



Covid-19 diffusion in a neurosurgical “clean” department: the asymptomatic Trojan horse

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Dear editors,

Covid-19 outbreak made hospitals vulnerable due to unrecognized infection with rapid diffusion. Hospital contamination must concern not only departments managing directly the Covid-19 patients but also indistinctively every department. It is facilitated by pandemic and asymptomatic carriers, that are relevant spreaders of disease, as the epidemiological Vo study revealed [1].

We work in a regional neurosurgical department in Veneto with a referral population of about 900,000, 6 referring hospitals. The abovementioned subtle mechanism happened also in our department in the initial phase of this pandemic outbreak.

The first Covid-19 cases in Italy emerged on February 19–20 in Lombardy and Veneto. The involved municipalities locked down and awareness increased.

Patient 1, 90 years old, admitted to our department on February 22, developed atypical pneumonia. Covid-19 tested negative. Microbiology recommended test repetition, though he died on March 1 before repeat testing.

Patient 2 hospitalized from February 27 to March 2, diagnosed for Covid-19 8 days after discharge. He transited in the hospital room of patient 1 and was asymptomatic during hospitalization.

On February 27, patient 3 with a brain tumor was referred by a local hospital, later shut down for Covid-19 (on March 4). He was asymptomatic, with negative recent chest CT for oncologic evaluation. The infectious disease specialist ruled out Covid-19 testing. On March 11, we operated the patient who

developed Covid-19 pneumonia immediately after the surgery.

Patients 2 and 3 were asymptomatic during hospitalization, independent, highly socialized, and shared the same hospital room from 27 to 28 February.

On March 11, WHO declared the Covid-19 pandemic, and Italy was the current epicenter.

Active surveillance of patients and healthcare workers discovered three Covid-19 positives: one patient and two socio-sanitary operators with flu-like symptoms. Patient 4 shared the hospital room with patient 3 from March 4 to March 9. He developed severe Covid-19 and needing intubation.

Patient 2 transited in patient's 1 room for an afternoon. The initial source of contagion cannot be determined with certainty. The discovery of patient one is uncertain, despite the simple setting of a single department. The patients are indicated in the order we considered them for Covid-19. The only patient with pneumonia during hospitalization (patient 1) was not confirmed Sars-Cov-2 positive. Two patients became clinically symptomatic confirmed Covid-19 positives after discharge and one patient after surgery. The bed contiguity in hospitalized asymptomatic socializing patients apparently favored infection.

The first hospitalization for Covid-19 in our hospital was on March 2. Nowadays, it is a mixed hospital, managing Covid-19 patients, but also continuing to serve urgent cases of all habitual specialties.

Neurosurgical departments reorganized all over the world to adapt to the Covid-19 pandemic [2, 3]. Typically, every effort was made to maintain the departments Covid-19 free, and treat Covid-19 patients separately. In our experience in an allegedly Covid-19 free and safe department, we have proved how insidious contagion can be especially due to asymptomatic patients or visitors to the ward. Continuous active surveillance is necessary to shut down eventual intra hospital disease outbreak.

Active surveillance is essential even in pandemic diffusion. The bed contiguity in hospitalized asymptomatic socializing patients apparently favored the contagion.

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The subtle contagion from asymptomatic carriers renders anyone a potential virus diffusor. Actually, we test every patient needing hospitalization or surgery and isolate and consider positive all of them until the test response, despite asymptomatic presentation for Covid-19. The avoidance of contamination in the hospital is paramount. Generally, a drop erodes the rock; nowadays, a droplet let to drop in a hospital is a tsunami for public health.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Lavezzo E, Franchin E, Ciavarella C, et al (2020) Suppression of COVID-19 outbreak in the municipality of Vo, Italy. preprint medRxiv doi: <https://doi.org/10.1101/2020.04.17.20053157>
2. Jean WC, Ironside NT, Sack KD et al (2020) The impact of COVID-19 on neurosurgeons and the strategy for triaging non-emergent operations: a global neurosurgery study. *Acta Neurochir*. <https://doi.org/10.1007/s00701-020-04342-5>
3. Zoia C, Bongetta D, Veiceschi P et al (2020) Neurosurgery during the COVID-19 pandemic: update from Lombardy, northern Italy. *Acta Neurochir*. <https://doi.org/10.1007/s00701-020-04305-w>

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