



A Case of Asymmetric Vertical Transmission of SARS-COV-19 in Newborn Twins

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Management of newborns during the SARS-COV-2 (COVID-19) pandemic presents unique challenges. Fortunately, infected newborns generally tend to be asymptomatic or have milder symptoms than older patients infected with COVID-19. The true rate of vertical transmission is still unclear, with some studies reporting none and others reporting as high as 10% [1-3]. We describe here a unique case of asymmetric vertical transmission of COVID-19 in twin newborns.

Full term dichorionic diamniotic twin infants were born to a G6P3 25 year-old mother. Pregnancy was complicated by scant prenatal care, preeclampsia with severe features requiring magnesium sulfate, and maternal use of opioids and amphetamines. Twin gestation was unknown prior to delivery. The mother presented in active labor. Twins were born via normal spontaneous vaginal delivery. Apgars were 8 and 9 for both babies at 0 and 5 minutes of life. Twin A required drying and stimulation only. Twin B required deep suctioning and CPAP briefly after delivery but transitioned quickly to room air. Meconium was positive for opioids in both twins however there were no signs of neonatal abstinence syndrome. In addition, mother was hepatitis C positive and syphilis IgG reactive. Additional testing for mother showed that she was RPR negative but treponemal antibody positive, consistent with the test results of both twins and indicative of positive syphilis infection (either prior or early new infection). However, VDRL was negative for both babies. Both babies were treated empirically per guidelines for presumed congenital syphilis with a 10 day course of IV high dose penicillin G.

Additionally, the mother tested positive on routine admission qualitative screening for COVID-19 RNA and was symptomatic for 7 days prior to admission with a wet cough. Per our NICU policy, both twins were also tested after birth for COVID-19.

Interestingly, Twin A tested negative for COVID-19, but Twin B tested positive. To confirm that this was not a false result, both babies were tested twice on separate days, with the second test confirming results of the first. Twin B remained mostly asymptomatic despite COVID-19 positivity, but he was noted to have some occasional coughing for the first couple days of life. Additionally, on DOL 10, Twin B presented acutely with bilateral submandibular swellings. Ultrasound showed 2.6x2.1x2.5 cm and 2x1.7x2.3 cm fluid collections, with MRI confirming suspicion for abscesses. The ear, nose, and throat (ENT) specialists as well as infectious disease specialists were consulted at this point. ENT drained the abscesses and patient was treated empirically with clindamycin. Wound cultures grew MRSA and patient continued clindamycin treatment for a 14 day course, with an additional 10 day course after discharge due to persistent abscess on repeat ultrasound. Both patients were followed after discharge by infectious disease. Abscesses had resolved in Twin B without further recurrence. Repeat RPR for both infants were negative and reassuring for no active congenital syphilis infection.

We present, to the best of our knowledge, the only reported case of possible asymmetric vertical transmission of COVID-19. In general, vertical transmission of COVID has been rarely reported [4-7] and appears to still be relatively uncommon. Determining true vertical transmission has been confounded by the possibility of postnatal nosocomial transmission in the setting of a pandemic. However, our case is unique because to date there have not been reports of possible asymmetric vertical transmission. We tested both babies twice on separate occasions to ensure that this was not a false result from technical error. The twins were put immediately in isolation precautions per our NICU policy, and there were also no other known COVID-19 patients or personnel in the NICU during their stay. We acknowledge that

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we cannot completely rule out the small possibility of exposure to asymptomatic carriers.

It is also noteworthy that despite Twin B being asymptomatic from a COVID-19 standpoint, he nevertheless had a more complicated hospital course, having developed large MRSA submandibular abscesses. This could be coincidental, but it is interesting to consider whether COVID-19 infection potentially predisposes to secondary infections. There are isolated case reports of older patients with COVID-19 getting secondary bacterial superinfections during their hospital course, including pulmonary [8], septal [9], and epidural [10]. It is yet unclear whether these secondary infections are directly related to COVID-19 infection or incidental to hospitalization. However, there is at least a precedent for viral infections predisposing to secondary superinfections in pneumonia and sinusitis, lending the possibility of COVID-19 doing the same here. This case provides a unique example of incomplete vertical transmission of COVID-19 with its potential complications. Further studies are needed to better understand the mechanism of vertical transmission of COVID-19 and what factors are protective from perinatal infection.

References

1. Elshafeey F, Magdi R, Hindi N, et al. A systematic scoping review of COVID-19 during pregnancy and childbirth. *Int J Gynaecol Obstet.* 2020;150(1):47-52.
2. Smith V, Seo D, Warty R, et al. Maternal and neonatal outcomes associated with COVID-19 infection: A systematic review. *PLoS One.* 2020;15(6):e0234187
3. Zeng L, Xia S, Yuan W, et al. Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China. *JAMA Pediatr.* 2020;174(7):722-725.
4. Ashraf MA, Keshavarz P, Hosseinpour P, et al. Coronavirus Disease 2019 (COVID-19): A Systematic Review of Pregnancy and the Possibility of Vertical Transmission. *J Reprod Infertil.* 2020;21(3):157-168.
5. Kotlyar AM, Grechukhina O, Chen A, et al. Vertical transmission of coronavirus disease 2019: a systematic review and meta-analysis. *Am J Obstet Gynecol.* 2021;224(1):35-53.e3.
6. Pettiroso E, Giles M, Cole S, Rees M. COVID-19 and pregnancy: A review of clinical characteristics, obstetric outcomes and vertical transmission. *Aust N Z J Obstet Gynaecol.* 2020;60(5):640-659.
7. Sheth S, Shah N, Bhandari V. Outcomes in COVID-19 Positive Neonates and Possibility of Viral Vertical Transmission: A Narrative Review. *Am J Perinatol.* 2020;37(12):1208-1216.
8. Renaud-Picard B, Gallais F, Riou M, Zouzou A, Porzio M, Kessler R. Delayed pulmonary abscess following COVID-19 pneumonia: A case report. *Respir Med Res.* 2020;78:100776.
9. Maan AS, Kaur G, Arora R, Kaur J, Devi KJ, Singh M. An Unusual Case of a Pediatric Nasal Septal Abscess with Life-Threatening Complications in COVID-19 Pandemic [published online ahead of print, 2020 Nov 11]. *Indian J Otolaryngol Head Neck Surg.* 2020;1-4.
10. Soh P, Doan N, Manning B, Doan H. Spinal Cord Injury From an Epidural Abscess as a Serious Complication of COVID-19 Infection. *Cureus.* 2020;12(11):e11327.