

**Case Report***Open Access, Volume 2***Repeat percutaneous tracheostomy in a COVID-19 patient****Filippo Sanfilippo\***; **Marta Mascari**; **Luigi La Via**; **Marinella Astuto***Department of Anaesthesia and Intensive Care, A.O.U. Policlinico-San Marco, Catania, Italy.***\*Corresponding Authors: Filippo Sanfilippo**

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**Abstract**

A 73-year-old man with history of hypertension and chronic obstructive pulmonary disease was admitted to the emergency department with acute respiratory failure from COVID-19.

After 10 days of mechanical ventilation (MV) the patient underwent a successful trial of extubation. However, 3 days later his neurological status deteriorated and required re-intubation. A brain computed tomography (CT) scan showed right cerebellar hemorrhage. Considering extent and location of the hemorrhage we decided to perform a percutaneous tracheostomy on the 18th day. The patient was then successfully weaned from MV (day 47th), and finally decannulated (day 50th). On day 62nd, the patient experienced an episode of septic shock, requiring oro-tracheal re-intubation, for we decided to perform a repeat percutaneous tracheostomy. All the procedure steps were uneventful. The patient was subsequently transferred to another ICU, and then successfully discharged to the Respiratory Ward.

**Keywords:** coronavirus; airways; dilational tracheostomy.**Case description**

A 73-year-old man (60 Kg) with history of hypertension and chronic obstructive pulmonary disease was admitted to the emergency department with acute respiratory failure. He was diagnosed with coronavirus disease 19 (COVID-19), and due to rapid deterioration of gas exchanges and dyspnoea despite non-invasive ventilation support, the patient was intubated and transferred to our intensive care unit (ICU).

After 10 days of mechanical ventilation (MV) the patient underwent a successful trial of extubation. However, 3 days later his neurological status deteriorated and required re-intubation. A brain computed tomography (CT) scan showed right cerebellar hemorrhage. On sedation hold the patient was awake and obeying commands without focal neurological deficit for the following days, but he had poor cough reflex. Considering ex-

tent and location of the hemorrhage we decided to perform a percutaneous tracheostomy on the 18th day (Ciaglia Blue Rhino, size 8.0), and three days later he was successfully weaned from the ventilator.

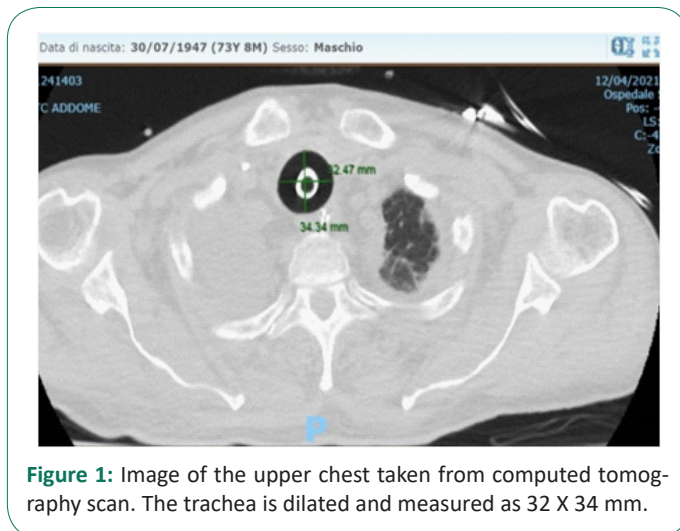
Despite good clinical progresses, on 33rd day of hospitalization, the patient rapidly deteriorated with signs of septic shock. Noradrenaline support was initiated and then escalated up to 0.65 mcg/kg/min, and MV was recommenced. Two days later the patient developed left-sided pneumothorax, requiring urgent chest drain positioning. Sepsis gradually resolved and two weeks later the patient was weaned from MV (day 47th), chest drain was removed (day 49th), and the patient was finally decannulated (day 50th).

Unfortunately on day 62nd, whilst a discharge letter was ready for the transfer to a high-dependency bed, the patient

experienced a further episode of septic shock, requiring oro-tracheal re-intubation and high doses of noradrenaline (up to 0.70 mcg/kg/min). The patient slowly improved again, and on the 82nd day after admission noradrenaline was almost weaned (0.06 mcg/kg/min). Although the patient was neurologically appropriate, we decided to perform a repeat percutaneous tracheostomy (over one month after the initial decannulation) considering the need for ventilatory support (pressure support 15 cm H<sub>2</sub>O) in the context of acquired weakness and the presence of copious secretions.

Though the site of previous tracheostomy seemed healthy, we preventively performed an ultrasound of the tracheal region not only for excluding vessels but also to rule out the presence of fluid collection. We planned to use a Ciaglia Blue Rhino set with a tracheostomy cannula size 9.0 considering that on chest X-ray the trachea seemed dilated (26 mm) as result of the previous tracheostomy. The repeat procedure was performed under general anaesthesia with the adjunct of local anaesthesia (combination of lidocaine with adrenaline), and under fiberoptic-bronchoscope guidance. All the procedure steps were uneventful. Of note, once the Seldinger was passed into the trachea, we did not need to use the scalpel to facilitate the entrance of the dilator.

The patient was subsequently transferred to another ICU (same Trust), and at the time of writing (over two months after the re-do tracheostomy) he is ready for discharge to the Respiratory Ward. Of note, in the last CT imaging, the trachea was measured 32 X 34 mm (Figure 1).



**Figure 1:** Image of the upper chest taken from computed tomography scan. The trachea is dilated and measured as 32 X 34 mm.

## Discussion

To the best of our knowledge, we present the first case of re-do tracheostomy in a patient with COVID-19. Several centers have preferred a strategy of surgical tracheostomy in patients with COVID-19, possibly as a protective measure for healthcare staff. However, transferring COVID-19 patients for surgical tracheostomy has implications. Indeed, disinfection is needed on the route of the transfer of the patient to the operating room. Moreover, closure of a surgical tracheostomy requires a new surgical intervention, which is not the case for percutaneous tracheostomy. Considering such circumstances, we felt more appropriate to perform a repeat tracheostomy, accepting a possibly higher risk of tracheal damage.

Repeat tracheostomy have been previously described. A part from some case reports, we found a couple of case series describing repeat tracheostomy. The larger one was published by Meyer et al. on 14 ICU elderly patients (median 70 years-old) with a very variable range between the initial decannulation and repeat tracheostomy (10 days-8 years) [1]. The second series included 12 younger neuro-ICU patients (mean 35.4 years-old), again with a variable range between decannulation and re-do tracheostomy of 14 days-2 years [2].

A critical aspect in the presented case was the difficulty in discharging the patient to the most appropriate Ward. Indeed, considering the previous cerebellar hemorrhage and the persisting positivity for COVID-19, its transfer was delayed as our Neurology Ward was not equipped for COVID-19 patients. We believe that difficulties in discharging complex COVID-19 patients to the most appropriate Ward may have been a frequent issue during the pandemic.

## References

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