MRI remains an aid for the diagnosis of this condition. We report here a clinical case of a young Ivorian whose signs and symptoms were in favor of MS.We consulted a young male patient in the outpatient unit of the Neurology Department of the University Hospital of Cocody in Abidjan (Ivory Coast) in October 2015 (first consultation).

After a physical examination, neurological examination and neuroimaging, diagnostic hypotheses were discussed, selected and explored.The male patient was a young subjects aged 25, from the town of Dabou, in the south-east of Côte d'Ivoire. He presented three thrusts made of highly signs suggestive of MS with a description remitting form remissions. The cervical spinal cord and brain MRI results showed plaques of demyelination. Biopsy and histological examination of the salivary glands showed atrophy of salivary glands. The dosage of angiotensin converting enzyme (ACE) was normal. Analysis of the Cerebrospinal Fluid (CSF) allowed to objectify inflammation of the central nervous system and eliminate an infectious or neoplastic neurological process. Knowledge and improving accessibility additional tests certainly will improve the diagnosis and management of MS patients in Ivory Coast.

Keywords: benign form of multiple sclerosis, Ivory Coast, Native Ivory Coast , subject.

Résumé

La sclérose en plaques (SEP) est une pathologie inflammatoire démyélinisante de la substance blanche du système nerveux central. Elle fait partie des pathologies chroniques invalidantes du sujet jeune. La SEP se manifeste cliniquement par des tableaux encéphaliques et/ ou médullaires subaigus. Elle ne demeure pas moins exceptionnelle en Afrique noire. Cepedant, en Côte d'Ivoire, la diversité ethnique de la population et la situation géographique avec l'existence du gradient nord-sud peuvent constituer des facteurs génétiques et environnementaux favorisant la SEP. Grâce au progrès de l'imagerie, l'IRM reste une aide pour le diagnostic de cette affection.

Nous rapportons ici le cas clinique d'un jeune ivoirien dont les manifestations cliniques et les explorations étaient en faveur d'une SEP.

Nous avions consulté un sujet jeune dans l'unité des consultations externes du Service de Neurologie du Centre Hospitalier Universitaire de Cocody à Abidjan (Côte d'Ivoire) en octobre 2015 (première consultation). Après un interrogatoire, un examen neurologique et une neuro-imagerie cérébrale, des hypothèses diagnostiques ont été évoquées, sélectionnées et explorées.

Le patient de sexe masculin, était un sujet jeune âgé de 25 ans, originaire de la ville de Dabou, au sud-est de la Cote d'Ivoire. Il a présenté trois poussées faites de signes fortement évocateurs de SEP. Les résultats de l'IRM encéphalique et médullaire cervicale chez ce patient ont montré des plaques de démyélinisation. La biopsie avec examen anatomopathologique des glandes salivaires a mis en évidence une atrophie des glandes salivaires. Le dosage de l'enzyme de conversion (ACE) était normal. L'analyse du liquide cérébrospinal (LCS) a permis d'objectiver une réaction inflammatoire du système nerveux central et d'éliminer un processus neurologique infectieux ou néoplasique.

La connaissance et l'amélioration de l'accessibilité des examens complémentaires permettront d'améliorer le diagnostic et la prise en charge des patients atteints de SEP en Côte d'ivoire.

Mots clés : forme bénigne de sclérose en plaques, Cote d'ivoire, ivoirien natif

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Introduction

Is an immune-mediated inflammatory disease characterized by demyelination of the white matter of the central nervous system. It is clinically manifested by encephalic tables and / or subacute spinal cord. In black Africa, some cases of milder forms of MS have been published in Tunisia [1, 2] Morocco [3, 4] as well as in Algeria, Senegal [5], Kenya [6] and Côte d'Ivoire [7].

