



# **Cerebral Thrombophlebitis of the Post Partum: About Two Cases**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **Case Report**

## **ABSTRACT**

Cerebral thrombophlebitis is an uncommon localisation that should be considered in the presence of headache, fever, focal deficit in the context of pregnancy or post partum. It is positive diagnosis is made by imaging but the etiological diagnosis remains the main issue. In this main article, we report two cases of patients treated for cerebral thrombophlebitis. From the observations made, we will discuss the different entities of this pathology with the data of the literature.

**Keywords:** *Pregnancy; post partum; cerebral thrombophlebitis; imaging.*

## **1. INTRODUCTION**

Cerebral thrombophlebitis is a rare condition. It is the prerogative of young patients in the

postpartum period (1/5000 births) [1]. The clinical picture is dominated by headache, sensory-motor deficit, convulsion and fever. The positive diagnosis is made on the basis of MRI brain

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imaging, which is the reference examination [2] and CT scan. The etiologies are dominated by pregnancy and post partum, local infections and systemic disease. Treatment is based on effective anticoagulation and etiological therapy [3]. We report two cases of cerebral thrombophlebitis occurring in the postpartum period and discuss them with the literature.

## 2. CASE PRESENTATION

**Case report 1:** A 31-year-old obese BMI = 33, prim gravida and prim parous patient at 15 days post partum of a vaginal delivery at home in a context of gestational hypertension was admitted for left hemiplegia of sudden onset in 24 hours complicated by contralateral hemiplegia and consciousness disorder.

On admission, the patient was obnoxious with a Glasgow score of 13/15, tetraplegia, dysarthria, BP = 170/100 mmHg and a negative urine dipstick.

A cerebral CT scan (Image 1) performed in emergency was in favor of a cerebral thrombophlebitis involving the longitudinal sinus with the classic Delta sign image and edematous-hemorrhagic infarction. It was completed by a cerebral MRI (Image 2), the result of which was superimposed on the CT

images with the thrombosis extending to the internal jugular vein.

An anticoagulant treatment based on low molecular weight heparin at a curative dose was instituted with a control of the anti - Xa activity which was in the therapeutic range of 0.6.

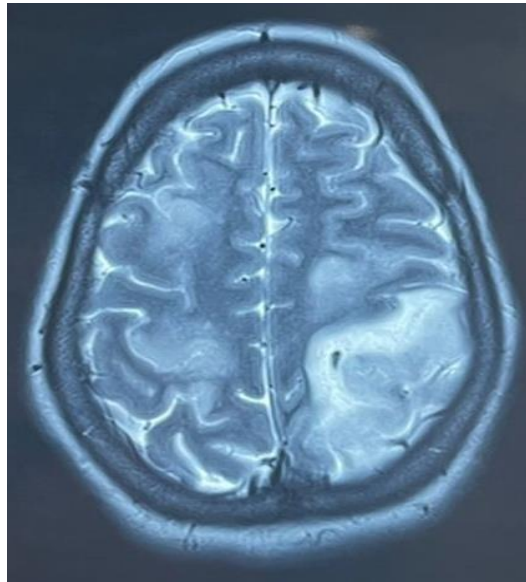
The evolution was marked at D2 by the occurrence of generalized tonic-clonic convulsive seizures under phenobarbital, which led us to add a second anticonvulsant, levetiracetam. Under treatment, the evolution was marked by an improvement of the convulsion.

At D4 of his treatment, the evolution was marked by the occurrence of a fever in plateau of 40 degrees. A complete infectious workup was performed and came back negative. The LP could not be performed because of the hemorrhagic infarction. In view of the persistence of the fever, a treatment based on C3G, vancomycin at meningitis dose associated with acyclovir and fungizone was instituted with a favorable evolution marked by the improvement of the fever at D5 of treatment.

On the etiological level, a thrombophilia work-up, circulating lupus antibody, and Beta 2 GP1 antibody were negative. A CT scan of the face showed a right mastoid filling.



**Image 1. Thrombophlebitis involving the longitudinal sinus with the classic Delta sign image and edematous-hemorrhagic infarction**



