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Spontaneous maternal coagulopathy in COVID-19

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We describe eight cases of COVID-19 associated maternal coagulopathy in unvaccinated women in Northern Ireland during the Delta era of the pandemic from July to October 2021 respectively. There was one instance of neonatal coagulopathy and six associated with fetal distress. No alternative aetiology primarily attributed to the coagulopathy was identified. In all cases where the placenta was sent for histopathology (n=4), findings were in keeping with COVID placentitis [Figure 1]. Laboratory and neonatal parameters are shown in Tables S1 & S2.

Ten cases of spontaneous coagulopathy associated with COVID-19 occurred during the aforementioned period, of which eight consented to inclusion. During this time there were n=7,627 births with an estimate of 3% contracting COVID-19. Based upon current evidence, causation cannot be directly attributed, only speculated.

C1 presented with abdominal pain and reduced fetal movements (RFM). A caesarean section (CS) was performed for fetal distress. The mother subsequently became haemodynamically unstable with haemoptysis and melena. Investigations demonstrated a thrombocytopenia and coagulopathy. After receiving clotting factors, laboratory parameters normalised. C2 presented following a spontaneous vaginal delivery and primary post-partum haemorrhage (PPH). Investigations and clinical history were in keeping with disseminated intravascular coagulation (DIC) and she ultimately underwent a subtotal hysterectomy following medical management of uterine atony, B-Lynch suture insertion and internal iliac artery ligation with subsequent radiologically-guided drainage of a pelvic haematoma. C3 presented with pneumonia and on day three developed a mild transaminitis with thrombocytopenia and

coagulopathy. There was subsequent RFM and presumed fetal distress. A CS was performed following coagulopathy reversal. C4 presented in threatened preterm labour (dichorionic twins). She had a baseline thrombocytopenia from admission and developed a coagulopathy. Due to rapidly falling fibrinogen levels she underwent CS following coagulopathy reversal. C5 presented with RFM. She underwent for presumed fetal distress, during which there was a PPH secondary to coagulopathy. Haematological investigations normalised following delivery and she was discharged on day 5. C6 presented with RFM and a CS was performed for presumed fetal distress. Postoperatively she had a PPH secondary to coagulopathy which had been present prior to delivery. Following reversal of coagulopathy and administration of blood products she returned to theatre for wash out and drainage of blood. C7 presented with dyspnoea, abdominal pain and RFM with subsequent physiological decline and presumed fetal hypoxia and a CS was performed. Postoperatively she had a PPH secondary to coagulopathy. Following reversal of coagulopathy and administration of blood products she returned to theatre for wash out and drainage of blood. C8 presented with diarrhoea and mucousy vaginal loss. A CS was performed for presumed fetal distress. She developed a secondary PPH with associated profuse wound bleeding secondary to coagulopathy. Her abdomen was reopened for insertion of a B-Lynch suture, reversal of coagulopathy and administration of blood products.

To our knowledge, this is the first reported case series of this size of COVID-19 related spontaneous maternal coagulopathy in pregnancy. Coagulopathies and thrombotic complications have previously been reported in association with COVID-19,[1,2] A systematic review, found that 0.7% (n=7) of 1063 pregnant women developed COVID-related DIC.[3] It is postulated that COVID causes changes in both the extrinsic and intrinsic coagulation cascade

and it is potentially this imbalance that is causative of a greater than average incidence of DIC as well as thrombosis.[4] There is a need for robust clinical recommendations and prospective case registration of cases for pregnant women with COVID-19 pertaining to coagulopathy.

