

Multiple drugs

Lack of efficacy, intestinal ileus. and tracheoesophageal fistula due to off-label use: case report

A woman [exact age not stated] developed intestinal ileus following treatment with fentanyl for sedation, and exhibited failure of sedative therapy with midazolam, fentanyl and propofol. Additionally, she developed tracheoesophageal fistula (TEF) following off-label treatment with dexamethasone for COVID-19 pneumonia during the third trimester of pregnancy [dosages, routes and time to reaction onsets not stated; not all outcomes stated].

The woman was hospitalised with intermittent fever of one week along with a non-productive cough, diarrhoea, malaise and dyspnoea. She was a non-alcoholic and non-smoker, and reported no food and drug allergies. After detailed investigations, a diagnosis of COVID-19 pneumonia was made. It was noted that she was 36 weeks pregnant at that time. Initially, she was treated for community-acquired pneumonia and COVID-19 pneumonia. She started receiving off-label treatment with azithromycin, piperacillin/tazobactam and dexamethasone along with remdesivir for a total of 10 days. She then developed acute respiratory distress syndrome and was intubated. Three days later, she underwent an emergency caesarean section due to non-reassuring fetal status. The baby was negative for COVID-19, and was isolated from the mother [neonate's details not stated]. During the following 5 weeks, she was treated for repeated episodes of ventilator-associated pneumonia including *Acinetobacter baumannii* and *Burkholderia cepacia* pneumonia. She extubated herself for eight times after agitation episodes in spite of sedation with midazolam. She was promptly intubated again due to desaturations and respiratory distress. She was also ventilated with a relatively low positive end-expiratory pressures. She had periods of agitation despite administration of midazolam, fentanyl and propofol drips for sedation (lack of efficacy). For assistance on sedation, she was referred to the anaesthesiology service. A marked dilatation of the trachea (probably due to hyperinflated endotracheal cuff) was noted on a chest X-ray at level of C7–T1 along with pneumothorax on the right hemithorax. The cuff was slightly deflated, and she was referred to the thoracic and cardiovascular surgery service for evaluation of pneumothorax. A possible tracheomalacia or prestenotic tracheal dilatation secondary to prolonged intubation were considered. Due to small volume of pneumothorax, surgical intervention was not required, and she was monitored closely. Further investigations revealed an intestinal ileus, which was attributed to the fentanyl use. On day 42 of the intubation, she was presented to the general surgery service for tracheostomy. A possible tracheal rupture was suspected after reviewing her chest HRCT. The ET cuff was deflated slightly, and an emergency neck CT scan was performed. During the procedure, she developed sudden desaturations and hypotension. A new-onset pneumothorax on the left and a TEF at the proximal trachea measuring 1.4cm in length and 1.5cm in diameter was noted in the scan. The TEF was attributed to her dexamethasone treatment. The sudden hypotension was due to the tension pneumothorax, and needling was attempted. However, there was a difficulty in inserting the cannula.

The woman underwent an emergency chest tube thoracotomy on the left hemithorax. An X-ray revealed cystic dilatation representing the ET cuff. She had persistent alveolointerstitial opacities throughout both lungs with a peripheral predominance. A small volume pneumothorax was also noted. She was managed conservatively. Further findings suggested a paraseptal emphysema with cystic and tubular bronchiectatic changes. An emergency neck CT scan revealed a defect in the posterior tracheal wall and/or anterior oesophagus was seen, measuring 1.5 × 1.4cm along with a new pneumothorax on the left upper hemithorax accompanying compression atelectasis of the left upper lobe. She underwent an intraoperative bronchoscopy followed by tracheostomy. The TEF was confirmed via bronchoscopy, locating at the proximal trachea, distal to the tip of the endotracheal tube. The tracheostomy tube was strategically inserted. Her proximal trachea was easily collapsible and severely inflamed. A simultaneous tube jejunostomy was performed to facilitate eventual feeding. Following this, definitive TEF repair was scheduled. She tolerated the procedure well with minimum intraoperative blood loss. She was kept on diet progression via tube jejunostomy. Due to recurrent bacterial pneumonia and advanced lung fibrosis from COVID-19, it was difficult to remove her from ventilation. Eventually, she developed several episodes of nosocomial pneumonia along with gram-positive bacteraemia and sepsis, and she died after a total of 53 days of the intubation.