The diagnosis of MS is supported by complementary examinations in particular Magnetic Resonance Imaging (MRI), yet in sub-Saharan Africa the availability of this exploration is very recent. The aim of this work is to present a clinical case of a young Ivorian patient, born and known for having always lived in his country, in whom the clinical symptomatology and the brain imagery made it possible to retain the diagnosis of MS.

Clinical case

A 25-year-old Ivorian man from the town of Dabou, in the Lagunes region, was consulted on 16/09/2015 for a left hemiplegia of rapid and progressive onset. The clinical presentation began with a first episode of left-sided weakness, which occurred in August 2015. The clinical presentation was followed by a recurrence in September 2015. The patient would have felt a few days earlier dizzy sensations with instability at standing and walking.

These deep cerebellar and sensory disorders were followed by a quickly progressive left-sided hemiplegia. In addition, the patient reported a C3-C4 cervico-brachial neuralgia and major asthenia. The neurological examination carried out at the admission showed a pyramidal syndrome of proportional total left side rated at 4/5 and a bilateral kinetic cerebellar syndrome associated with a proprioceptive ataxia.

The cranial CT performed on 09/09/2015 showed a periventricular thalamic hypodensity (1) in the right lateral ventricle horn without contrast **(Image I).**
A month later, that is, in October 2015, the third outbreak occurred with left-sided hemiparesis and sphincter dysuria-like disorder associated with an increase in intensity of cervical neuralgia.

Cerebral Magnetic Resonance Imaging (MRI) was performed on 15/10/2015. It showed at the brain: several cortical and subcortical, supra and subtentorial hyper signals **(2)** flair without vascular systematization and suggesting MS type demyelination lesions **(Image II)**. At the cervical spinal cord MRI **(3)** : intra medullary signals in EST2 and STIR, in isosignal EST1, localized in C2-C3 with an enhancement after injection of the contrast agent indicating the active and demyelinating character of cervical spinal compatible with an MS **(Image III).**

The performance of a lumbar puncture for tuberculosis and syphilis was negative. Cerebrospinal fluid (CSF) examination showed 12 lymphocytes cytology with hyperproteinorrachia at 0.54 g / l, a normoglucorachia with sterile CSF. The search for an oligoclonal band for electrophoresis of proteins in the CSF could not be carried out because of financial problems. Standard biology showed a biological inflammatory syndrome with a C reactive protein negative at 1mg / l. The sedimentation rate was 26 mm at the first hour and 40 mm at the second hour. The complete blood count was normal. Retroviral HIV serology was negative.

The search for rheumatoid factors and the biopsy of accessory salivary gland were negative. The diagnosis of MS-RR was mentioned on the basis of Mcdonald's diagnostic criteria dating from 2010 (**Table 1**) that are widely used in research and clinical practice.

The International Expert Panel on Multiple Sclerosis Diagnosis examined the 2010 McDonald criteria and recommended revisions. The 2017 McDonald's criteria (**Table 2**) continue to apply primarily to patients with a typical clinically isolated syndrome (CIS), define what is needed to ensure the spread of CNS lesions over time and space, and emphasize the need for best explanation of the presentation.

For the etiologic treatment of the flare-ups, the patient was given a therapeutic abstention. In-depth treatment was not indicated in quickly regressive flare-ups. The evolution was made towards fast recovery with an EDSS scale rated at 1.5.
He received a clinical monitoring on an outpatient basis after his 3 pauci-symptomatic flare-ups. The other clinical signs manifesting as sensory or sensorimotor manifestations have been resolved under symptomatic treatment

Table I: MacDonald diagnosis criteria [10]

