

**Case Report**

# Myelopathy in Pregnant Women: Case of Acute Transverse Myelitis

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**To cite this article:**

Soumaila Boubacar, Kamadore Touré, Djibrilla Ben Adj, Ngor Side Ngor, Youssofa Maiga, Lala Bouna Seck, Moustapha Ndiaye, Amadou Gallo Diop, Mouhamadou Mansour Ndiaye. Myelopathy in Pregnant Women: Case of Acute Transverse Myelitis. *Advances in Psychology and Neuroscience*. Vol. 1, No. 2, 2016, pp. 6-9. doi: 10.11648/j.apn.20160102.11

**Received:** August 17, 2016; **Accepted:** August 27, 2016; **Published:** November 10, 2016

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**Abstract:** Acute Transverse myelitis during pregnancy is rare and is life-threatening for parturient women and their pregnancies. We report case of young Senegalese parturient woman. This is a patient old 20 years, 1 pregnancy, 1 parity, with a history of asthma and gestational hypertension, who presented motor deficit of 04 members with progressive installation on twenty days during a pregnancy to term (9 months) from where achieving a scheduled cesarean during labor that allowed the extraction of a girl with no abnormalities. Then the patient was sent to our neurology's department of Fann Hospital in Dakar where she was hospitalized for suitable care. The diagnosis of acute transverse myelitis was retained on clinical evidence of a spinal interruption syndrome confirmed by paraclinical investigations. The spinal MRI showed extensive hyperintense signal from C4 to C6. An inflammatory syndrome with CRP at 108 mg and a high CSF protein at 2.07 g/l. The patient had received corticosteroids and physical rehabilitation followed by a favorable outcome. The tetraplegia during pregnancy should be investigated myelopathy as acute transverse myelitis. It is therefore necessary that these women have a multidisciplinary care between neurologists and gynecologists to cause showing a better prognosis.

**Keywords:** Pregnancy, Acute Myelitis, Tetraplegia, Senegal

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## 1. Introduction

Myelopathy occurrence during pregnancy is a rare phenomenon [8], with a prevalence of 0.4 to 1.5 per thousand [1, 3]. Acute inflammatory myelopathies, yet named acute myelitis (AM) are a nosological group relatively rare and heterogeneous in terms of etiology [4]. According to extension of lesion in axial plane, we distinguish transverse myelitis from partial myelitis [12]. We report acute transverse myelitis case in a young Senegalese woman pregnant.

## 2. Case Report

This is a patient old 20 years, 1 pregnancy, 1 parity, with a

history of asthma and gestational hypertension, who presented motor deficit of 04 members with progressive installation on twenty days during a pregnancy to term (9 months). Two days after symptoms had occurred a birthing labor following which a team of gynecologists of Mbour hospital indicated caesarean section. This latter was carried out successfully. Intervention by caesarean allowed to extract a female baby with no abnormalities.

Then after that obstetric phase, the patient was referred to neurology department of Fann Hospital in Dakar, where she was hospitalized for specialized care. Interrogation reported notion of cervicalgia, edema of lower limbs which do not take pitting, and anal incontinence. Neurological examination was objectified a flaccido-spastic quadriplegia, deep tendon

reflexes were lively and diffuse and bilateral Babinski sign. It also noted the vesicosphincteric disorders such as anal incontinence. Furthermore, the patient has a big left leg with a Homans's sign, it was noted a fever at 39,4°C and blood pressure at 110/70 mm Hg. L'examen des autres appareils étaient sans particularité. The spinal MRI showed extensive hyperintense signal from C4 to C6. Venous Doppler ultrasound showed deep vein thrombosis of left sural. There was inflammatory biological syndrome with Protein C reactive protein (CRP) at 108 mg and a high CSF protein at 2.07 g/l. Blood culture was highlighted *Klebsiella pneumoniae*. The cytotubacteriological examination had highlighted *Escherichia coli*. Analysis of the cerebrospinal fluid (CSF) showed elevated protein but no germ was isolated in the LCS. HIV serology was negative. The rest of test of risk factors including hemostasis was unremarkable.

