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.

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Letter to the Editors-in-Chief

Pulmonary embolism in a young pregnant woman with COVID-19

On March 29, 2020, a 17-year-old obese woman (BMI 32 Kg/m^2) was admitted at 29 weeks of gestation to our COVID-19 Maternity Hub in Milan for fever, mild dyspnea and rhinitis in the last three days. Her past medical history was unremarkable and she had a negative family history of venous thromboembolism. Her body temperature was 37.3 °C, heart and respiratory rates, and oxygen saturation were normal. A nasopharyngeal swab revealed a SARS-CoV-2 infection. On March 30, her respiratory function suddenly worsened and she started oxygen supplementation with 2 l per minute via nasal cannula. On April 1, she developed tachypnea (30 breaths per minute) and oxygen flow was increased to 6 l per minute via Venturi mask. Blood culture demonstrated a *Staphylococcus aureus* bacteremia. The same day antithrombotic prophylaxis with enoxaparin 4000 IU once daily was started. On Apr 4, the patient developed an acute respiratory failure and underwent a chest CT-scan that showed a segmental pulmonary embolus in the right superior lobe, other than a ground-glass opacification and early parenchymal consolidation at lower lobes of the lungs. Laboratory tests did not vary compared to those at admission, except for the neutrophil/lymphocyte ratio and an increase of ferritin concentration (Table 1). At 29 weeks and 6 days, the patient delivered by urgent cesarean section for worsening dyspnea. A female new-born of 1490 g (appropriate for gestational age) was admitted to Neonatal Intensive Care Unit and did well. In the postpartum, enoxaparin was increased to therapeutic doses of 8000 IU twice daily. The patient required a non-invasive ventilation with CPAP, and a gradual improvement of her respiratory function occurred in the following days. On April 9, CPAP ventilation was discontinued and oxygen supplementation with 3 l per minute via nasal cannula was sufficient to reach a SpO2 of 99%. On April 14 the patient was discharged.

Despite the young age and a personal and family history negative for thrombosis, this young obese woman with COVID-19 and *Staphylococcus aureus* infection developed pulmonary embolism. Although the embolus was small and did not worsen coagulation laboratory parameters, it caused a severe impairment of patient's clinical conditions and prompted an urgent timing of delivery. There is stemming evidence that pulmonary embolism is a complication of COVID-19 [1]. Obese pregnant women with COVID-19 may have a particularly high risk of pulmonary embolism because of coexisting prothrombotic conditions. This should be considered for tailoring antithrombotic prophylaxis.

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Declaration of competing interest

The authors do not declare any conflict of interest.

Table 1
Laboratory findings at admission and at worsening of respiratory function.

	Mar 29, 2020 - admission	Apr 4, 2020 - diagnosis of pulmonary embolism
White-cell count (per mm^3)	6910	6022
Differential count (per mm^3)		
Total neutrophils	5660	3910
Total lymphocytes	770	1830
Total monocytes	470	430
Platelet count (per mm^3)	300,000	335,000
Hemoglobin (g/l)	85	91
Albumin (g/l)	34	24
Alanine aminotransferase (U/l)	18	12
Aspartate aminotransferase (U/l)	29	ND
Lactate dehydrogenase (U/l)	168	223
Creatinine (μmol/l)	48	47
EGFR (mil/min/1.73 m^2)	144	145
Prothrombin time (*sec*)	10.9	9.8
Activated partial-thromboplastin time (sec)	31.8	27.2
Fibrinogen (g/l)	6.02	5.43
D-dimer (mg/l)	16.4	15.8
Serum ferritin (μg/l)	117	418
Procalcitonin (ng/ml)	ND	0.10
C-reactive protein (mg/l)	28.5	28.1

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