SPECIAL COMMUNICATION

MIDDLE EAST RESPIRATORY SYNDROME CORONA VIRUS ALERT VERIFICATION IN MIRPUR, AZAD KASHMIR

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Background: Middle East Respiratory-Corona virus (MERS-CoV), SARS like virus, identified in September 2012 in Middle-East. February 2013, an elderly man, who visited Pakistan and KSA, was confirmed as MRS-CoV in UK. A team visited Mirpur to assess current and past SARI trends in major indoor facilities, to explore possible contact of the patient with known or suspected SARI case during his stay in Pakistan and enlist close contacts. **Methods:** Review of indoor records in hospitals, interviews with relatives & physicians and active contact tracing using operational case definition. **Results:** Arrived on 16th December 2012, mostly stayed at daughter's house, visited by relatives, on 19th January, left for KSA accompanied by daughter, developed fever with chills and body aches on 23rd January. On 28th January, arrived London, admitted at City Hospital, Birmingham, subsequently shifted to Manchester Hospital on 6th February 2013, diagnosed as MERS-CoV, expired on 19th February. His son having underlying condition, confirmed as MERS-CoV on 13th February, and expired on 17th February. Daughter developed mild respiratory symptoms, confirmed as MERS-CoV on 16th Feb and recovered. Both have been infected by the Index case. The review of indoor record did not reveal any significant change in SARI trends, the cumulative number of cases for the January –February 2012 and 2013 was 291 and 294 respectively indicating no difference. During his stay in Pakistan, he didn't meet any suspected/ill person. Close contacts were observed and investigated for MERS-CoV, all remained healthy. **Conclusions:** The available evidence does not suggest any MERS-CoV transmission to, or from the patient in Pakistan.

Keywords: MERS-CoV; Transmission.

J Ayub Med Coll Abbottabad 2017;29(1):173–5

INTRODUCTION

In this report, we have discussed the investigation of the famous United Kingdom (UK) cluster case in Pakistan. After diagnosis of UK based Pakistani citizen as MERS-CoV case, the World Health Organization formally requested Pakistan to investigate whether this person got infected in Pakistan or Saudi Arabia. Accordingly, the Government of Pakistan deputed a team of Epidemiologists to visit Mirpur Azad Jammu & Kashmir (AJK) and investigate the case.

Middle East Respiratory-Corona virus (MERS-CoV), Severe Acute Respiratory Syndrome (SARS) like virus, identified in September 2012 in Middle-East and since then as of 31st December 2015, 1644 cases and 638 deaths were reported worldwide.[1] Most of the confirmed patients developed severe respiratory illness. Symptoms included shortness of breath, coughing, fever and pneumonia.[2]

Acute renal failure occurred in few patients whereas pericarditis and disseminated intravascular coagulation was also reported in some patients. Occurrence of few clusters like in Saudi Arabia, Jordan, UK and Korea raise the possibility of limited human-to-human transmission. The confirmation of a recently reported case with MERS-CoV in the absence of travel history offers further evidence of person-to-person transmission, however sustained person-to-person transmission is yet to be documented. Most of the cases occurred in Saudi Arabia and other Middle East countries. Travel associated cases reported from some European, United States, African, Asian countries. No case detected in Pakistan.

In February 2013, an elderly man, who visited Pakistan and KSA, was confirmed as MRS-CoV in UK.[3] The current and past SARI trends in major indoor facilities at Mirpur was assessed to explore possible contact of the patient with known or suspected SARI case during his stay in Pakistan and possible close contacts enlisted. The Objectives of the investigation were to:

- Assess the past and current SARI trends through review of records in major indoor facilities of Mirpur

- Explore possible contact of the patient with a known or suspected SARI case during his stay in Pakistan
- Enlist close contacts of the patient and assess their clinical status to rule out possibilities of disease transmission to another person(s) from a common source

MATERIAL AND METHODS

Review of indoor records at public and private sector hospitals was undertaken besides personal interviews with key public health officials and physicians. The house where patient resided during stay in Pakistan was visited. Active contact tracing in the field was undertaken by using the operational case definitions.

