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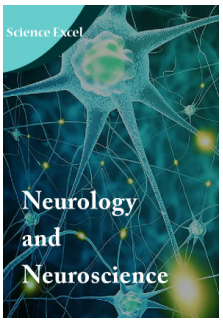

Syphylitical Myelopathies: Study of 8 observations at National Hospital Ignace Deen, University of Conakry

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Abstract

Introduction: Myelopathies occurring in the context of neurosyphilis have been poorly studied clinically, radiologically and in tropical settings. The diagnostic certainty of the syphilitic etiology of myelopathy is difficult to establish because of the multiplicity of causes of spinal cord damage.

Patients and Methods: We carried out a retrospective study of 269 patients hospitalized for spinal cord disorders between January 2015 and December 2021, among whom 8 (eight) patients were identified for progressive syphilitic myelopathy diagnosed by the positivity of VDRL-TPHA serological reactions in the blood and cerebrospinal fluid and radiological data. Magnetic resonance imaging was performed in all patients.

Results: The neurological signs were limited to the existence of a sensory-motor spinal semiology in particular, paraparesis with sphincter disorders, especially moderate urinary disorders, without an obvious infectious syndrome in a context of positive serological reactions VDRL-TPHA in the blood and cerebrovascular fluid. spinal. Lumbar puncture shows hypercellularity with lymphocyte predominance on average 65% and hyperproteinorachia varying from 0.98 to 1.36 g/l. magnetic resonance imaging performed in all patients contributed to the diagnosis by showing hypersignals in T2, expression of more or less extensive lesions on several segments.

Introduction

Since the princeps publication by Joseph Ponget on the contribution to the study of syphilitic myelopathies [1], these constitute one of the least frequent clinical entities of theneurosyphilisand the large series of Hoosmand et al [2], El Alaoui Faris et al [3], Burke and Schaberg [4], Timmermans et al [5], Kovacevich et al [6] do not mention any case . However, these seem to be present when they are systematically sought, especially in sub-Saharan Africa where the frequency of syphilis is high and treatment is low due to insufficient prevention of sexually transmitted diseases [3,7-9].

In the sub-Saharan tropics, studies on bone marrow damage during syphilis are non-existent and imaging data have never been the subject of studies apart from a few North African publications [8, 10]. The introduction of magnetic resonance imaging and improved biological techniques for the identification of neurosyphilis has sparked renewed interest in the literature for the study of syphilitic myelopathies HeD et al [11]. Chiven Stain et al [12] Nabatane et al [13]. Strom et al [14] Tsui EY et al [15]. We report 8 cases of presumed syphilitic myelopathy that occurred in Conakry between 2015 – 2021 with the aim of reassessing this pathology from a clinical, paraclinical and evolutionary point of view.

Material and methods

The 8 patients were identified in the neurology departments of the University Hospital of Conakry over a period from January 2015 to December 2021. This center is the only reference point in Guinea for the care of patients suffering from chronic neurological conditions.

The diagnosis of asymptomatic neurosyphilis is made in patients with no clinical signs of neurosyphilis but with cerebrospinal fluid abnormalities including pleocytosis, increased protein, and positive serological reactions in blood and CSF. The association of these biological criteria with a spinal cord syndrome apart from any other etiology defines syphilitic myelopathy.

The inclusion criteria were therefore as follows:

- Patients with spinal semiology with motor damage, sphincter disorders and often a sensory level.

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- Positive serological reactions in blood and cerebrospinal fluid VDRL-TPHA (venereal disease research laboratory- treponema pallidum hemagglutination assays); Klapper index or TPHA index calculated by the TPHA titer ratio (LCR / blood albumin ratio (LCR / blood) with an index greater than 2 signifying confirmation of intrathecal synthesis of anti-treponemal antibodies has been carried out
- The absence of clinical, biological and radiological element, of another etiology responsible for this spinal semiology.

