

Labor Epidural Placement in a COVID-Positive Patient with Profound Thrombocytopenia



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Background

Hematologic manifestations of COVID-19 are well-described.

Venous and arterial thromboembolisms are not uncommon, likely related to a combination of factors, such as cytokine release, hyperinflammation, platelet activation, and endothelial dysfunction. Thrombocytopenia and prolonged coagulation times are seen as well, which can result in a DIC-like picture. However, these abnormalities are most frequently seen in hospitalized patients, especially those in the intensive care unit.

Patient History

A 26 year-old G2P1001 woman presented to our hospital at 38w0d with regular contractions and was admitted for labor.

Her history includes:

- previous opioid use disorder (currently on buprenorphine)
- Hepatitis C (treated)
- COVID-19 infection diagnosed two days prior to presentation: Mildly symptomatic (fever, cough, nausea)

Of note, her recent platelet count of 241,000 was three months prior to presentation and no change in her medical history since that time, aside from COVID-19 infection.

Hospital Course

The patient requested an epidural immediately upon presentation and an informed consent was obtained. Given her recent normal platelet count and lack of compelling reason to suspect that it may have dropped, an epidural was placed and neuraxial block was initiated while awaiting the results of her routine labs.

Her platelet count returned at 27,000, with repeat of 19,000. Coagulation studies were sent and demonstrated further coagulopathy (see table below). The epidural catheter was left in place and used, with hourly neurologic checks performed. She was transfused with multiple units of cryoprecipitate, FFP, and platelets.

Due to the unknown cause and course of her coagulopathy, decision was made to augment her labor and deliver the baby as soon as possible (which occurred 13 hours after admission). Excellent hemostasis was noted by the obstetric team. The epidural catheter was removed on the morning of DOH 3, at which point her platelet count was 73,000. She had an uneventful post-partum course and was discharged on DOH 4. Platelet count and coagulation studies were normal at two-week postpartum check-up.

TABLE: Coagulation Studies vs. Time Since Admission

	0h	5h	13h	21h	44h	2w
Plt	27↓	19↓	25↓	43↓	73↓	326
PTT		66↑		41	33	33
Fib		89↓	226	237	248	
K-time		9.7↑		3.8↑		
α-angle		26.4↓		51.9↓		
Max amplitude		33.1↓		47.4↓		

Discussion

Coagulopathy in Pregnancy

- Obstetric causes: gestational thrombocytopenia, pre-eclampsia, HELLP syndrome, acute fatty liver of pregnancy, DIC (2/2 placental abruption, amniotic fluid embolism, etc.)
- Non-obstetric causes: ITP, TTP, SLE, anti-phospholipid antibodies, congenital factor deficiencies and platelet disorders, sepsis, etc.
- Our patient had no history of or suspicion for any of these causes

COVID-19 in Pregnancy

- Many patients are asymptomatic, but can present with shortness of breath, congestion, fever, fatigue
- Associated with worse outcomes in the obstetric population – high rates of ICU admission, mechanical ventilation, ECMO, and death
- There are case series of asymptomatic and paucisymptomatic pregnant women with thrombocytopenia attributed to COVID-19, though the nadir of their platelet count is usually >70,000 (and always greater >40,000, as far as we have seen).

Anesthesia Considerations for COVID-19 in Pregnancy

- It is recommended to place epidural analgesia early in order to allow for proper PPE use, protection of equipment, and decrease the risk of general anesthesia for the patient
- However, it is also recommended to wait for a platelet count in a patient with COVID-19 (as opposed to an otherwise healthy patient) due to the risk of thrombocytopenia
- Ultimately, the catastrophic risk of epidural hematoma favors waiting until a platelet count has resulted

References

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