COVID placentitis complicating maternal COVID-19 infection: a case series

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Objective

To describe perinatal outcomes where COVID placentitis existed on placental histopathology at the Royal Women's Hospital, Melbourne.

Design and Methods

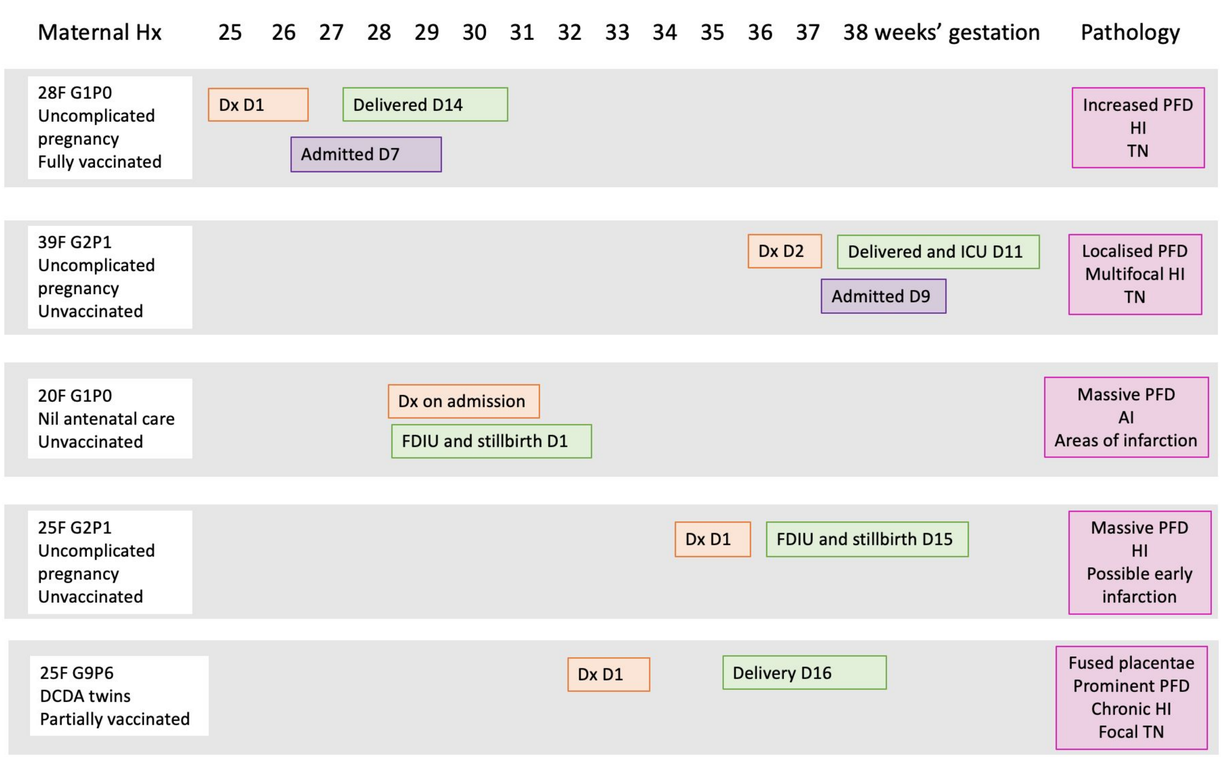
A case series of 5 women and their 6 babies (one case with DCDA twins).
Cases were identified based on histopathological findings and were retrospectively reviewed.
NB: Placental histopathology was not systematically performed on all COVID positive women.

Results

Maternal demographics: mean age 28.8 (20-39), multigravidae women (n=3) with a gestational age at birth of 31 weeks (25+2-36+0) and with mild COVID disease (n=3) who were not fully vaccinated (n=4) and diagnosed 14 days prior to birth (1-15 days). All the women were from ethnic minorities in Australia and otherwise healthy non-smokers with normal BMIs and uncomplicated pregnancies prior to COVID diagnosis.

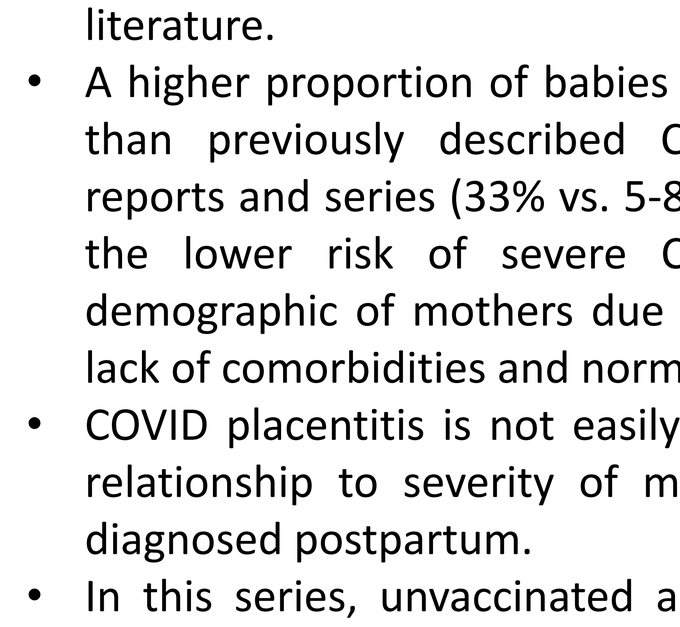
Fetal outcomes: There were two FDIUs and three preterm births (27+2 and 33+5) from two women. Two babies had birth weights on the 1st centile including one of the DCDA twins without other features of IUGR.