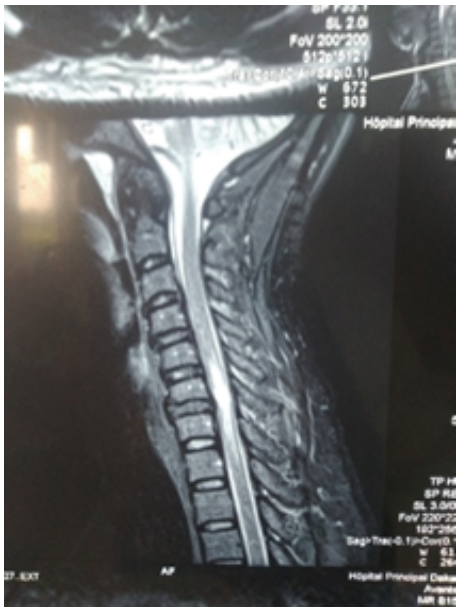

Figure 1. Dysminate hypersignal extending to C5-C7

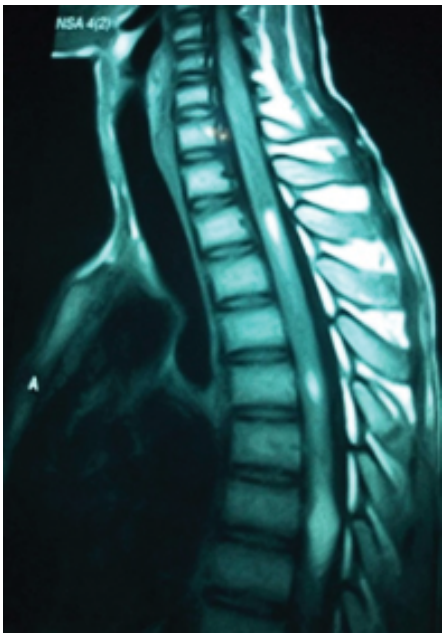

Figure 2. Hypersignal in sequence T1 staged, extending to C7-D1,D3 and D5-D6

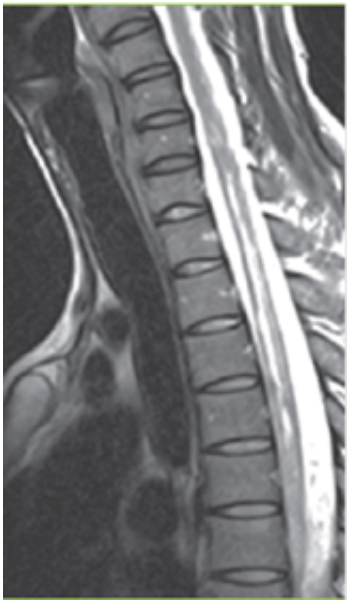

Figure 3. T2 weighted cervical and dorsal MRI showing a central spinal hypersignal extended over more than three vertebrae enhanced after injection of contrast product in a patient 58 years old.

The following variables were taken into account: age, sex, HIV serological status, drug addiction, type of sexuality, monogamy, polygamy, etc.

All patients underwent a series of complementary examinations including NFS, ESR, fasting blood sugar, 24-hour proteinuria, ionogram, serum calcium, serum iron, SGPT and SGOT transaminases, CPK, CRP, rheumatoid factor. The biological assessment was carried out.

The analysis of the cerebrospinal fluid (CSF) by puncture carried out in all the patients allowed the cytological and biochemical evaluation (proteinorachie, glycorachie and chlorurorachie). As part of the differential diagnosis with other etiologies of myelopathies or associated conditions.

The following explorations were carried out.

- Direct bacteriological examination and culture with BK research
- PCR: HSV1 and 2, HHV6, VZV, EBV, HIV as well as HIV, HSV, VZV, HTLV1, VDRL-TPHA serologies and bilharzia serologies in blood and CSF.
- Indian ink, fungal culture
- Blood: Lyme serology, Hepatitis A, B, C
- Parasitic serology: schistosomiasis, hydatidosis, toxoplasmosis, trichinosis, cysticercosis, plasmodium falciparum, loiasis, distomasis
- Fungal infections: blastomyces, coccidioides, cryptoccus, candida, histoplasma an electrocardiographic examination ECG and echo-heart were performed in all patients.

Chest X-ray was performed for all patients – MRI performed in all patients focused on the entire cervico – dorsal and lumbar marrow with T1-weighted sagittal sections before and after gadolinium injection and T2 weighted. EMG was performed in all patients. Treatment was based on Center of Diseases Control (CDC) recommendations of high doses of Penicillin G

12–24MMU daily for 14 days (16). The evolution was evaluated according to the criteria set out in the Lipton and Taesdall scale in 3 stages [17].