CONFLICT OF INTEREST

F.M. and A.K. are both sub-editors for Ultrasound in Obstetrics and Gynecology but were not involved in the review of this article

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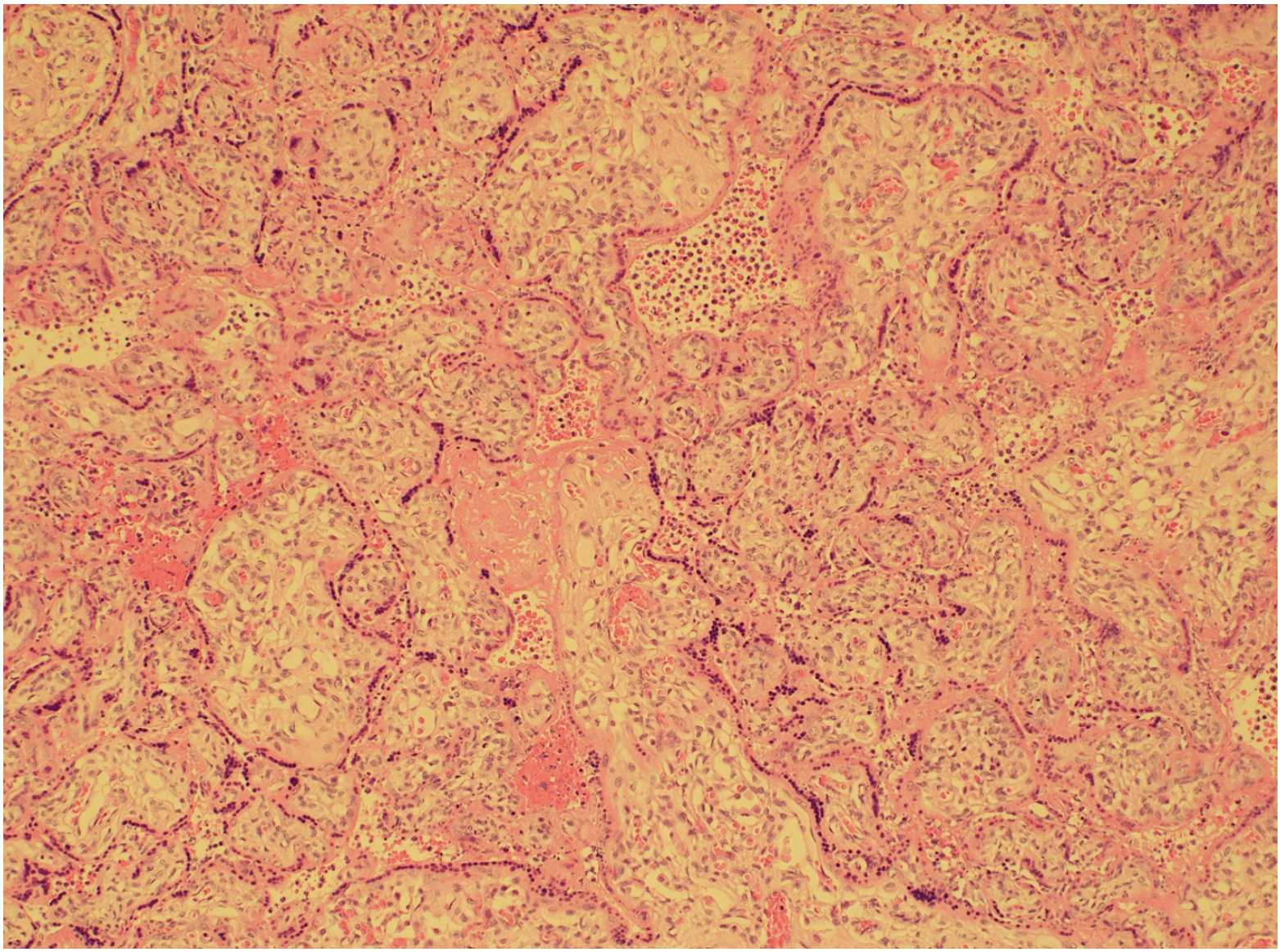
FIGURE LEGENDS

Figure 1a – 'COVID placentitis' featuring increased perivillous fibrin deposition, chronic intervillositis and villous trophoblast necrosis. Case C1

