

Spontaneous Intracerebral Hemorrhage in a COVID 19 Postpartum with Preeclampsia: A Case Report

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Coronavirus disease 2019 (COVID 19) is a disease caused by severe acute respiratory syndrome coronavirus (SARS-COV2) that has been associated with severe multiorgan complications. Unexpected development of this global health crisis makes health care practitioners unaware of the pathogenesis of this new disease. Only a few studies were published regarding COVID 19 in pregnancy and its effect on intrapartum as well as postpartum period. The strategies in management are constantly changing thus reports and case series are crucial in expanding our understanding of COVID 19 in pregnancy. Many questions arise such as: 1) are pregnant patients more vulnerable to having COVID 19? 2) Does having COVID 19 predispose pregnant patients to develop hypertensive disorders and cerebrovascular accidents? At this juncture, there is no reported case of a spontaneous intracerebral hemorrhage in a COVID 19 postpartum and also there were limited reported cases of stroke in patients with postpartum preeclampsia. Presented in this paper is a case of COVID 19 patient diagnosed with postpartum preeclampsia which progressed to a spontaneous intracerebral hemorrhage.

Stroke is a clinical condition which is defined as a disruption of cerebral function manifested as focal or global signs and symptoms. This a condition that rarely happens during pregnancy but once it occurs it is associated with gestational hypertension and preeclampsia which can be identified in the patient. Most patient with preeclampsia does not develop spontaneous intracerebral hemorrhage thus the call for further exploration of other possible risk factor.

Acute Cerebrovascular disease is a significant manifestation of systemic COVID 19 with incidence rate of 1-6% in positive patients and this rate equates a large proportion of the COVID 19 population as SARS-CoV-2 affects millions of people worldwide which can be caused by direct endothelial inflammation, systemic inflammation and hypercoagulopathy. They are associated with elevated D-dimer and C-Reactive protein which indicates a highly prothrombotic state.

Treatment of spontaneous intracerebral hemorrhage in pregnancy is multidisciplinary approach involving various services. The patient underwent left frontoparietotemporal decompressive hemicraniectomy and evacuation of hematoma. The patient was treated with low molecular weight heparin, antihypertensives and anticonvulsants.

We must be critical in our antepartum, intrapartum and postpartum care of COVID 19 patients even beyond the recommended 14 days quarantine period including monitoring of coagulation studies, and administration of thromboprophylaxis postpartum. Preeclampsia is a modifiable risk factor of stroke in pregnancy thus the importance of diagnosis and prevention of its complications. There should be a higher index of suspicion of stroke for COVID 19 patients presenting with neurological symptoms even beyond the 14 day quarantine period of a previously asymptomatic or a low risk patient. The treatment of COVID 19 is not yet fully understood. Understanding the threat of COVID 19 in pregnancy particularly in low risk patients with sudden development of neurologic symptoms is important to fight the virus in order to prevent worse outcomes.

The World Health Organization (WHO) has established an overarching working party for research institutions implementing research on coronavirus disease 2019 (COVID-19) and pregnancy referred to as the Pregnancy and COVID-19 Research working party . The working party is meant to supply a collaborative forum for scientific discussion of research on this subject , with all implementing partners being invited to hitch the group.

In addition, WHO has established a sub-working group (SWG) that's focused on the implementation of the generic protocol. This SWG allows provision of support to sites implementing the generic protocol, and it's also been wont to discuss, explain and agree on the core components of the study. we've established core criteria for study design and core variables that ought to be included in any local adaptation. Local adaptation of the protocol per site are discussed in reference to what's outlined within the protocol.

In addition, UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP)/WHO holds regular individual meetings with all implementing partners that wish to be a part of pooled analyses. Specifically, a little number of selected partner sites in low- and middle-income countries (LMICs) receive tailored support plans in their efforts to implement the protocol. These overarching working groups and SWGs are in situ since April/May 2020 and meet regularly to make sure continuous dialogues with implementing and collaborating partners.

Further, WHO monitors any studies adaptations to style or implementation that are planned within sites. This work are going to be went to guide and ensure quality of implementation also on provide an summary of sites and their respective timelines and, additionally, ensure any protocol adaptations are within the scope of what's outlined within the generic protocol. We recognize that sites are going to be implementing the protocol with varied resource availabilities, and parallel initiatives of research capacity strengthening are going to be tailored as needed for individual sites. Through close work with WHO colleagues outside HRP, in regional and country offices, we'll also ensure regular contact points.

