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Correspondence

Re: Novel Coronavirus COVID-19 in late pregnancy: Outcomes of first nine cases in an inner city London hospital

We would like to share our experience of nine laboratory-proven COVID-19 mothers delivered at a London inner-city hospital between 7th of March and 22nd April 2020. In all cases, positive diagnosis was based on real time reverse transcriptase polymerase chain reaction (RT-PCR) of maternal nasopharygeal swabs.

The median age and gestation at delivery were 31 years (range 18–39) and 39 weeks (range 27–39) respectively and two of the nine women were delivered by emergency caesarean section (CS) for COVID-19 pneumonia and deteriorating maternal respiratory function. Of the remaining seven, one mother had a normal vaginal delivery, six underwent elective CS for obstetric indications while an emergency CS was performed in one woman for suboptimal cardiotocography (Table 1). Seven of our nine women (78%) had mild to moderate prodromal symptoms not requiring admission (such as fever, cough, myalgia, sore throat, anosmia): these women were only screened due to a high index of suspicion rather than severity of complaints. The infants were immediately isolated from the mothers at birth and had RT-PCR for SARS-Cov-2 nucleic acid nasal pharyngeal swabs performed. Only one of the nine babies was subsequently confirmed as COVID-19 positive (patient 1) based on nasopharyngeal RT-PCR.

We would like to focus on the first two mothers who were delivered by emergency CS due to inability to maintain oxygen saturation and to highlight the accompanying lymphopenia that were previously described in the cases reported by Sutton et al. [1] and Zeng et al. [2].

Patient 1: A 33 year old woman with diet controlled gestational diabetes mellitus was admitted at 39 weeks gestation with flu-like symptoms and productive cough. A provisional diagnosis of pneumonia was made but she developed chest pain and became tachypnoeic. Chest X-ray revealed right basal consolidation and lymphopenia was noted (0.92×10^9/L; normal: 1.2–3.6). Maternal nasopharygeal swabs were positive for SARS-CoV-2 RT-PCR and she underwent an emergency CS for sudden deterioration of respiratory function, requiring 15 L/min of oxygen to maintain saturation of >95%. A live infant 4.165 kgs was delivered with Apgar scores of 5^1minute and 9^5 minutes and was immediately separated from the mother. Following delivery, the patient continued to desaturate (80–85%) on 100% of oxygen and was transferred to a tertiary centre for extracorporeal membrane oxygenation (ECMO). The baby, subsequently confirmed as COVID-19 positive, developed pyrexia and exhibited signs of pneumonia on the sixth day but settled with benzylpenicillin and gentamycin.

Patient 2: A 29 year old lady was admitted at 27 weeks gestation with myalgia, cough, pyrexia >38.4 °C and dyspnoea. SARS-CoV-2 was diagnosed on basis of nasopharyngeal RT-PCR and chest X-ray showed basal consolidation (Fig. 1). She was commenced on intravenous clarithromycin and cefuroxime but became tachypnoeic and was unable to maintain oxygen saturation. Lymphopenia (1.05×10^9/L; normal: 1.2–3.6) was noted and an emergency CS was performed for deteriorating maternal respiratory function. She required mechanical ventilation for four days post-delivery before being "stepped down". The baby weighing 1.2 kgs with Apgars of 2^1minute and 6^5 minutes and required intubation because of prematurity. The baby was negative for nasopharyngeal, amniotic fluid and placental swabs RT-PCR for SARS-CoV-2 and was weaned off ventilation after 10 days.

Table 1 shows that maternal symptoms can be variable and of interest is that cough (8/9) and anosmia (7/9) appear to be the commonest presentations in this small series. We had initially followed advice from Chinese literature which recommended isolation of the infected woman and her baby for 14 days [2]. However, given the limited data and considering the potential detrimental effects on feeding and bonding, the Royal Colleges of Midwifery and Obstetricians and Gynaecologists have now jointly issued a guideline [3] that COVID-19 women and their healthy babies should be kept together in the postpartum period. Similarly, breast milk of affected mothers [4] has tested negative for COVID-19 and current evidence suggest that breast feeding is not contraindicated [3].

