Coronavirus disease 2019 in Rome: was it circulating before December?
Lucia Ilaria Birtolo\textsuperscript{a}, Viviana Maestrini\textsuperscript{a}, Paolo Severino\textsuperscript{a}, Cristina Chimenti\textsuperscript{a}, Gianluca Agnes\textsuperscript{a}, Marco Tocci\textsuperscript{a}, Maria Chiara Colaiacomo\textsuperscript{b}, Marco Francone\textsuperscript{c}, Massimo Mancone\textsuperscript{a} and Francesco Fedele\textsuperscript{a}

\textsuperscript{a}Department of Clinical, Internal, Anesthesiology and Cardiovascular Sciences, \textsuperscript{b}Radiology Unit, Department of Emergency and Acceptance and \textsuperscript{c}Department of Radiological, Oncological and Pathological Sciences, Sapienza University of Rome, Rome, Italy

Correspondence to Francesco Fedele, Department of Clinical, Internal, Anesthesiology and Cardiovascular Sciences, Sapienza University of Rome, Viale del Policlinico 155, 00161 Rome, Italy
Tel: +39 06 49979021; fax: +39 06 49979060; e-mail: francesco.fedele@uniroma1.it

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Research letter

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a pandemic infection affecting millions of people all around the world. Coronavirus disease 2019 (COVID-19) was declared a Public Health Emergency of International Concern by the WHO on 30 January 2020 and then a pandemic on 11 March 2020.\textsuperscript{1}

In Italy, the COVID-19 epidemic is believed to have started on 30 January 2020 when two positive cases were reported in Chinese tourists in Rome.\textsuperscript{2} In the north of Italy, the first case was confirmed in the Lombardy Region on 21 February 2020,\textsuperscript{3} with a remarkable increase in positive cases within a few days: 219 cases confirmed on 24 February 2020 (http://www.salute.gov.it/portale/news/p3_2_1_1_1.jsp?lingua=italiano&menu=notizie&p=dalministero&id=4091).

In December, while China was experiencing the COVID-19 outbreak, we believed it to be a fight against seasonal flu. Indeed, the clinical symptomatologies of COVID-19 and seasonal flu are similar. Since the end of 2019, in our Cardiology Department of ‘La Sapienza’ University of Rome, we have observed an unusual increase in the rate of hospitalization and mortality for atypical pneumonia resistant to therapy.

Accordingly, the aim of this study was to determine whether any possible case of COVID-19 was present in Rome before the outbreak.

Methods
We retrospectively reviewed the medical records of patients with diagnosis of pneumonia admitted to our Department (Cardiac ICU and Cardiology inpatient ward) from 1 November 2019 to 19 February 2020. We collected clinical, laboratory and imaging data. Chest computerized tomographies (CTs) were analyzed blinded to clinical records by two independent radiologists with more than 10 years of experience. Chest CTs were considered consistent with COVID-19-related pneumonia by consensus of the two radiologists if they met the CT imaging features reported in the literature, such as different degrees of ground-glass opacities with/without crazy-paving sign, multifocal organizing pneumonia and architectural distortion in a peripheral distribution.\textsuperscript{4,5}

Results
During this period 395 patients have been admitted to our Cardiology Department. Among these patients, 20 (5\%) had a diagnosis of pneumonia and 15 of them (75\%) died because of pneumonia resistant to therapy. Ten of the deceased patients underwent in-hospital chest CT. During the same interval time in the previous year (2018–2019) 467 patients were admitted; among these patients, 9 (2\%) had a diagnosis of pneumonia and 15 of them (75\%) died because of pneumonia.

Based on the abovementioned features, two patients had CT imaging features consistent with COVID-19-related pneumonia (Fig. 1). Both presented with fever and respiratory symptoms and routine laboratory tests showed lymphopenia, elevated C-reactive protein and fibrinogen. RT-PCR (reverse transcriptase-PCR) in nasopharyngeal swabs was negative for influenza A and B viruses and patients were treated with association of antibiotics without benefit. One of these patients was admitted at the end of November 2019 and the other one in early January 2020.

Comments
On the basis of these retrospective data, we identified two patients with radiological and clinical features suggestive of COVID-19 disease.

In line with our suspicion that SARS-CoV-2 was circulating in Rome even before December, recently scientists raised many concerns about the initial spreading of the disease.\textsuperscript{6}
In France, the epidemic started much earlier than the reported first case diagnosed in January 2020: RT-PCR performed retrospectively on the stored respiratory sample of a patient hospitalized in December 2019 confirmed the diagnosis of COVID-19.\(^7\)

Similarly, an epidemiological analysis conducted by Cereda et al.\(^8\) hypothesized that the epidemic in Italy started much earlier than February 2020 and had already spread at the time of the first COVID-19 case detection. In addition, Valenti et al.,\(^9\) examining the seroprevalence of SARS-CoV-2 infection in healthy asymptomatic blood donors, found that the infection was already circulating in Milan before the outbreak started.

Obviously, our analysis cannot confirm the diagnosis since neither nasopharyngeal swabs RT-PCR for SARS-CoV-2 nor serological tests were performed. However, it raises the suspicion that possible cases were present in Rome before December 2019.

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**Conflicts of interest**

There are no conflicts of interest.

**References**