

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.

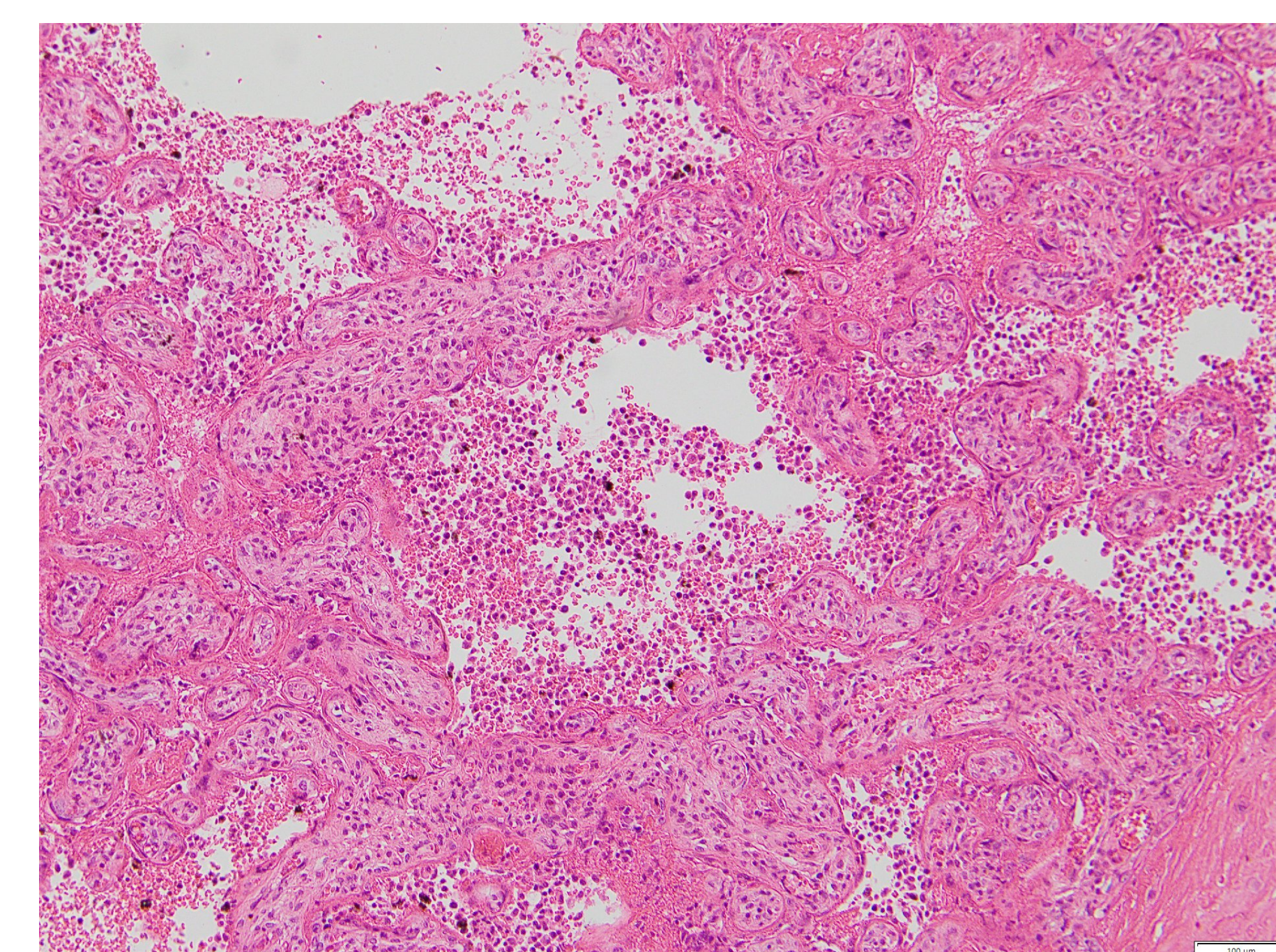
Placentae: Perivillous fibrin deposition (n=5), histiocytic intervillitis (n=4) and syncytiotrophoblast necrosis (n=4). Both FDIU had massive perivillous fibrin deposition and features of placental infarction.

