

Tension pneumoperitoneum a complication of emergent intubation

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Case Presentation

A 76 year old female presented to the Emergency Department in Respiratory Distress. Per reported history, she experienced 3 days of cough and chest congestion at her assisted care facility. On the morning prior to arrival, she was found in her residence air hungry and with audible stridor. EMS was called immediately; she was found by medics in a tripod position and with oxygen saturations of 80%. She improved with supplemental oxygen and was transported to the Emergency Department in an upright, sitting, tripod position.

At time of arrival to the Emergency Department, the patient was demonstrating labored breathing with audible stridor. She was diaphoretic and remained in a tripod position. Her temperature was 101.2, HR 119, BP 170/78,)2 92% with 10L face mask oxygen. No code statues was available per EMR review. A call to her daughter (medical POA) resulted in authorization to intubate, short term, in an attempt to identify and treat the presenting source of stridor and airway failure.

Rapid sequence Intubation (RSI) was chosen as the safest and most reliable way of securing a definitive airway. Adjunct airway equipment was carefully chosen and placed at the bedside to include bougie, iGel supraglottic airway, and surgical cricothyrotomy kit. The patient was placed on full monitors, oximetry, and end-tidal CO₂. The patient was induced and paralyzed. An initial attempt to secure the airway demonstrated diffusely edematous and friable respiratory mucosa and no identifiable airway landmarks. Oxygen saturations declined precipitously requiring removal of a #3 CMAC blade and bag-valve-mask ventilation. During BVM, her abdomen was observed to rapidly distend and expand. Oxygen saturations improved and the patient was ultimately intubated. Oxygen saturations stabilized and she was placed on a ventilator.

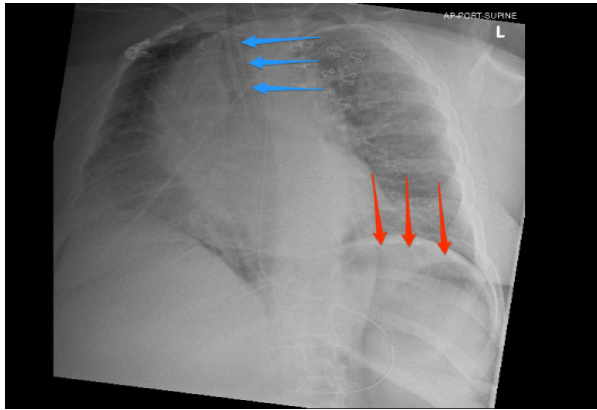


Figure 1: A post-intubation CXR is notable for a rotated study. An ETT has been placed in the trachea denoted by the blue arrows. Increased lucency over the left upper quadrant, noted by red arrows, was noted by the interpreting Radiologist.

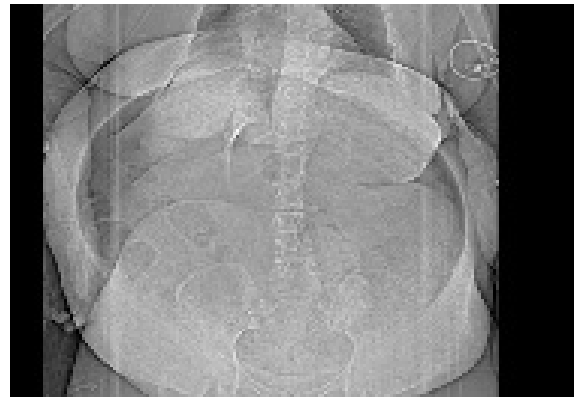


Figure 2: CT scout image notable for a rounded lucency consistent with marked free air and distension.



Figure 3: CT axial image demonstrating marked peritoneal free air with compression of abdominal contents.

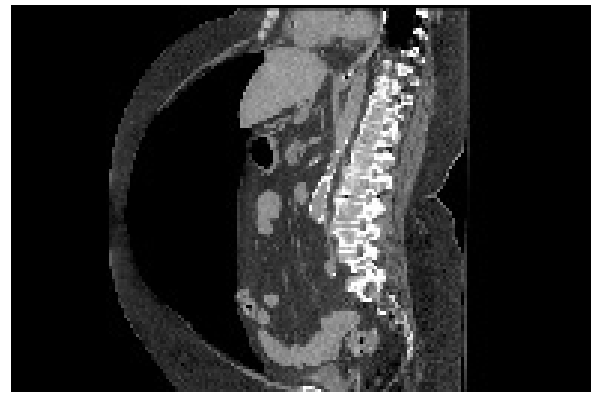


Figure 4: CT lateral image of marked peritoneal free air with compression of abdominal contents.

Discussion

Tension pneumoperitoneum is a life threatening and infrequent complication of emergency airway management. The most frequent, albeit rare, etiologies include CPR, barotrauma, aggressive mouth to mouth ventilation, bag-valve-mask ventilation, or inadvertent esophageal intubation leading to gastric rupture. In the case of tension pneumoperitoneum, hemodynamic instability should prompt immediate consideration of large bore needle decompression. Surgical consultation is indicated in anticipation of operative exploration and repair.

Resolution

Tension pneumoperitoneum was immediately recognized as a likely complication of airway management. Patient care was expedited to radiology for diagnostic CT imaging. Upon return from imaging, tension pneumoperitoneum was confirmed and General Surgery was consulted. The patient became increasingly hemodynamically stable. The tension pneumoperitoneum was successfully decompressed with a 14 gauge placed 2 finger breadths above the umbilicus. Hemodynamics improved. Upon family consultation and discussion of management options, the patient was compassionately extubated and placed on comfort cares.

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