Figure 1b – SARS-CoV-2 immunohistochemistry. Case C1



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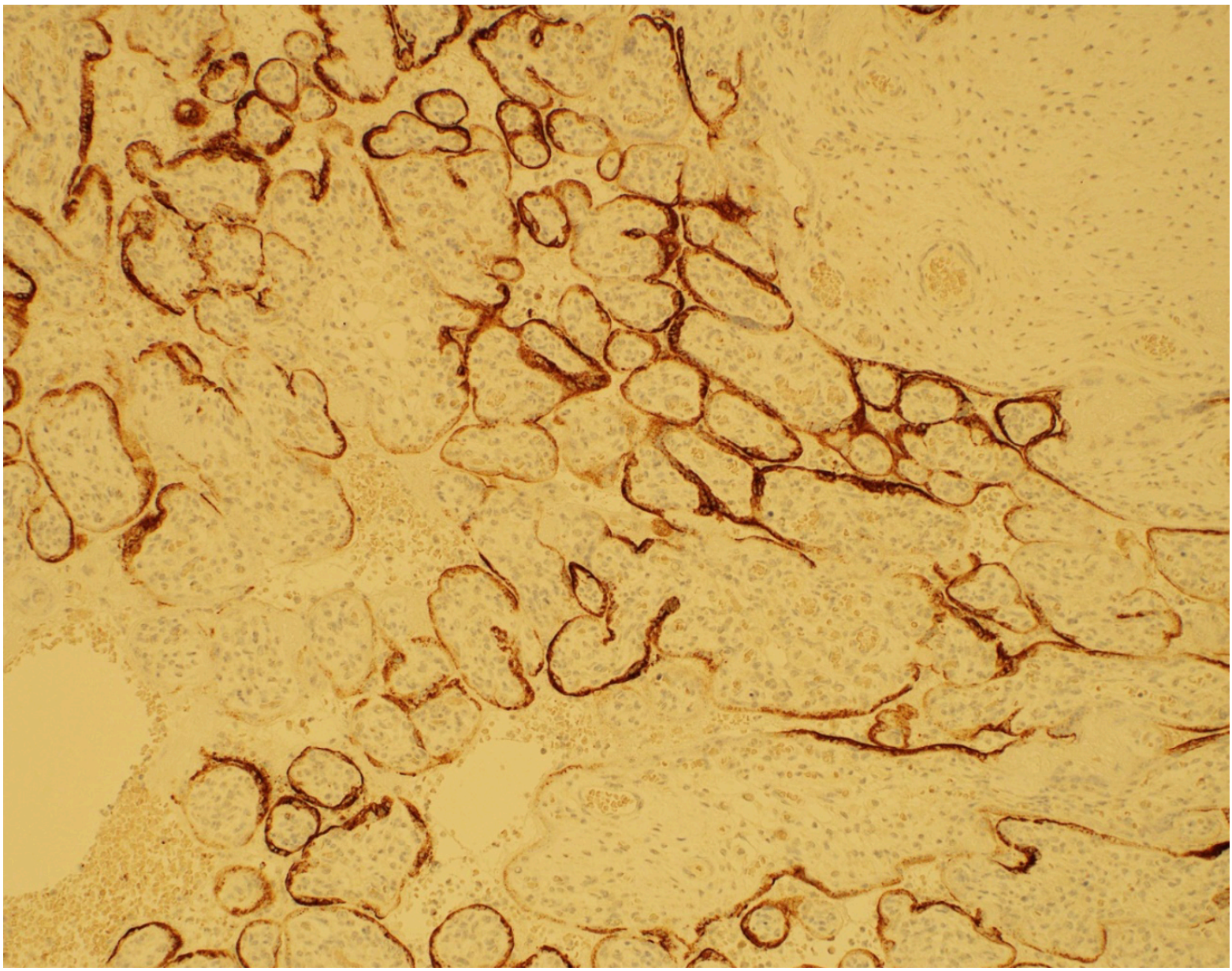

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