Clinical presentation	Complementary elements needed for diagnosis
At least 2 flare-ups and at least 2 affected locations	none
At least 2 flare-ups and only 1 affected location	Dissemination of lesions in space on the MRI or subsequent clinical flare-up at a different location.
1 flare-up and at least 2 affected locations	Dissemination of lesions in space on the MRI or 2nd flare-up.
Only one flare-up	Dissemination of lesions in space on the MRI or at least 2 suggestive lesions MRI and CSF + Dissemination on time on successive MRI or 2nd clinical flare-up.
Insidious progression suggestive of MS	A year of prospective or retrospective disease progression and 2 of the following criteria: - CSF - Cerebral MRI + (9 T2 lesions or at least 4 T2 lesions with visual evoked potentials) + - Spinal RMI + (2 focal T2 lesions)

Image I: Brain CT Scan with Thalamic hypodensity without contrast agent

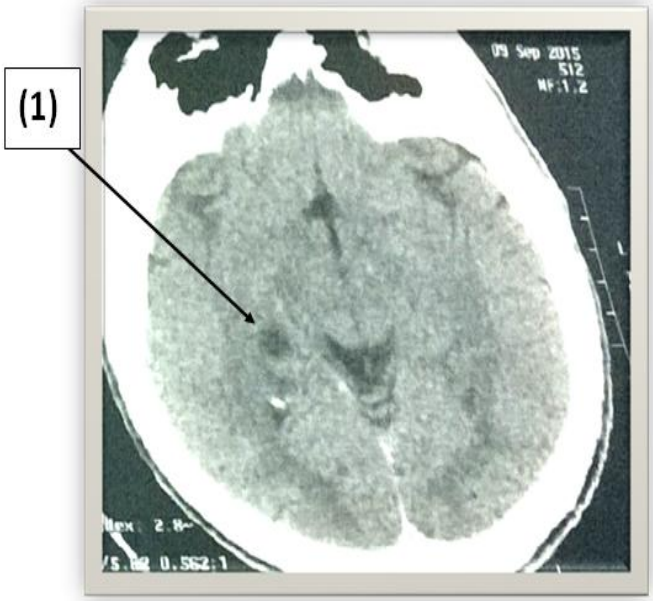
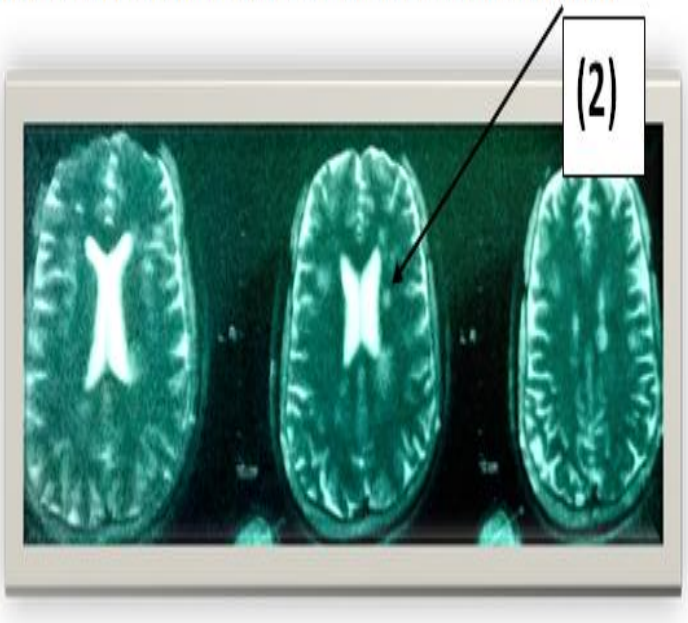


Table II: MacDonald diagnosis criteria 2017 [11]

	Number of lesions with objective clinical evidence	Additional data needed for a diagnosis of multiple sclerosis
≥2 clinical attacks	≥2	None*
≥2 clinical attacks	1 (as well as clear-cut historical evidence of a previous attack involving a lesion in a distinct anatomical location†)	None*
≥2 clinical attacks	1	Dissemination in space demonstrated by an additional clinical attack implicating a different CNS site or by MRI‡
1 clinical attack	≥2	Dissemination in time demonstrated by an additional clinical attack or by MRI§ OR demonstration of CSF-specific oligoclonal bands¶
1 clinical attack	1	Dissemination in space demonstrated by an additional clinical attack implicating a different CNS site or by MRI‡ AND Dissemination in time demonstrated by an additional clinical attack or by MRI§ OR demonstration of CSF-specific oligoclonal bands¶

