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Hemorrhagic Stroke Complicating Severe Pre-Eclampsia about a Case and Literature Review

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Abstract:- Cerebral vascular accident (CVA) is a sudden loss of neurological function due to a vascular neuronal injury and is one of the leading causes of disability in adults. The occurrence of stroke during pregnancy or postpartum (gravidopuerperal stroke [GP-Stroke]), however, is a rare but potentially devastating event because of its impact on the mother, child, and family environment. A review of recent literature has shown that stroke affects 30 women per 100,000 pregnancies, which is about three times more than in the general young adult population. Several pregnancy-related abnormalities can increase the risk of stroke, including : Pregnancy-related blood pressure abnormalities (chronic hypertension, gestational hypertension, preeclampsia, eclampsia) and their complications; HELLP syndrome (hemolysis, hepatic cytolysis and low platelet count); hematologic and prothrombotic physiologic changes in the third trimester and postpartum period; hyperemesis leading to hemoconcentration; and changes in cerebral vasculature (e.g., reversible cerebral vasoconstriction syndrome, arteriovenous malformations, or cervical artery dissection).

We report the case of a hemorrhagic stroke in an 18-year-old patient admitted for hemiplegia and aphasia of abrupt onset on an unattended pregnancy term complicated by preeclampsia in whom cerebral CT scan confirmed cerebral hemorrhage;

Keywords:- *Preeclampsia, Eclampsia, Hemorrhagic Stroke.*

I. INTRODUCTION

Pregnancy is classically considered a risk factor for ischemic and hemorrhagic stroke. A number of pregnancy-related abnormalities can also increase the risk of stroke, including : Pregnancy-related blood pressure abnormalities (chronic hypertension, gestational hypertension, pre-eclampsia, eclampsia) and their complications; Pre-eclampsia and systemic pregnancy-specific disease affecting 2-10% of pregnancies [1], It is defined as the de novo appearance of elevated blood pressure (Systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg) associated with proteinuria (≥ 300 mg/24H) or without proteinuria but with the presence of acute pulmonary edema and/or acute renal failure and/or hepatic cytolysis and/or thrombocytopenia, after 20 weeks of gestation [2]. Eclampsia is defined as the occurrence of convulsions in a woman with pre-eclampsia. The association between eclampsia and cerebral hemorrhage has been recognized since 1881 [3]. Cerebrovascular accidents are responsible for 50% of deaths in preeclamptic women [4]. We report the case of a hemorrhagic cerebrovascular accident in an 18-year-old patient admitted for hemiplegia and aphasia of sudden onset in an unattended pregnancy is said to be complicated by preeclampsia at term. Through this work we will try to report the particularities of this exceptional complication of pre-eclampsia, as well as its management.

II. OBSERVATION

Patient aged 18 years, without notable pathological CDTA, primigravida, primiparous; admitted to the obstetrical emergency room for hemiplegia and motor aphasia installed at night suddenly during sleep, on a pregnancy is said to be at term not followed, the occurrence of a convulsive crisis could not be excluded because the patient was alone in her room and it was in the morning when the family woke up and found the neurological deficit, the clinical examination on admission found a patient conscious Glasgow score at 15/15, aphasic with conservation of understanding, blood pressure: 150/100 mmHg, CF at 90 beats per minute, respiratory rate was at 16 cycles per minute, protein test in urine with the test strip was positive at 2 crosses, neurological examination showed a right hemiplegia rated at 5/5 with homolateral facial paralysis, ROT are sharp and asymmetrical, the cutaneous and plantar reflex is abolished. The obstetrical examination found a uterine height = 30 cm, flexible uterus, no uterine contractions or contractures, the fetal heart sounds are present and regular, the cervix is long and closed posteriorly, the biological assessment shows a hemoglobin at 12 g/dl, thrombocytopenia at 80,000/ml, hepatic cytolysis (transaminases at 4 times normal), LDH elevated twice normal, renal function, protombin level; TCK, INR, natremia, kalemia, normal, obstetrical ultrasound showed an evolving mono-fetal pregnancy, in cephalic presentation, homogeneous fundal placenta with a biometry of 37 SA, the estimated fetal weight is 2800 grams with the presence of signs of maturity, the quantity of amniotic fluid is normal, the umbilical Doppler resistance index is normal, the cerebral scanner showed a 44mm long axis left capsulo-lenticular deep intra parenchymal hemorrhage with a range