Placentae: Perivillous fibrin deposition (n=5), histiocytic intervillositis (n=4) and syncytiotrophoblast necrosis (n=4). Both FDIU had massive perivillous fibrin deposition and features of placental infarction.



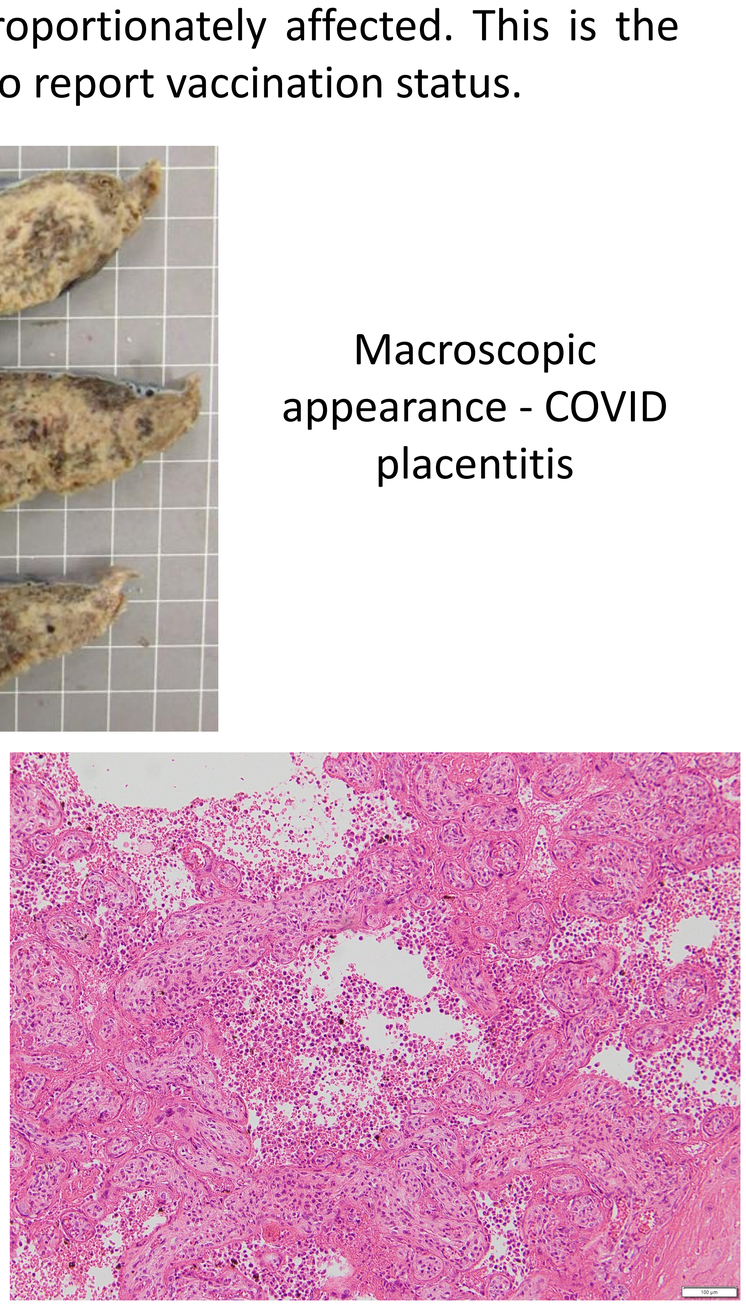
Conclusions

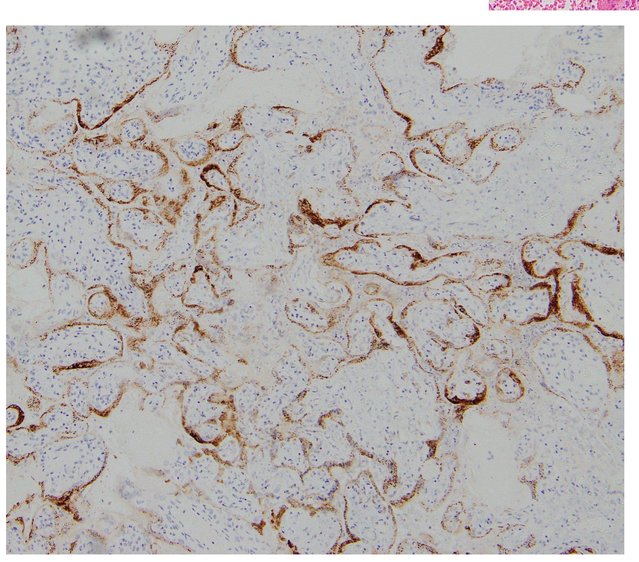
- COVID placentitis is associated worse perinatal outcomes than in COVID positive women without placentitis and in women without COVID (stillbirths 42-49% vs. 1% vs. 0.1%; preterm birth 70% vs. 14% vs. 9%). The data from our series is consistent with the literature.
- A higher proportion of babies in this series were SGA than previously described COVID placentitis case reports and series (33% vs. 5-8%) and this may reflect the lower risk of severe COVID disease in this demographic of mothers due to their relative youth, lack of comorbidities and normal body weight.
- COVID placentitis is not easily predicted as it has no relationship to severity of maternal disease and is diagnosed postpartum.
- In this series, unvaccinated and partially vaccinated women were disproportionately affected. This is the first known series to report vaccination status.



Macroscopic appearance - COVID placentitis

Intervillositis on H&E stain, 10x magnification





SARS-CoV-2 spike protein on IHC – 10x magnification