Stade 1.: poor prognosis with impossible walking or a walking distance of less than 100 m, permanent anesthesia, partial sphincter control or autonomous bladder.

Stade 2. Average prognosis which can associate an embarrassment with the walk requiring an assistance, permanent sensory signs and inconstant disorders of the sphincter control.

Stade 3. Good prognosis associating normal gait, absence of sphincter disorder or rare urgent urination, normal neurological examination, or minor signs.

Results

Over a period from January 1, 2010 to December 31, 2019, we recorded 8 patients meeting the criteria in this study (5 men and 3 women) aged 46 to 74 years. The history was known in 6 patients in probable connection with treponematosis.

The clinical parameters studied in the 8 patients are summarized in the following table:

In the antecedents of these patients, the taking of penicillin is noted in 6 patients for a skin or venereal affection which could evoke the atypical aspects of syphilides.

The time to progression, ie the interval between the probable infection that motivated the taking of penicillin and the clinical onset of the sensory-motor deficit of the lower limbs known in the 6 cases, varies from 12 to 15 years.

Biological Data

The biological data showed the following results: 64 elements on average and above all lymphocyte at around 65% with a glycorachia lowered to 0.39.

Table 1. Parameters studied in the 8 patients with syphilitic myelopathies

No.	Full name	AGE	SEX	Background	Neurological signs	Other Signs
1	CL	58	M	MVS (Peni)	Paraparesis,T.Sphincterians. Level D1	---
2	AK	46	F	Canker (12 years old)	Paraparesis, T. Sphincteriens. NS, (D4)	Syphilitic aortitis
3	ISD	58	M	Psoriasiform syphilide (13 years old)	Paraplegia, NS, (L4)	---
4	DC	38	F	Not known	Paraparesis, Urgency, NS, (D10)	Retino phathia
5	AMT	66	F	impetigo (peni plug)	Paraplegia, NS, (L3)	---
6	KO	64	M	Not known	Paraparesis, T. Sphincteriens. NS,(D6)	---
7	FROM	59	M	Gonorrhea homosexuality (15 years old)	Paraparesis, T. Sphincterians. NS,(D7)	---
8	KO	49	M	Canker (15 years old)	Paraparesis, T. Sphincterians. NS,(D10)	---

SVM: sexual venereal disease, T.: troubles -NS: sensory level

Table 2. Summarizes the main biological and neuroradiological parameters in the 8 patients with syphilitic myelopathy.

No.	Spinal MRI	BLOOD				LCR					
		VDRL	TITLE	TPHA	TITLE	CYT	Pro (glL)	Glue	VDRL	TPHA	TPHA Index
1	D5 - D9	+	36	+	1280	31	0.34	+	+	+	36
2	D6 - D8	+	32	+	10240	88	0.42	+	+	+	41
3	C7 - D4	+	256	+	2560	52	0.46	+	+	+	78
4	C6 - D3	+	16	+	2420	72	0.38	+	+	+	102
5	C7 - D1 - D5 - D9	+	34	+	1280	69	0.41	+	+	+	42
6	D3 - D7	+	86	+	2580	70	6.44	+	+	+	38
7	D1 - D6	+	128	+	1400	68	0.48	+	+	+	44
8	D6 - D8 - D9 - L1 - L5	+	78	+	1200	71	0.45	+	+	+	39

Table 3. Progression profile according to Lipton and Taesdall criteria(1973).

No.	Short term 3 months	6 months	12 months	Long-term
1	Paraparesis – Sphincter disorders – NS (D1) Stage 2	STAGE II Improvement of sphincter disorders	Stage 1	Lost sight
2	Paraparesis – Sphincter disorders, NS (D4) Stage 2	Paraparesis, urgency Stage 2	Frustrated paraparesis Stage 2 - 3	Motricity recovery without sphincter disorders
3	Urinary incontinence paraparesis sensory level (4) Stage 1	Paraparesis with incontinence Stage 1	Paraparesis, Persistence of urinary disorders Stage 2	Lost view
4	Paraparesis, Urgency, NS (D10) Stage 1	Discreet improvement in motor skills, persistence of urinary disorders Stage 1-2	Mild Paraparesis, rare urgency Stage 3	Without change
5	Paraparesis, NS (3) infrequent urination Stage 2	Stage 3 Persistence of occasional urinary T.	Stage 3	Lost view
6	Paraparesis T. Sphincter Stage 2	Improved motor skills persistence of urinary disorders Stage 2	Stage 2 – 3	Lost view
7	Urgent urination paraparesis Stage 2	Stage 2 Discreet improvement in motor skills Stage 2 – 3	Stage 2 – 3	Lost view
8	Paraparesis with sphincter disorders Stage 2		Stage 2 – 3	Lost view

Radiological Data

The spinal MRI was pathological in all cases, the lesions were single extensive in 5 cases and multiple in 3 cases (figure). the vertebral level of the lesions was most often dorsal and cervicodorsal in correlation with the clinical picture. The lesions were often extended to several vertebral levels.