Results/Facts Revealed: The Patient named "X" aged 65 years reported by Health Protection Agency (HPA) as MERS-CoV had arrived at Islamabad airport Pakistan on 16th December 2013 and left for Mirpur same day. He stayed in Pakistan till 19th January 2013 before leaving through Pakistan International Airline flight PK 741 on at 22:25 hours accompanied with his daughter named "A" aged 26 years. In Mirpur, he had mostly stayed at his house and also visited local areas, Islamabad and Lahore.

Close Contacts and Laboratory investigations: During his stay in Pakistan he remained in close contact with 27 contacts who were observed for 14 days after the last contact and remained asymptomatic. Throat swab samples of five close house hold contacts were tested for MERS-CoV at National Institute of Health Islamabad and were declared negative.

Case-1:

The patient "M" and her daughter "A" arrived in Jeddah, Saudi Arabia on 20th January 2013 and performed umrah same day. He stayed at a hotel overnight before leaving for Madina on 21st January 2013 where he developed fever with chills and body aches on 23rd January 2013. Symptoms improved by taking some pills (self-medication) and returned to Makkah on 24th January 2013. He continued complaining of tiredness and body aches but did not visit any doctor at KSA. On 28th January 2013, the patient "M" departed from Jeddah along with his daughter "A" and arrived at Heathrow airport, London same day at 1745 hours. He stayed at his home for a day and visited his General Physician next day who prescribed some medicines and sent him home. On 31st January 2013, his condition deteriorated and he was admitted at City Hospital, Birmingham.

Due to breathlessness, he was put on Ventilator. He was subsequently shifted to Manchester Hospital on 6th February 2013 and subsequently diagnosed as MERS-CoV and H1N1-pdm-09 positive case. The patient "M" was expired on 19th March, 2013 in hospital in Manchester. His dead body was shifted to Mirpur AJK Pakistan on 22nd March 2013.

Case-2:

According to subsequent reports, his son named "C" aged 38yrs who had already an underlying condition that may have made them more susceptible to acquire infection and was on chemotherapy at Queen Elizabeth Hospital in Birmingham, was confirmed as MERS-CoV case on 13th February 2013. He was admitted in same hospital and expired on 17th February 2013. His dead body was shifted to Mirpur AJK Pakistan on 22nd February, 2013.

Case-3:

In the meanwhile, a third family member named "D" developed mild symptoms of Respiratory Tract Infection and is confirmed as MERS-CoV in UK on 16th Feb and was being cared for at home and has reportedly recovered now. Both did not have any travel history outside UK and presumably might have been infected by the Index case.

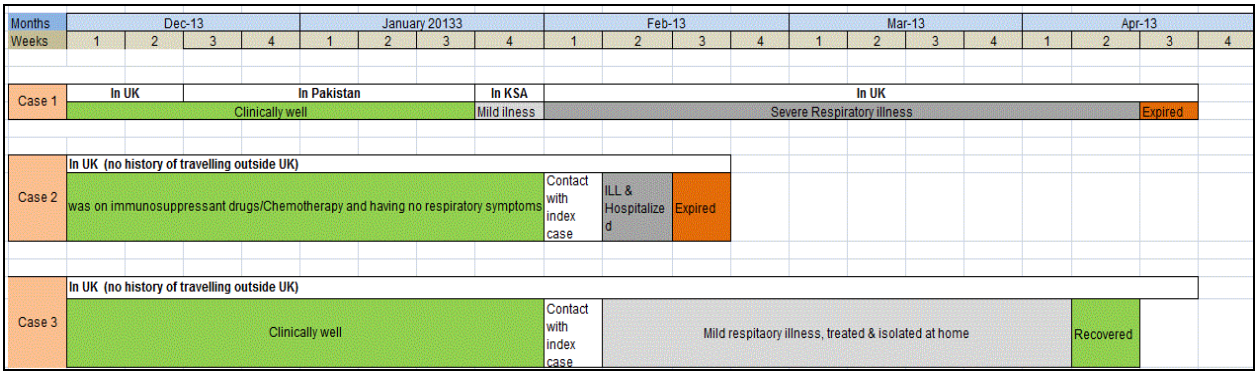

Figure-1: Timeline of index case and contacts diagnosed as MERS CoV

Unique about his cluster known as "UK Cluster" were:

- First evidence of person to person transmission
- First case with co-infection (H1N1)
- First family cluster
- First case with mild respiratory symptoms (non-fatal and not hospitalized)

SARI Trends in Mirpur:

The review of indoor record from major private and public sector hospitals did not reveal any significant change in SARI trends. A slight increase in number of cases during January was observed in <5 children at DHQ hospital.

An in-depth review revealed that the cases had been reported from 3 districts (Mirpur, Bhimber and Kotli) without clustering and were mainly attributable to improved surveillance. Moreover, the cumulative number of cases for the January – 15th February during 2012 and 2013 was 291 and 294 respectively indicating no difference.

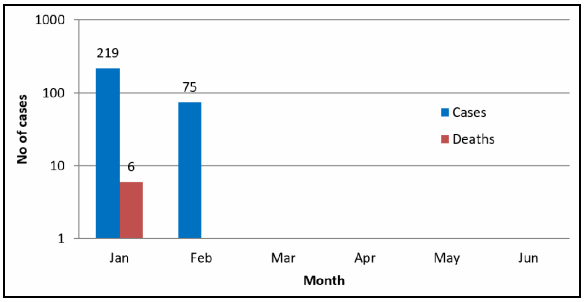

Figure-1: Monthly reported SARI cases & deaths, Mirpur, Pakistan, 2013

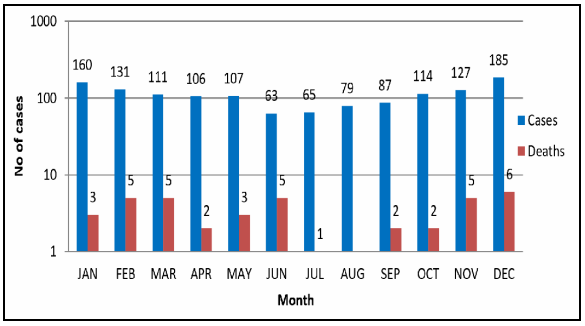

Figure-2: Monthly reported SARI cases & deaths, Mirpur, Pakistan 2012

CONCLUSIONS

The available evidence does not suggest any MERS-CoV transmission to, or from the patient in Pakistan because of the following:

- The patient did not have contact with any SARI case during his stay in Pakistan
- None of the close contacts has developed any respiratory illness since departure of the patient from Pakistan
- No significant rise in SARI cases in Mirpur was observed in 2013 vis-à-vis corresponding periods of time in 2012-13
- The accompanying family member in KSA went onwards to UK and did not return to Pakistan

Steps taken / Recommendations:

- Continued monitoring of the close contacts of confirmed cases was advised
- Copies of interim surveillance recommendations about MERS-CoV were provided to Physicians and were requested to:
  - Continue surveillance for severe acute respiratory infections (SARI)
  - Carefully review any unusual patterns and report any suspected event to NIH promptly
  - Dead bodies returned to Pakistan were buried adopting all recommended precautionary measures

ACKNOWLEDGEMENT

- Dr. Mussa Rahim, DEWS, WHO Islamabad
- Dr. Nadeem Gondal, WHO Surveillance Officer
- Dr. M. Asgher, MS, DHQ Hospital Mirpur
- Dr. Muhammad Riaz, General Physician, Mirpur AJK

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Received: 16 February, 2016	*Revised: 11 July, 2016*	*Accepted: 28 October, 2016*

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