Image II: Brain RMI with multiple supra and subtentorial hypersignals



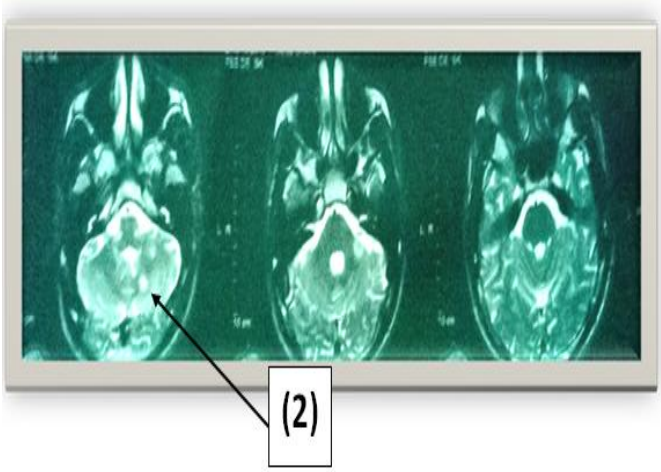
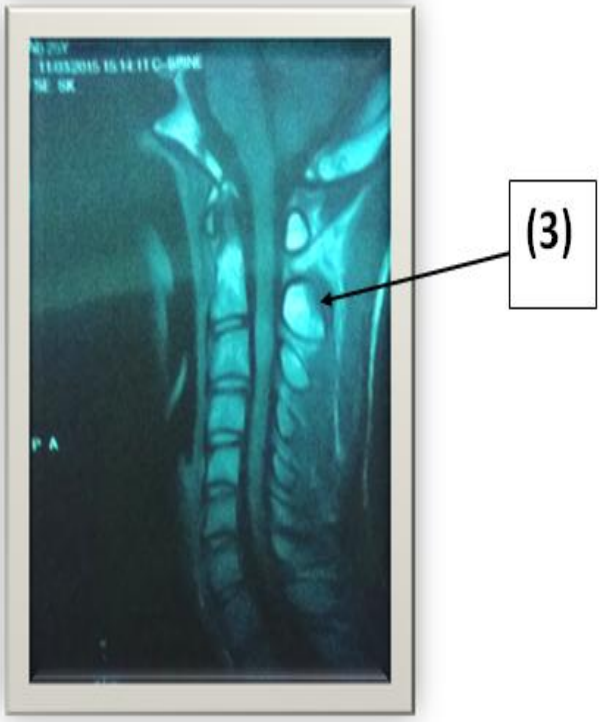


Image III: Cervical spinal MRI with intramedullary hyper signals at C2-C3 level



Discussion

The epidemiological component

MS is considered rare in Africa, particularly in West Africa. North Africa and South Africa remain areas of predilection. In North Africa, the incidence is 1.34 per 100,000 in the Tunis region between 1996 and 2000 [1]. The first confirmed case of MS in South African black was reported in 1987 by Bhigjee [12]. The probable existence of an infectious or environmental factor is reinforced by the increase in the incidence of MS between 1964-1970. This would be due to a massive population migration in areas of high prevalence (Europe and North America). to areas of low prevalence (South Africa and Japan) in the post-war period [13]**.** In West Africa. In 1973, Haddock [18] in Ghana and Osuntokun [14] in Nigeria reported no cases of MS in the review of neurological diseases in their respective countries. Rare, poorly documented cases have been reported in Cameroon and Congo Kinshasa. Collomb et al [15] reported in Senegal a single observation of SEPs over a period of 3 years in a population of 1,800 patients. Recently diagnosed patients in Niger [16] and Mauritania [17].

