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Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection during pregnancy: Report of two cases & review of the literature



KEYWORDS

MERS-CoV;
Pregnancy;
Saudi Arabia

Dear Editor,

As of February, 2018 a total of 2143 cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) have been reported to the World Health Organization, including 750 deaths in 27 countries.¹ There were 10 reported cases of MERS-CoV in pregnancy.^{2–7} Here, we present two cases from our hospital with MERS-CoV infections during pregnancy.

Case 1

The first patient was a 29-year-old female (gravida 2, para 1) at 6 weeks gestation and with no underlying medical conditions. She was asymptomatic and identified as part of the contact tracing of her mother, a positive MERS-CoV patient. On examination, she was afebrile, breathing normally and Lungs were clear to auscultation. The abdomen was gravid, soft, non-tender, non-distended, and normal bowel sounds. Nasopharyngeal swab testing by RT-PCR for MERS-CoV showed a positive result for ORF (Ct value 32). She had two repeated nasopharyngeal swab testing by RT-PCR for MERS-CoV and these showed probable results (Ct value 36) and the 4th swab was negative by PCR for MERS-CoV. The patient did not deliver during hospitalization and

she was discharged on 24th August 2015, and subsequently delivered a healthy infant at term.

Case 2

The second patient was a 39-year-old female (gravida 6, para 5) with history of end stage renal disease (ESRD) and hypertension on hemodialysis. She used to have hemodialysis at Wadi Aldawasir hospital during an active MERS-CoV outbreak there. She presented at 24 weeks of gestation after a contact with a positive MERS-CoV patient. Nasopharyngeal swab testing by RT-PCR was positive for MERS-CoV with E gene (Ct value 34) and OFR (Ct value 34). She was admitted to a regular ward. Subsequently, she had negative RT-PCR for MERS-CoV and she was discharged home.

Respiratory samples (Nasopharyngeal swabs or tracheal aspirates) were tested for MERS-CoV using real-time reverse-transcription polymerase chain reaction (RT-PCR) as described previously.

The clinical presentation of MERS-CoV is variable and ranges from a mild disease or asymptomatic presentation to a more severe and fatal cases. There are sparse data on the effect and the likelihood of MERS-CoV during pregnancy.^{2–7} We searched the MEDLINE database for articles published in English literature from January 2012 to July 2016. The references in the retrieved articles were further searched for any additional references. A summary of previous reports and the current two additional cases of pregnancy associated MERS-CoV is presented in Table 1. Of all the cases, the mean age $\pm$ SD was 33.7 ± 4.3 years and the gestation age was 26.3 ± 9 weeks, and there were four (36%) primi-gravida. The source of infection was not identified in 3 cases; contact with family members who had MERS-CoV was elucidated in two cases; four patients had

<https://doi.org/10.1016/j.jmii.2018.04.005>

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Table 1 A summary of pregnancy associated MERS-CoV infection.

	Age	Nationality	Gravida (G), Para (P)	Source of infection	Gestational age at illness onset (weeks)	ICU admission	Maternal comorbid conditions	Maternal outcome	Fetal outcome	Delivery details	Reference
Patient 1 (PMAH)	29	Saudi	G2, P1	Household contact	6	NO	None	Survived	Survived	Delivery at term	Current report
Patient 2 (PMAH)	39	Saudi	G6, P5	Contact with MERS-CoV case in HD	24	NO	ESRD on hemodialysis, HTN	Survived	Survived	Delivery at term	Current report
Patient 3	34	Saudi	G7, P6	Unknown	34	YES	Preeclampsia	Survived	Died	Intrauterine Fetal death at 34 weeks	3
Patient 4	32	Saudi	G2, P1	Unknown	38	YES	None	Died	Survived	Vaginal delivery at 38 weeks	3
Patient 5	31	Saudi	Primigravida	HCW, occupational exposure	24	YES	Asthma, pulmonary fibrosis	Died	Died	Caesarean section at 24 weeks	3
Patient 6	27	Saudi	Primigravida	Unknown	22	YES	None	Survived	Survived	Full term delivery	3
Patient 7	30	Saudi	Primigravida	HCW, occupational exposure	23	YES	None	Survived	Survived	Full term delivery	3
Patient 8	39	Jordanian	G7, P6	Household contact	20	NO	None	Survived	Still birth	Still birth at 5 months	6
Patient 9	32	United Arab Emirates	G3, P2	Visited camel barn	32	YES	None	Died	Survived	Caesarean section at 32 weeks	5
Patient 10	39	South Korean	G2, P1	Contact with MERS-CoV Patient in hospital	35 weeks and 4 days	NO	Gestational Diabetes	Survived	Survived	Caesarean section at 39 weeks	2,7
Patient 11	33	Saudi	Primigravida	Contact with MERS-CoV Patient	31	Yes	Hypothyroidism and primary infertility	Survived	Survived	Caesarean section at 32 weeks	4

health-care associated infection, two of them were healthcare workers. Six (54%) patients required ICU admission and three (27%) patients died during the hospital stay. Two of the deceased had an exposure during the third trimester and one acquired the infection during the second trimester. The infant death rate was 27%. The outcome was favorable in the majority of pregnancy-associated MERS-CoV cases. The exact prevalence of MERS-CoV antibodies and exposure of pregnant women to MERS-CoV is not known. All the reported cases were symptomatic. Among the 11 pregnancy-associated MERS-CoV infection, the case fatality rate was not statistically different when compared to the overall case fatality rate of 35%, $P = 0.75$. Regarding the infants, three (27%) infants had died.

The overall case fatality rate remains high and is comparable to the overall case fatality rates. The disease had also resulted in fetal demise in 27% of cases.

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25 February 2018
Available online 2 June 2018