Cerebral MRI performed in 5 cases revealed age-related atrophic lesions without obvious cognitive disorders that could suggest syphilitic dementia.

Scalable data

Subjected to the treatment recommended by the center of Diseases Control (CDC), the evolution is presented according to the table following the criteria of Lipton and Taesodal [17].

In general, under treatment, the evolution is favorable with the improvement of motor skills and sphincter disorders according to the criteria of Lipton and Taesdal in 62% of cases. In this study, long-term assessment beyond 12 months was not possible for stage II due to under-medicalization pushing patients to traditional treatment.

Discussion

This study reports 8 cases of myelopathy of syphilitic origin observed at the University Hospital Center of Conakry over a period from 2010 to 2019. These are all presumed definite cases whose diagnosis was made in the neurology and imaging department of the University Hospital of Conakry. It is well established in current publications [10,12,13,15] of the presence and persistence of syphilitic myelopathy, as a nosological entity of neurosyphilis. These authors emphasize the preponderance of atypical forms posing a real problem of differential diagnosis with other causes of myelopathies [7].

Tsui E et al [16] described a rare form in a 52-year-old woman with paraplegia and diffuse lesions throughout the spinal cord with intense T2-weighted images. In recent years, syphilitic gummies expressed by spinal cord compression patterns are increasingly described [18,19,20,21] and in the case of Molina-Olivier [18], the 47-year-old HIV-negative patient presented with syphilitic gummies confirmed by microscopy and polymerase chain reactions. These observations [18,19,20,21] show that syphilitic gums are not uncommon if they are systematically looked for as in our patient [4] who presented 03 hyperdense lesions (Figure 2) in a 38-year-old female sex worker without HIV. Clinically, the clinical pictures of syphilitic myelopathy do not differ fundamentally from those described in the literature [10,15,18-21], which are characterized by neurological manifestations, expression of a sensitivomotor spinal cord injury and more or less severe urinary sphincter disorders. Our patient 4 presenting several lesions is a rare specificity little described in the literature. In our study we did not observe any case of dorsal tabes in the form of a progressive medullary disorder affecting the posterior cords, expressed clinically by a

sensitive ataxia, a loss of vibratory and painful sensitivity and vesico-sphincter disorders. In the tropics, the diagnosis of syphilitic myelopathy is difficult because of the multiplicity of spinal cord injuries of various causes: viral, infectious, parasitic, spinal vascular malformations, non-infectious myelopathies: Gougerot-Sjoigren syndrome, neurosarcoidosis, neuro-Behçet, and multiple sclerosis [1]. In a tropical environment, the differential diagnosis on the clinical level is evoked with tropical spastic paraparesis, HTLV1, medullary schistosomiasis, paraparesis of toxic, nutritional and metabolic origin: lathyrism, Konzo, B12 deficiency, adreno-myelo-neuropathy, hence the need to broaden the biological work-up labeled in these different pathologies and the need to search for associated lesions on encephalic MRI. Generally speaking, MRI shows one or more areas of intramedullary T2 hypersignal, the extent of which may sometimes involve several spinal cord segments. The caliber of the medulla is rarely changed. Our diagnostic criteria were based essentially on clinical, neuroradiological and serological data (VDRL-TPHA), hypercellularity with a predominance of lymphocytes and proteinorachy. However, several authors, notably C. Caudie et al [22], Mokri B [23], Hamelin A [24], Davis LE et al [25], emphasize the need to include in the diagnostic criteria parameters such as the IgG index and the Ig M and Ig A indexes, with the presence of oligoclonal bands, which may be contributory to the diagnosis of neurosyphilis, although Holmes and Lukehart state that the TPHA test is not widely used by certain teams working in the field of syphilis [26].

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