Given these findings, diagnosis of acute transverse myelitis associated with DVT in the context of pregnancy was retained and a treatment is instituted based on heparin low molecular weight heparin (LMWH) 0.6 ml twice per day associated with Acenocoumarol at 2 mg per day. An antibiotherapy was instituted based on ciprofloxacin associated with paracetamol 60 mg/kg/day. Corticosteroid therapy was introduced a distance from the infectious episode. This therapeutic treatment was associated with physical rehabilitation and psychological support.

Outcome at 8 months was marked by a recovery of the driving force at 4 to 5 on both upper limbs and at 3 to on legs with a resumption of walking using a walker. In addition, there was a total regression of vesicosphincteric disorders.

### 3. Discussion

Childbirth of a paraplegic parturient woman [1, 3], or quadriplegic is rare with an estimated frequency to 1.5 births per thousand. The global incidence of spinal cord injury (SCI), both traumatic and non-traumatic, is likely to be between 40 and 80 cases/million. Based on the 2012 world population estimates, this means that every year between 250 000 and 500 000 people suffer an SCI [16]. An investigation including units of the spine in 24 countries found 187 pregnancies after injury of the spinal cord and 45 patients who suffered injury of the spinal cord during pregnancy [7]. The severity of paraplegia linked pregnancies is associated with the possible triggering of a reflex autonomic hyperactivity (HRA) syndrome when the medulla lesion causing paraplegia is greater than or equal to T6 [13]. This syndrome is defined by an overactive sympathetic nervous system caused by visceral or cutaneous stimuli below level of injury. It can be source of thrust hypertension, which can be a source of cardiovascular and neurological injury or even death [9]. Patients whose level of injury is above T10-T11 does not perceive pain associated with uterine contractions and are not affected by the risk of severe dysautonomia. Patients whose level of injury is above T10-T11 does not perceive pain linked with uterine contractions and are not affected by risk of severe dysautonomia. The risk of ignoring

a premature birth's threat is theoretically higher in this case [2]. Our patient was a carrier of a lesion between C4 C6 and did not present an HRA Syndrome.

The diagnosis of acute myelitis is based on clinical criteria and may be inflammatory, infectious or paraneoplastic. The qualifier "acute" is added when onset is made on few hours. The term of "acute myelopathy" is acute damage of spinal cord, without prejudging the nature of injury. Acute myelopathy is defined by an installation mode whose nadir of symptoms is between 4 hours and 3 weeks [15]. This eliminates vascular and traumatic myelopathy classically characterized by acute onset in less than 3 hours and metabolic, degenerative and post-radiation causes more chronic installation [15]. The installation mode of symptomatology from our patient was progressive over 20 days. The term of "acute myelitis" him based solely on paraclinical elements for nothing clinically not let prejudice an inflammatory process. Elements for inflammatory myelitis's origin are [12]:

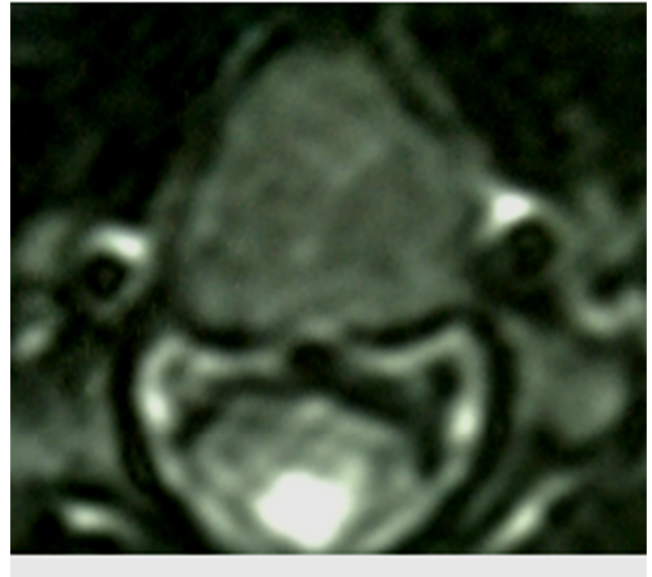
Inflammation of cerebrospinal spinal fluid (CSF): lymphocytic pleocytosis high index of IgG and / or oligoclonal profile to the isoelectrofocalization of IgGs; contrast enhancement of lesion in spinal cord MRI. In our patient there was high CSF protein associated with inflammatory biological syndrome in blood with CRP at 108 mg. Acute transverse myelitis (ATM) is clinically a complete a bilateral impairment, involving motor deficits, sensory and sphincter usually symmetrical with a sensory level [12]. Our patient had a motor and sensory deficit, bilateral, associated with anal incontinence. A series of French pregnant women victims of paraplegia due to spinal cord damage had found a prevalence of 47% of Caesarean section. And more than half were scheduled caesareans during labor [10]. Our patient also benefited from a Caesarean section during labor with extraction of a healthy girl. The spinal cord MRI is the key for positive diagnosis, differential and sometimes aetiologic of acute spinal cord lesion. It will allow in first step eliminate spinal compressively cause or tumor. It will then search presence of single or multiple intra-axial lesion, specify its cervical, thoracic or lumbar's topography and its extent in axial plane (transverse myelitis or partial) and longitudinal plane (longitudinal extent myelitis or not) [10]. We performed a spinal cord MRI in our patient which showed Fig. 1 (intramedullary hyperintense signal from C4 to C6), Fig. 2 (central hyperintense signal in cross sectional). It was an MRI all cord to properly highlight subclinical lesions. Our patient also had a big left leg before being hospitalized in our service then objectified thrombosis in venous Doppler ultrasound of the left leg. It also seems necessary to emphasize prevention of thromboembolic risk (wearing support stockings, physical therapy heparin when bedrest) [14].

One patient of the French study, not having received prophylactic anticoagulation had presented a proximal DVT [10]. Our patient had received anticoagulant therapy with curative dose. Complications during pregnancy are dominated by urinary tract infections, favored by systematic

self catheterization, risk of thrombophlebitis and occurrence of bedsores [5, 11]. This was case for our patient who presented in more than episode of infection to *Klebsiella pneumoniae*, urinary infection to *E. coli*. Impaired respiratory and lung function, especially in case of high thoracic or cervical damage can be observed. This was not the case with our patient who showed no respiratory disorder. The diagnosis of acute transverse myelitis was retained in our patient in front of clinical presentation associated with radiological spinal cord lesions from C4 to C6 in MRI (Fig. 1), a biological inflammatory syndrome (high CSF protein at 2.07 g/L and CRP at 108 mg) and lack of other causes that could explain its pathology. The transverse feature was also evoked before image in cross sectional of the cord (Fig. 2) showing a intramedullary central lesion occupying more than half of the cord. Various etiologies of myopathies were found in patients in pregnancy as in the French cohort on 11 years, the etiologies of pregnant women were as follows: Inflammatory (13%), Traumatic (73%), infectious (7%); vascular (7%) [10].



**Fig. 1.** Spinal MRI sequence T2 sagittal section showing hyperintensity C4 to C6.



**Fig. 2.** Spinal MRI T2 cross section showing hyperintensity occupying part intramedullary center.

Management of acute myelitis episode is relatively consensual and based on the intravenous corticosteroid dose (1 g daily of methylprednisolone) for at least 3 days, and this, whatever the etiological diagnosis. On suspicion of infectious process, antibiotic coverage and / or antiviral will be proposed [12]. This was the case of our patient received with an infectious syndrome for which she received antibiotic therapy with ciprofloxacin. Ahead a severe inflammatory myelopathy table and no response to high-dose steroid therapy, fast relay by plasma exchange may be proposed [4, 6]. There is very few data about using polyvalent immunoglobulins as a treatment for outbreaks of myelitis [12].

## 4. Conclusion

The tetraplegia during pregnancy should be investigated myelopathy as acute transverse myelitis. Because the inflammatory myelopathy is the second cause of myelopathy in pregnant women. It is therefore necessary that these women have a multidisciplinary care between neurologists and gynecologists to cause showing a better prognosis.

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