The most recent systemic review of six studies involving 48 delivered women indicates low likelihood of vertical transmission [5], although transplacental maternal-fetal transmission

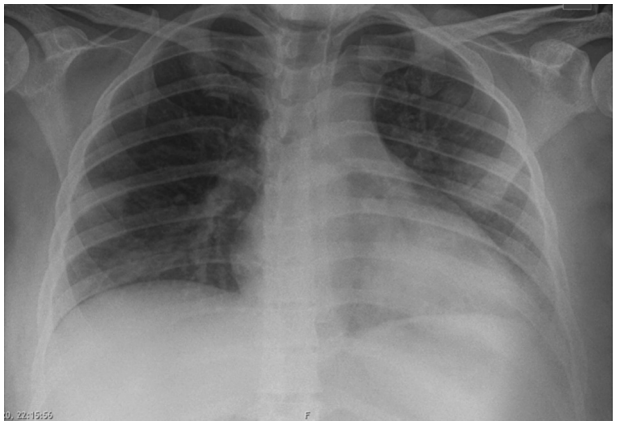

Fig. 1. Chest X-ray of patient 2 showing lower lobe patchy consolidation consistent with (COVID) pneumonia.

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Table 1
Showing maternal and fetal outcomes ($n = 9$).

Patient	Age (yrs)	Parity	CXR	Gestation (wks)	Mode of delivery	Indication	PMH	Fever	Cough	Myalgia and joint pains	Runny nose	Sore throat	Lethargy	Dyspnoea	Anosmia	Fetal weight (g)	Fetal COVID status	Fetal outcome
1	36	2 + 0	Consolidation	38	Em CS	Maternal pneumonia and respiratory distress	Gestational diabetes	Y	Y	N	N	Y	Y	Y	N	4165	Positive	Viral pneumonia day 6 but recovered well Apgars 5, 9
2	29	2 + 1	Consolidation	27	Em CS	Maternal pneumonia and respiratory distress	None	Y	Y	N	N	N	N	Y	Y	1200	Negative	Ventilated for 10 days Apgars 2, 6
3	31	2 + 3	Normal	35	Em CS	Pathological CTG not in labour	None	Y	Y	Y	N	Y	Y	Y	Y	2700	Negative	Observation only due to poor feeding Apgars 6, 8
4	31	0 + 1	Consolidation	39	El CS	Breech	Asthma	Y	N	N	N	Y	N	N	Y	3370	Negative	Talipes Apgars 9, 9
5	22	1 + 0	Consolidation	38	NVD	N/A	None	N	Y	Y	N	N	Y	N	N	4300	Negative	Well Apgars 9, 9
6	39	4 + 1	Not done	37	El CS	3 previous CS	Insulin dependent diabetes hypertension	N	Y	N	N	N	Y	N	Y	2500	Negative	Well Apgars 8, 9
7	18	1 + 0	Not done	39	El CS	Previous CS and maternal request	None	N	Y	Y	N	N	N	N	Y	3060	Negative	Well Apgars 9, 9
8	38	3 + 1	Not done	39	El CS	3 previous CS	None	N	Y	Y	N	Y	Y	Y	Y	3540	Negative	Well Apgars 9, 9
9	34	0 + 0	Not done	39	El CS	Maternal request	None	N	Y	Y	N	N	Y	N	Y	3560	Negative	Well Apgars 9, 9

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have been reported [1,2] including in our first case (where mother and baby were immediately separated and membranes had remained intact until CS). We can postulate that there may be a relationship between vertical transmission with maternal viral load as this was our most respiratory-compromised patient.

The same systemic review [5] noted that 96% of COVID-19 women were delivered by CS; however, we suspect that these were likely to be elective procedures for obstetric indications, like the last four women in our series, where COVID-19 had been detected several weeks prior to delivery in relatively stable patients.

We end this letter by reminding clinicians that many pregnant women with COVID-19 present with mild or even no symptoms. In the United Kingdom, we currently do not have the capacity or funds to screen all pregnant women as recommended by Sutton et al. [1] but any recent onset of cough and anosmia warrants a high level of suspicion for screening.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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