

RIGHT PNEUMOTHORAX SECONDARY TO REMOVAL OF NASOGASTRIC TUBE

Francesco Inzirillo^{*,1}, Ravalli Eugenio^{*}, Francesco Sangrigoli^{**}, Alessia Marziani^{***} and Claudio Della Pona^{*}

^{*}Department of Thoracic Surgery, Morelli Hospital, AOVV, Sondalo (SO), Italy, ^{**}Department of Vascular Surgery, Morelli Hospital, AOVV, Sondalo (SO), Italy,

^{***}Department of General Surgery, Morelli Hospital, AOVV, Sondalo (SO), Italy

ABSTRACT

Malpositioning of the nasogastric tube into the airway is one of the most frequent complications and the consequences of improper positioning of the tube in the airways depend on several factors: creation or not of a pleuro-pulmonary fistula, introduction or not of drugs into the tube, the overall clinical condition of the patient. Pneumonia caused by instillation of drugs or a pneumothorax or a mediastinitis may precipitate a clinical situation already basically compromised.

KEYWORDS pneumothorax, nasogastric tube

Case report

A 79-year-old patient was admitted to our hospital, in a comatose state, for a head injury with brain hematoma and concussion. During hospitalization, a nasogastric tube was placed (PVC, type Levine, Ch 14, diameter 4,6 mm, size 122 cm) but the chest X-ray showed the tube in the right hemithorax and thickening of the lower lung field (Fig. 1). The tube was impulsively pulled out and a second chest X-ray showed a pneumothorax. It was not massive but anyway extended from the apex to the base. The Thoracic Surgeon, while preparing the patient for thoracic drainage positioning, thought about the two possible causes of perforation: either perforation of the esophagus with passage of air in the hemithorax or penetration of the tube in the lower lobe bronchus with perforation of the lung parenchyma (based on chest X-ray, the latter possibility more probable than the first). It was difficult to get an exact answer to those questions because the nasogastric tube was no longer in place. We decided to perform a CT scan, with opacification of the esophagus with

water-soluble contrast that showed integrity of the esophagus (no leakage of contrast into the mediastinum) (Fig. 2) and the presence of thickening of the pulmonary lower lobe. A 3D reconstruction of the lung parenchyma showed an area suspected for the route of penetration of the nasogastric tube (Fig. 3). Probably the second diagnostic hypothesis was true, maybe. The patient subsequently died because of complications related to brain injury.

Discussion

We can find in literature many cases of complications from nasogastric tube positioning, and this requires us to consider this maneuver never facile and without risk. In awake patient, some signs can indicate the malposition of the tube (coughing and discomfort), and we can perform some maneuvers to confirm the correct or incorrect positioning of the tube (aspiration of fluid, auscultation of abdomen while insufflating air)[1,2]. Either in comatose patients or patients with perception disorders or altered consciousness, those criteria must not consider sufficient and, according to some studies, they are suboptimal [1]. Malpositioning of the nasogastric tube into the airway is one of the most frequent complications while some complications are rare (perforation of the esophagus) and other anecdotal (perforation of the base of the skull)[2]. The consequences of improper positioning of the tube in the airways depend on several factors: creation or not of a pleuro-pulmonary fistula, introduction or not of drugs into the tube, the overall clinical condition of the patient.

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¹ Francesco Inzirillo, MD; Thoracic Surgery Department, E. Morelli Hospital, via Zubiani 33, 23035 Sondalo (SO), Italy. Tel. +39 0342808622; Fax: +39 0342808616