**Image 2. The cerebral thrombophlebitis at Cerebral MRI**

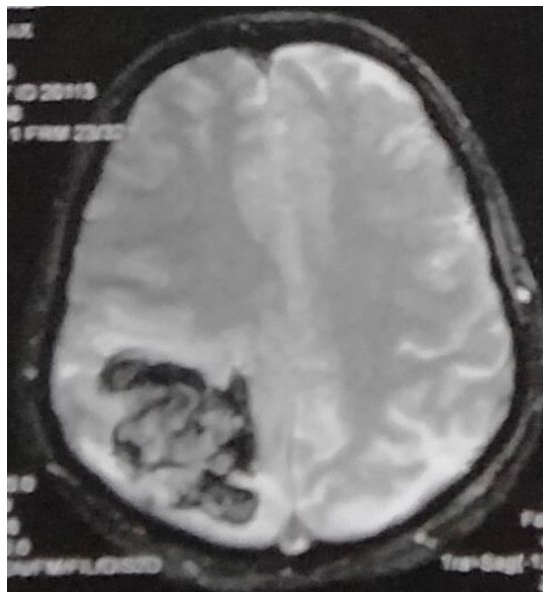
The evolution was favorable marked by an improvement on the motor level with a muscle strength noted at 2/5 on the left upper limb and the two lower limbs and a disappearance of the dysarthria. The patient was then transferred to the Neurology department for further treatment. On day 5 of her hospitalization in the Neurology Department, the patient died of a sudden arrest.

**Case report 2:** This is a 33 year old female patient, Gestate III and parity III, with a history of irregularly monitored asthma admitted to the

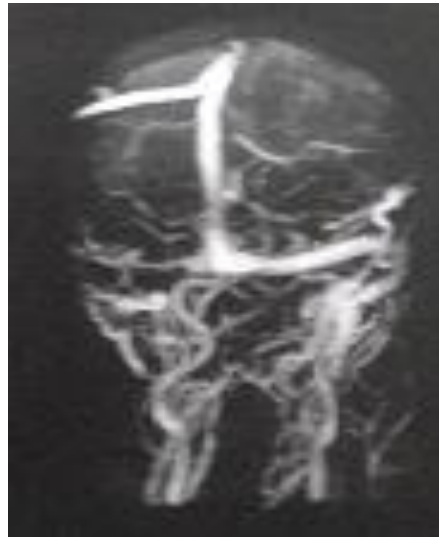
maternity intensive care unit for management of a left hemiplegia plus visual blur that occurred 8 days post partum from a caesarean section for bicatrix uterus.

On admission the patient was conscious with GCS 15, left hemiplegia, BP 120/80 mmHg.

Brain MRI (Image 3) was performed to show thrombophlebitis of the superior longitudinal sinus complicated by a compressive right fronto-parietal intra parenchymal hematoma.



**Image 3. Thrombophlebitis of the superior longitudinal sinus complicated by a compressive right fronto-parietal intra parenchymal hematoma**



**Image 4. Thrombophlebitis of the Superior Longitudinal**

The thrombophilia test and the search for circulating lupus antibodies, Beta 2 GP1 antibodies, were negative. Investigation of neighboring organ infections was non-contributory.

The patient was put on low molecular weight heparin as a curative measure and then transferred to the Neurology Department on day 7 of her hospitalization for further management.

### 3. DISCUSSION

The period of pregnancy as well as the post partum period is marked by the occurrence of physiological modifications. Among these changes, we note the state of hypercoagulability due to a decrease in Factor XI, XIII, antithrombin III and protein S. This hypercoagulability favors the occurrence of venous thrombo-embolic diseases. Thus, the risk of occurrence is 3 to 5 times higher than in non-pregnant women [4].

In our series, we found an age of 31 and 33 years, with a median of 32 years. This result is similar to that of Rolland et al who found an average age of 30.9 [5]. N.M. Gaye et al in Senegal report an average age of 35.2 years + or - 14 days [6].

We also found a period of onset within the first fifteen days in both cases. This result can be explained by the absence of administration of anticoagulants, bed rest in the immediate post partum period and the persistence of home

deliveries. Le Borgne et al report a delay in onset between the 4th and 21st day [7].

The clinical picture is of sudden onset and dominated by headache in 92.8% of cases as well as focal deficit (41.4%) [6].

The diagnosis is evoked by the clinical picture of headache, focal deficit, persistent fever [8] and the context of pregnancy and is confirmed by medical imaging, notably cerebral MRI and cerebral CT. Cerebral MRI is the reference examination as it allows the visualization of the venous thrombus and the monitoring of its evolution.

The most frequent etiologies are post partum, pregnancy, infections and systemic diseases. In 20-30% of cases, the etiology is not found [9]. In sub-Saharan Africa, infections followed by pregnancy and Behcet's disease are predominant [10].

The sagittal sinus is the most affected, followed by the transverse sinus [10].

Treatment is twofold: curative anticoagulation even in the presence of hemorrhagic infarction or intracranial hypertension [11] and etiological treatment. Surgery is indicated when cerebral thrombophlebitis is associated with a large intraparenchymal hematoma with intracranial hypertension [12].

Complications are dominated by hemorrhagic infarcts in 35.5% [13].

Well-treated and early onset of the disease is associated with a good prognosis.

#### 4. CONCLUSION

Cerebral thrombophlebitis is a rare but serious pathology. The diagnosis is evoked by neurological signs and the context of post partum and pregnancy. The treatment is medical based on the use of anticoagulant and etiological treatment.

#### CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

#### ETHICAL APPROVAL

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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