The Caucasian race seems more exposed to the disease than the blacks of African origin. Genetic and environmental factors [8] tend to explain the occurrence of this condition. This condition begins in young adults between 20 and 40 years of age in 70% of cases. Our patient is a young subject, aged under 30 years compatible with the classic age for relapsing forms of MS. He is native of The city of Dabou is located at the edge of the Ebrié lagoon 49 km west of Abidjan in the region of Lagunes. It has dense forest vegetation with a sub-equatorial climate of 2000 mm annual rainfall. The climate of

Dabou gives way to a dry season that precedes the rainy season. The first villages in the region were founded by people from the west. Later, with the migration of Akan peoples, families of Akan culture gradually joined these populations. They stayed a long time in the forest, then they crossed the Bandama to settle on the lagoon around the savannah. This movement dates back to around the end of the 15th century.

Indeed, the environmental factors play a major role in the onset of MS. The existence of a North-South gradient, genetic susceptibility [9], some viral infectious agents and exposure to ultraviolet B-type radiation, are implicated in the expression of MS.

The clinic component

MS is characterized by its clinical polymorphism. It manifests itself in subacute encephalic, spinal or encephalomedullary lesions tables. It is characterized by its evolutionary mode and the dissemination of clinical signs in time and space. In our observation, encephalic signs, in particular, pyramidal signs, were the most predominant central manifestations. It showed 3 regressive flare-ups after an interval of one month and the clinical signs that evoked a spatial dissemination of sclerosis lesions: pyramidal, cerebellar, proprioceptive and / or sensory hemi corporeal motor deficiencies, and spinal lesion with cervicobrachial neuralgia and sphincter disorders with dysuria.

The paraclinic component

MRI is the most sensitive and recommended complementary examination. It confirms this dissemination by revealing hemispherical and spinal brain lesions. According to the Macdonald criteria, our patient presented at least 2 flare-ups with 2 locations concerned and a spatial dissemination of brain lesions in T2 supra and subtentorial associated with high cervical spinal cord lesions. It has been considered as a remittent and reversible form. Biologically, the biological reaction in the CSF may lead to an inflammatory reaction with hypercytosis and hyperproteinorachia. These observed inflammatory biological elements can be confirmed by carrying out electrophoresis of the proteins. Protein electrophoresis in search of an oligoclonal IgG band was not performed due to the high cost the patient could not afford.

The CSF study is not mandatory when dissemination is demonstrated in space and time. In Côte d'Ivoire, the improvement of our technical platform accessible to patients, could allow the realization of the evoked potentials with an early diagnosis even in sub-clinical.

The Therapeutic and Evolution Component

The short-term bolus of methylprednisone may allow a more or less rapid recovery of the signs. However, therapeutic abstention is also possible depending on the functional state of the patient.

The management of our patient had continued on an outpatient basis in the absence of residual disability. The benign evolution allowed us to conclude a benign form of MS. The arrival in 2014, of a new product derived from cannabis, the tetrahydrocannabinol (THC) and cannabidiol (CBD) belonging to the cannabinoid therapeutic class (Cannabis sativa plant extract) in spray is advised in the spasticity with severe contractures observed in the patients suffering from MS. The in-depth therapy based on Immunosuppressants and immunomodulators is useful despite its considerable adverse effects in preventing flare-ups.

Nevertheless, these are difficult to access in pharmacies here and are available at extremely high costs: 46 and 76 Euros.

Conclusion

Multiple sclerosis, although rare in West Africa, is evolving from its status of myth to become a reality with the advent of MRI in our medical practice. Côte d'Ivoire, due to the ethnic diversity of its population and its geographical location, can be an interesting area for studying this disease. Accessibility of interferon beta at lower cost will be the future major challenge of the management of MS in our country.

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Conflit d'intérêt: Aucun

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