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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 nasopharyngeal 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 [1] and Zheng [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 Xray revealed right basal consolidation and lymphopenia was noted ($0.92 \times 10^9/l$; normal: 1.2–3.6). Maternal nasopharyngeal 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 5¹ minute and 9⁵ 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 Xray showed basal consolidation (Fig. 1). She was commenced on intravenous clarithromycin and cefuroxime but became tachypnoeic and was unable to maintain oxygen saturation. Lymphopenia ($1.05 \times 10^9 /l$; 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 2¹ minute and 6⁵ 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 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.

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
2	29	2+1	Consolidation	27	Em CS	Maternal pneumonia and respiratory distress	None	Y	Y	N	N	N	N	Y	Y	1200	Negative	Appgars 5, 9 Ventilated for 10 days
3	31	2+3	Normal	35	Em CS	Pathological CTG not in labour	None	Y	Y	Y	N	Y	Y	Y	Y	2700	Negative	Appgars 2, 6 Observation only due to poor feeding
4	31	0+1	Consolidation	39	El CS	Breech	Asthma	Y	N	N	N	Y	N	N	Y	3370	Negative	Appgars 6, 8 Talipes
5	22	1+0	Consolidation	38	NVD	N/A	None	N	Y	Y	N	N	Y	N	N	4300	Negative	Appgars 9, 9 Well
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	Appgars 9, 9 Well Appgars 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 Appgars 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 Appgars 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 Appgars 9, 9

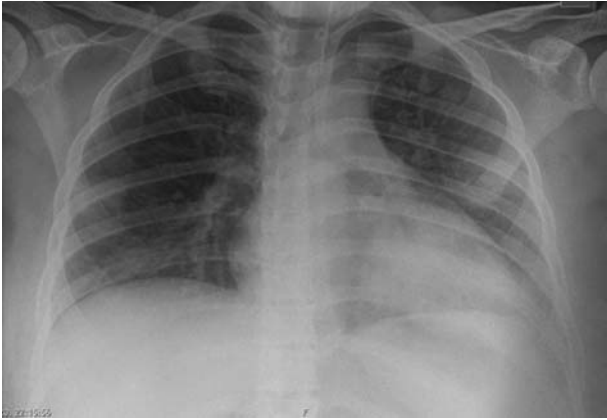


Fig. 1. Chest Xray of patient 2 showing lower lobe patchy consolidation consistent with (COVID) pneumonia.

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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Use of 4 robotic arms performing Senhance[®] robotic surgery may reduce the risk of coronavirus infection to medical professionals during COVID-19



Dear Editor,

Recent guidelines suggest minimizing the staff number participating in an operating theatre during COVID-19 pandemic [1]. It is also recommended that trainees, in particular, should not be involved with cases unnecessarily. To reduce the chances of COVID-19 infection during the hospital stay, patients should be admitted into relatively free COVID-19 hospitals with a strict policy in screening staff. At a minimum checking of temperatures of all staff, entering the hospital and the use of basic surgical mask within the hospital is mandatory. Apart from aerosolizing procedures, which are classed as high-risk situations, the use of simple surgical masks should therefore be encouraged in the hospital when a social distancing of 2 m or more cannot be maintained [2]. The safety and management of surgical smoke in the age of COVID-19 and laparoscopy is an additional source of aerosol airborne pollution generated by pneumoperitoneum [3]. The risk to operating staff for SARS-CoV-2 is likely to be related to

aerosol-generating ventilatory procedures (tracheal intubation, non-invasive ventilation, mask ventilation, head and neck surgery etc.) rather than the abdominal surgical procedure which probably have a negligible risk for operating staff although. The recommendations for protection gains surgical smoke are clearly described in a review by Mowbray et al. [3].

Senhance[®] robotic platform has been introduced in 2012 and the use of three robotic arms plus one trocar for the assistant for gynaecological surgery is still a standard [4]. The issue of using robotic 4 arms and possible advantages related to it have not been addressed in this type of surgery so far. The use of 4 Senhance[®] robotic arms has been in details described trying to standardize sigmoid resection for diverticular disease [5], but one of the arms stays at rest during different three steps of surgery, allowing to economy docking and re-docking time, as well avoiding repositioning of robotic arms. In our hospital, Senhance[®] robotic surgery has been implemented in general and colorectal surgery, gynaecology and urology from November 2019, and our overall experience already exceeds 300 cases.

Of 100 different types of gynaecological operations performed in our hospital to date, 10 were performed using 4 robotic arms (Table 1) with single gynaecologist and a scrub nurse, aiming to avoid the need of assistant during the surgery. One robotic arm was used for traction and in a 'stay' mode ('assistant' arm), while one