



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Letter to the Editor

## Delayed management of *Staphylococcus aureus* infective endocarditis in a Middle East respiratory syndrome coronavirus possible case hospitalized in 2015 in Paris, France

Dear Sir,

The risk of emerging infectious diseases such as Middle East respiratory syndrome coronavirus (MERS-CoV) [1] and Ebola epidemics is growing not only as the result of changes in demographic, anthropological, ecological and economic conditions but also because of increasing connectedness and speed of movement in the modern world. In response to the risk of hospital transmissions to healthcare workers and other patients, maximum precautions in isolation wards aim to limit transmission.

Infection due to MERS-CoV [2] was identified in 2012, and has been responsible for 1733 confirmed cases and 628 deaths to date [3]. In France, since 2012, 1524 patients were classified as possible cases, two were confirmed as MERS-CoV infection, of which one died [4].

Maximum precautions to avoid cross-transmission to healthcare workers may alter the management and care of other life-threatening infectious diseases. It is of particular importance given the ratio between the number of cases of emerging infectious diseases and the number of 'classical' infections.

A man in his sixties with possible MERS-CoV was admitted to our infectious diseases department at Bichat Claude Bernard Hospital in Paris in 2016. He lived in the United Arab Emirates and had returned to France for a holiday 5 days before admission. Fever had appeared 3 days earlier. He was initiated on amoxicillin by a general practitioner 2 days before. He was admitted to the emergency department for a persistent fever at 39.5°C with cough, shortness of breath and general weakness. His main medical and surgical history included an aortic prosthesis (Bentall surgery) with a mechanical aortic prosthesis, and a pacemaker implanted in 2002. The neutrophil count was 23 230/mm<sup>3</sup>, thrombocytes were low (97 000/mm<sup>3</sup>) and the C-reactive protein was elevated (386 mg/L). Chest X-ray was normal. The first hypothesis raised by the emergency department doctor was an infective endocarditis on the mechanical prosthesis. But the geographic provenance, the presence of fever and cough led to classification as a possible MERS-CoV, after case review with The 'Institut national de Veille sanitaire', according to the national recommendation. The patient was placed in the isolation ward 8 hours after admission (H8) through the emergency department.

According to French guidelines for laboratory biosafety, initial processing of biological specimens should take place in a class II or class III biosafety cabinet. Only automatized tests could be collected and analysed. Other microbiological tests, such as blood

cultures, should not be sent to the laboratory until MERS-CoV PCR of a superficial or deep airway sample has returned negative [5]. Twelve hours after admission (H12), based on the infectious disease clinical assessment, MERS-CoV diagnosis was no longer considered. Isolation procedures were stopped in the emergency department with the agreement of the 'Institut national de Veille sanitaire' and three blood culture sets were sampled. Cloxacillin and gentamicin were initiated targeting an infective endocarditis. Eight hours later (H20), blood cultures were positive for *Staphylococcus aureus* with negative *mecA* geneXpert. Trans-thoracic and transoesophageal echocardiographs revealed a mobile echogenic mass of 10 mm on the cardiac valve, along with a thickened posterior ring. Screening for septic embolism showed a cerebral ischaemic and haemorrhagic stroke and fungal aneurysm on the left femoral artery. Surgical intervention was performed on day 10 of antibiotic initiation. Surgery was followed with diaphragmatic rupture in the pericardia, and retroperitoneal bleeding. After 17 days in the intensive care unit the patient died.

This case illustrates the difficulty of managing patients with suspected highly contagious emerging infectious diseases. A final diagnosis of MERS-CoV requires the exclusion of all other diagnoses [3]. But the diagnosis of MERS-CoV infection should be considered in a patient returning from epidemic countries with non-specific symptoms.

Here, the suspicion of MERS-CoV led to a 12-hour delay in performing blood cultures because of isolation. Clinicians did not start antibiotic therapy as quickly as they should. French guidelines for laboratory biosafety in the case of MERS-CoV suspicion should be discussed again and probably modified. There has been no new MERS-CoV infection in France since 2012 and these restrictions are more stringent than the WHO guidelines. Suspicion of an emerging infection should not paralyse the clinician to the detriment of the individual in his search for alternative diagnoses.

### Transparency declaration

The authors have nothing to disclose. This work was not funded.

### References

- [1] Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus ADME, Fouchier RAM. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *N Engl J Med* 2012;367:1814–20.
- [2] Madani TA. Case definition and management of patients with MERS coronavirus in Saudi Arabia. *Lancet Infect Dis* 2014;14:911–3.
- [3] WHO. Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Available at: <http://www.who.int/emergencies/mers-cov/en>. n.d.

- [4] Mailles A, Blanckaert K, Chaud P, van der Werf S, Lina B, Caro V, et al. First cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infections in France, investigations and implications for the prevention of human-to-human transmission, France, May 2013. *Euro Surveill Bull Eur Sur Mal Transm Eur Commun Dis Bull* 2013;18.
- [5] Avis du Haut conseil de la santé publique relatif à la définition et au classement des cas possibles et confirmés d'infection à MERS-CoV ainsi qu'aux précautions à mettre en œuvre lors de la prise en charge de ces patient. Paris: HCSP; 2015.

A. Bleibtreu\*

*AP-HP, Bichat Hospital, Department of Infectious and Tropical Diseases, Paris, France*

*Inserm, IAME, UMR 1137, Paris, France*

P. Arias, D. Vallois

*AP-HP, Bichat Hospital, Department of Infectious and Tropical Diseases, Paris, France*

A. Debit

*Emergency Departement Hôpital Bichat Claude Bernard, APHP, Paris, France*

M. Lermuzeaux

*Intensive Care Unit, Hôpital Bichat Claude Bernard, APHP, Paris, France*

C. Rioux, O. Cabras

*AP-HP, Bichat Hospital, Department of Infectious and Tropical Diseases, Paris, France*

J.C. Lucet

*Inserm, IAME, UMR 1137, Paris, France*

*AP-HP, Bichat Hospital, Infection Control Unit, France*

C. Choquet

*Emergency Departement Hôpital Bichat Claude Bernard, APHP, Paris, France*

J.F. Timsit

*Intensive Care Unit, Hôpital Bichat Claude Bernard, APHP, Paris, France*

Y. Yazdanpanah, F.X. Lescure

*AP-HP, Bichat Hospital, Department of Infectious and Tropical Diseases, Paris, France*

*Inserm, IAME, UMR 1137, Paris, France*

\* Corresponding author. A. Bleibtreu.

E-mail address: [alexandre.bleibtreu@aphp.fr](mailto:alexandre.bleibtreu@aphp.fr) (A. Bleibtreu).

22 November 2016

Available online 13 December 2016

Editor: Professor L. Leibovici