Conclusions

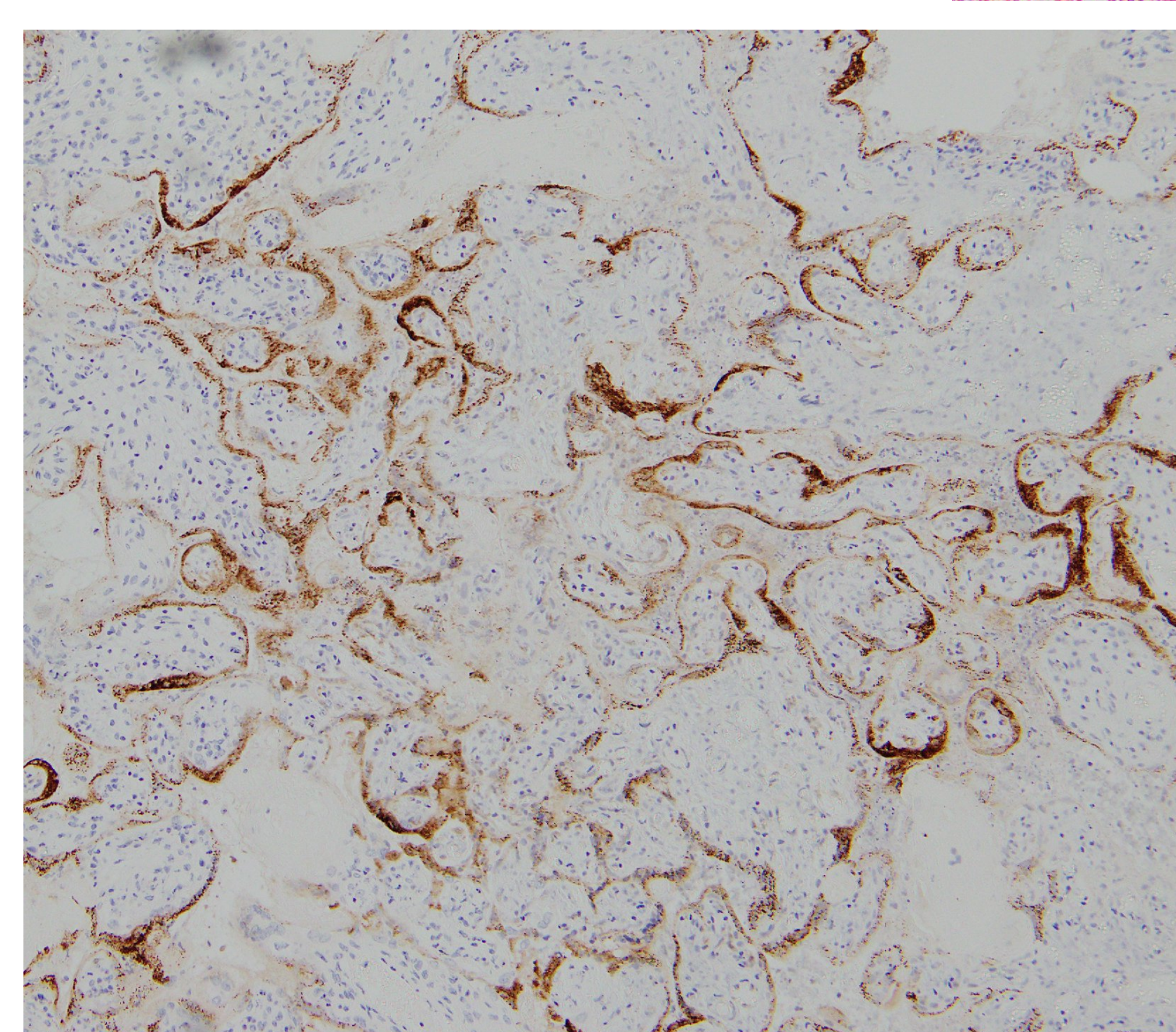
- COVID placentitis is associated worse perinatal outcomes than in COVID positive women without placentitis and in women without COVID (stillbirths 42-49% vs. 1% vs. 0.1%; preterm birth 70% vs. 14% vs. 9%). The data from our series is consistent with the literature.
- A higher proportion of babies in 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



Intervillitis on H&E stain, 10x magnification



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

Maternal Hx	25	26	27	28	29	30	31	32	33	34	35	36	37	38 weeks' gestation	Pathology
28F G1P0 Uncomplicated pregnancy Fully vaccinated															Increased PFD HI TN
39F G2P1 Uncomplicated pregnancy Unvaccinated															Localised PFD Multifocal HI TN
20F G1P0 Nil antenatal care Unvaccinated															Massive PFD AI Areas of infarction
25F G2P1 Uncomplicated pregnancy Unvaccinated															Massive PFD HI Possible early infarction
25F G9P6 DCDA twins Partially vaccinated															Fused placentae Prominent PFD Chronic HI Focal TN