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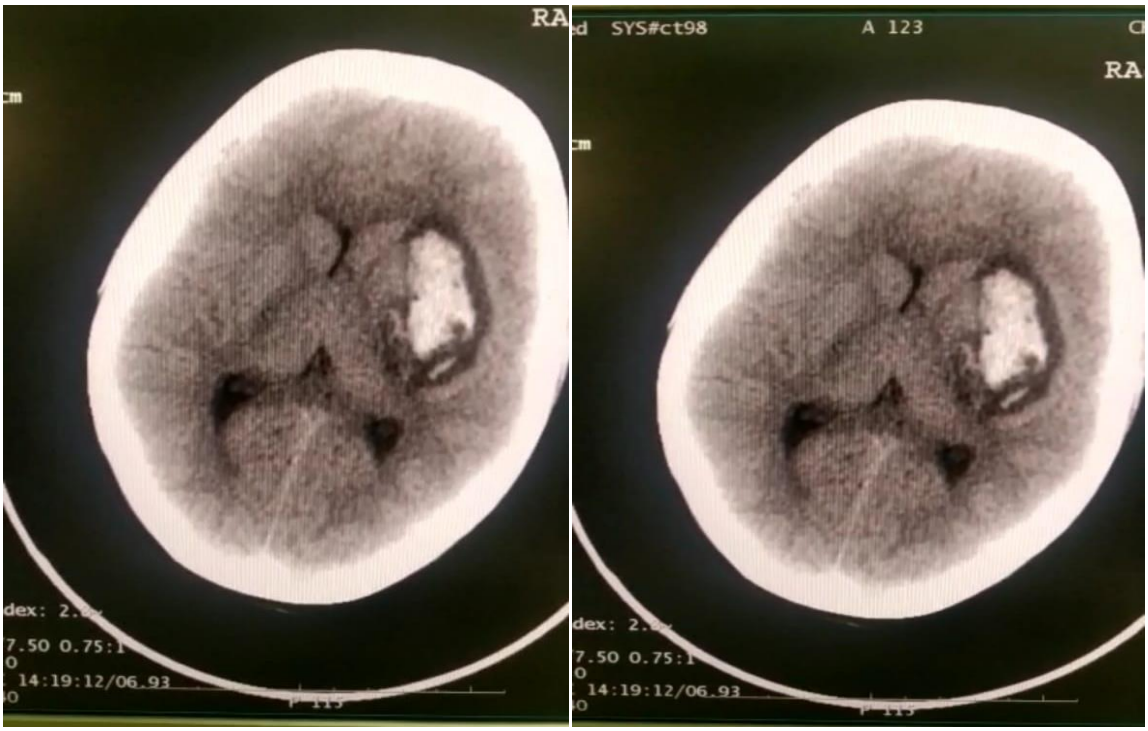
of peri-lesional edema and a mass effect responsible for sub-falcorial engagement. The patient was initially put on antihypertensive treatment with methyldoppa 500 mg every 8 hours with normalization of the blood pressure figures, a fetal extraction by high route was decided with the birth of a newborn male ABGAR 10/10 at the 1st min, of 2800g, then the patient was managed in intensive care with simple post-operational sequences, the blood pressure figures normalized with cessation of antihypertensive treatment within the first 48 hours, the 24-hour proteinuria is 2 grams/24 hours.

An angioscanner made in 48 hours objectively a discrete increase of the left capsulo-lenticular deep intra parenchymal hemorrhage of 49mm vs 44mm of long axis with an increase of the peri-lesional edema range with a mass effect responsible for a sub-falcorial engagement. Absence of vascular abnormality detected on the cerebral angioscanner, patient put on cerebral anti edematous and analgesic drugs with a favorable evolution, and normalization of the hepatic function and improvement of the platelet count, declared outgoing after 4 days of hospitalization with a kinesitherapy program.



Cerebral scanner: hemorrhage deep left capsulo-lenticular axis with increase of the range of oedeme peri-lesional with mass effect responsible for engagement under falcoriel

III. DISCUSSION

Stroke is a particularly serious condition, a major cause of death and acquired disability in the general population worldwide. Stroke is a sudden loss of neurological function due to neuronal injury from vascular causes. It is a neurological emergency with very high morbidity and mortality, and its incidence increases with age and the presence of cardiovascular risk factors.[1] It primarily affects an elderly population, with young adults appearing to be relatively unaffected by stroke. Nevertheless, a higher incidence of stroke in the non-elderly population may be observed in pregnant and postpartum women. [2]. Stroke in pregnancy or postpartum (gravidopuerperal stroke [GP-Stroke]) is a rare but potentially dramatic event, however, because of the life-threatening and disabling risk to the mother and the potential consequences to the child. Many uncertainties remain regarding stroke incidence, risk factors and causes, maternal and fetal prognosis, and obstetric and neurologic management (3-4). The majority of studies of the incidence of [stroke-GP] are older, most of which have been small, inpatient studies. More recent studies from the United States (5-6) and Sweden (7) have included a large number of pregnancies from national databases. The incidence of stroke-GP ranges from 5 to 67 per 100,000 deliveries and differs widely among countries. Incidence ranges from 4 to 19/100,000 for cerebral hemorrhage, 4 to 36/100,000 for cerebral infarction (sometimes including venous infarction), and 2 to 14/100,000 for meningeal hemorrhage. And from 0.6 to 16/100,000 for cerebral venous thrombosis (CVD) in Western countries, with an average of around 10/100,000. These accidents occur mainly during the third trimester of pregnancy and in the postpartum period, with a peak frequency in the first weeks postpartum [8-9]. The two major causes of cerebral hemorrhage during pregnancy and postpartum found in the literature were eclampsia and ruptured cerebrovascular malformation (10), during eclampsia, it is most often a poorly followed pregnancy, cerebral hemorrhages are observed in more than 40% of the autopsy series. These are multiple petechial hemorrhages, cortical or located at the cortex-subcortical white matter