E-mail: francescoinzirillo@gmail.com

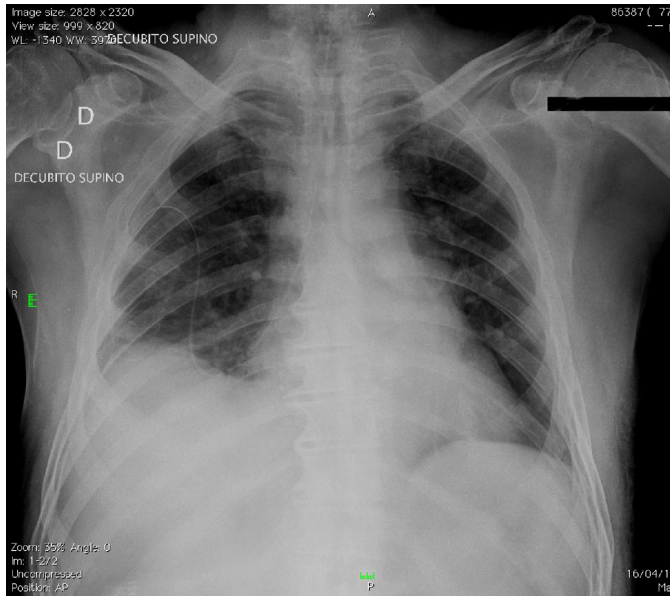


Fig 1. The nasogastric tube in the right hemithorax.

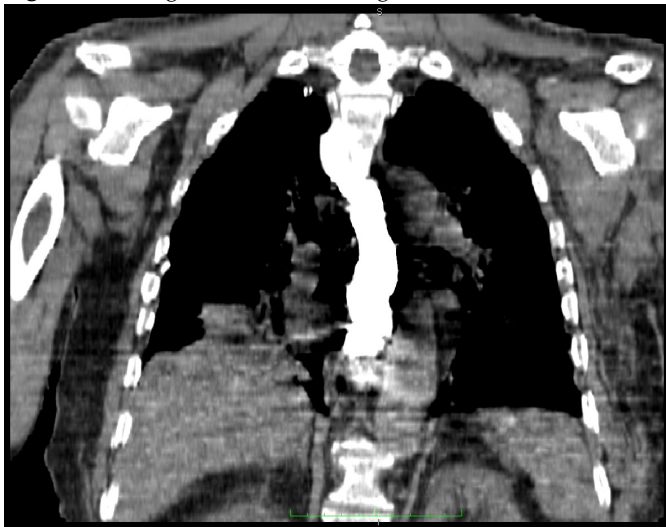


Fig 2. CT showing the absence of passage of contrast into the mediastinum.

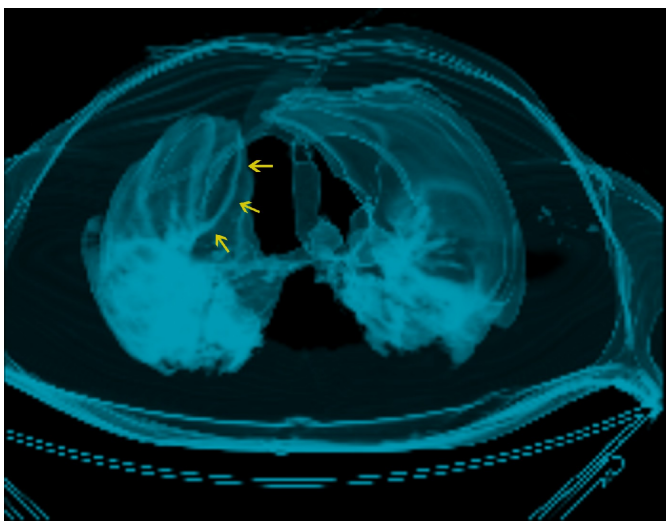


Fig 3. 3D CT reconstruction of the lung parenchyma with the suspected route of penetration of the nasogastric tube.

Pneumonia caused by instillation of drugs or a pneumothorax or a mediastinitis may precipitate a clinical situation already basically compromised.

Conclusion

In critically ill patients and all cases of neurological or mental deficits the classical criteria for assessing the correct position of a nasogastric tube can not be considered reliable because air bubbling sounds can be transmitted from below the diaphragm and any aspirated fluids may come from the pleural cavity or bronchial tree. In most cases a control with chest X-ray is required and in the event of malpositioning, we recommend to perform a thorax CT scan, before removing the tube, to be sure about its real precise position. Either esophageal or lung perforation, which may lead to mediastinitis or pneumothorax or pleuro-pneumonia, are two complications that deserve very specific attention.

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Disclosure Statement

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