The impact of SARS-CoV-2 infection on pregnancy is unclear. because the virus so recently emerged, data is lacking on outcomes related to first or trimester infection and risk of teratogenicity . One study of 8000 pregnant women with SARS-CoV-2 within the us found that infection was related to hospitalization, increased risk for medical care unit admission and of receiving mechanical ventilation, but not death. Recent estimates indicate a COVID-19 infection deathrate of 0.68% within the general population, while an outsized study of symptomatic women of reproductive age (15–44 years) within the us has reported up to a 70% increased risk of death in pregnant women. Additionally, although data isn't yet peer reviewed, case studies have reported that SARS-CoV-2 infection during pregnancy may increase risk of perinatal complications, including foetal distress, preterm birth and perinatal death.

This standardized protocol describes a prospective cohort study investigating the longitudinal course of women with exposure, exposure risk or documented

infection with SARS-CoV-2 during their pregnancy. The overarching goal of this study is to realize critical knowledge on how infection with SARS-CoV-2 impacts pregnancy and neonatal outcomes, with the extra aims to know mother-to-child transmission (MTCT) (if any), viral presence in pregnancy-related body fluids (i.e. amniotic fluid), breast milk and tissues, and the clinical presentation of the disease in pregnant women. Additionally, this protocol includes an option for a case control component to research disease severity in pregnancy compared to non-pregnant women with COVID-19.

This generic protocol is meant to be adapted to the local context of the implementing research institutions and sites. The components of this study that ought to be applied across all study sites include the inclusion/exclusion criteria of study participants and assignment of participants to review groups. In addition, it's expected that institutions adopting the generic protocol will utilize the generic case report forms (CRFs) provided within the appendix. These CRFs represent the suggested core of variables that sites should collect data on; however, the CRF is meant to be flexible with online data entry platforms including skip logic to permit sites to omit variables that can't be collected. additionally , sites are welcome to feature additional sections and/or variables to the CRF, if relevant for his or her context.

Cerebral AVM rupture is considered the second most common cause of cerebral hemorrhage during pregnancy and the postpartum period, after eclampsia. The risk of hemorrhage from a cerebral AVM during pregnancy has been estimated at approximately 3.5%. It was therefore concluded that pregnancy is not a risk factor for hemorrhage from previously unruptured AVMs

Cavernomas, also called cerebral cavernous malformations, are the foremost commonly diagnosed cerebral vascular malformations, with a prevalence estimated between 100 and 500 cases per 100,000 population. Cavernoma may occur either sporadically, defined as an isolated lesion during a patient without a case history of the lesion, or as a familial form during which there are multiple lesions. The estimated hemorrhagic risk within the familial form could also be as low as 0.6% per annum and per lesion. Although the consequences of pregnancy, the postpartum state, and hormonal therapy remain poorly understood and therefore the source of much controversy, the danger of

symptomatic hemorrhage from a cavernoma during pregnancy doesn't appear to be increased or to contraindicate vaginal delivery. Most cavernomas are asymptomatic and incidentally discovered at MRI, on either T2-weighted or gradient-echo images. Susceptibility-weighted imaging has become the quality diagnostic assay for cavernoma.

The addition of dynamic contrast-enhanced quantitative perfusion to susceptibility-weighted imaging could also be the foremost sensitive radiologic method for detecting cavernomas and should become a useful biomarker for monitoring explanation and response to therapy. When symptomatic, cavernomas typically present with seizures or hemorrhage, which may produce neurologic deficits or severe headaches.

In a pregnant woman presenting with seizures, the diagnosis of eclampsia is far and away the primary consideration, followed by PRES, CVT, and RCVS. just in case of a primary hemorrhage from a cavernoma, MRI findings could also be atypical, suggesting a tumor or another lesion, by revealing a soft-tissue mass surrounded with fresh blood without evidence of old hemorrhagic products.

Conclusion: Radiologists must be conversant in the imaging findings of cerebrovascular complications and pathologic conditions encountered during pregnancy and therefore the puerperium. Ongoing improvements in understanding of molecular changes during pregnancy and therefore the puerperium and advances in diagnostic tests should allow radiologists to still make important contributions to the care of this patient population.