junction, or sometimes hematomas that may open in the ventricular or subarachnoid spaces [11]. High blood pressure, rupture of the blood-brain barrier, plasma exudation, erythrocyte diapedesis, and coagulation disorders are factors contributing to the occurrence of bleeding during eclampsia(11), Maternal and fetal prognosis remains poor, with maternal and fetal mortality rates of 43% and 29%, respectively (10). The most effective strategy for detecting preeclampsia is to monitor blood pressure values during the second and third trimester of pregnancy. Several therapeutic agents are used as preventive measures for eclampsia. Currently, treatment with aspirin has been shown to be effective in terms of prevention. A randomized prospective study showed a significant decrease in the rate of preeclampsia in the group of women with a major obstetric history treated with 150 mg/d of aspirin and 300 mg/d. In practice, doses of 50 to 100 mg/d are used at 14 weeks if there is a pathological history or at 22 weeks if the Doppler is pathological [12].Chronic high arterial hypertension, hemostasis disorders, vasculitis, drug addiction and moyamoya syndrome are classic but exceptional causes of cerebral hemorrhages during pregnancy. A cerebral hemorrhage may also indicate a cerebral metastasis of a choriocarcinoma(13).

For ischemic arterial accidents in pregnancy and postpartum, the etiologies are the same as those usually encountered in young adults such as cardiomyopathy, emboligenic cardiopathy, arteriopathy and benign acute cerebral angiopathy. To these are added those specifically associated with pregnancy, such as eclampsia, choriocarcinoma and amniotic embolism (13-14).

For cerebral venous trombosis, the peak frequency is in the postpartum [15]. Most occur 10 to 20 days after delivery [16] but some are earlier. In Western countries, most postpartum cerebral venous thrombosis occurs during normal childbirth, while in developing countries it occurs more frequently in home deliveries in poorly monitored patients [17]. Cerebral venous thrombosis is rare during pregnancy [18].

Therapeutic management includes the treatment of neurological disease and obstetrical management. Nevertheless, for cerebral hemorrhage, surgery may be undertaken whenever indicated and possible regardless of the term of the pregnancy. If fetal maturity is sufficient, the operation can be immediately preceded by a caesarean section. In other cases, neurosurgical treatment can be performed during pregnancy. In hemorrhages occurring during eclampsia, termination of pregnancy is most often accompanied by resolution of the eclamptic syndrome; medical treatment to control high blood pressure, seizures and cerebral edema.

Several observations of embolized ruptured arterial aneurysms during pregnancy have been reported [19]. If the arterial aneurysm is fully treated, delivery can take place normally at term, by natural route, and there are no contraindications to subsequent pregnancies [20]. If the arterial aneurysm has not been treated, natural childbirth is nevertheless generally recommended, but with the precaution of an epidural anesthesia to avoid expulsive efforts and possibly assisting forceps delivery [20]. In arteriovenous malformations, the therapeutic indications should be carried out in the same way as outside pregnancy. A surgical indication is more rarely chosen. Embolization and stereotactic radiotherapy should be avoided in pregnant women. Until the arteriovenous malformation is completely treated, it is advisable to advise against any new pregnancy if the malformation has been revealed by a hemorrhage. However, this precaution is not useful in patients whose arteriovenous malformation has not bled. On the other hand, pregnancy seems to be possible in a woman with an arteriovenous malformation who has never bled. The decision must be made on an individual basis. In the case of stereotactic radiotherapy, a delay of 2 years is recommended before pregnancy(13).

For obstetrical management. There are very few studies on obstetrical management. The rules of conduct that have been proposed should be considered on an individual basis. In general, very careful hemodynamic monitoring of the mother should be observed and extreme variations in blood pressure should be avoided. Caesarean section should not be systematic: its indications are based on obstetrical reasons. In most cases, there is no neurological contraindication to vaginal delivery (13).

IV. CONCLUSION

The occurrence of a stroke during pregnancy or post-partum (gravido-puerperal stroke [GP-stroke]) is however a rare event, but potentially dramatic by the risk of disability and death in the mother and the possible consequences in the child. Many uncertainties remain regarding the incidence of these strokes, their risk factors and causes, maternal and fetal prognosis, and obstetric and neurological management.

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