

COMPLICATIONS IN AN ASYMPTOMATIC COVID-POSITIVE PATIENT UNDERGOING EMERGENCY PROCEDURE UNDER GENERAL ANESTHESIA

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Introduction

- It is to be expected that COVID-positive patients will have pulmonary damage that will be appreciated on imaging¹
- Common findings include consolidation and ground-glass opacities, with bilateral, peripheral, and lower lung zone distributions¹
- In contrast, the clinical features and residual symptoms of asymptomatic COVID-positive patients have not been very well described¹

Transmission

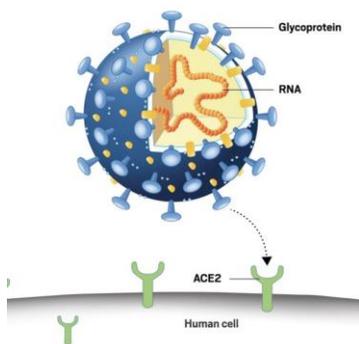


Figure 1: Mechanism of COVID-19 invasion of cells

- The SARS-CoV2 virus is transmitted via respiratory droplets from person to person²
- Mechanism: Glycoprotein on the virus binds to ACE-2 receptors on the host cell → Virus invades Type II pulmonary alveolar epithelial cells via ACE-2 → cytokine storm → hyaline membrane changes and microvessel thrombosis → ARDS²

Case Description

- 54-year-old obese male with no significant past medical history presented to the emergency department with a left ureteral stone requiring ureteroscopy
- Anesthetic Plan: General anesthesia with laryngeal mask airway
- Intraoperative Complications: desaturated with LMA placement, tachypneic, high peak pressures, low tidal volumes. Assumed incorrect LMA size and was exchanged for larger LMA during procedure
- Management: Patient required oxygen supplementation with a nonrebreather on emergence. In PACU patient was given bilevel positive airway pressure (BiPAP) and his oxygen saturation improved

Postoperative Workup

- Differential Diagnosis: aspiration pneumonia vs. COVID pneumonia
- Testing: COVID test was positive.
- Patient revealed he had tested positive for COVID 26 days prior to procedure and had since clinically recovered
- During infection he experienced only anosmia and loss of taste



Figure 2: Chest X-ray of patient after extubation

- Treatment: After 45-60 minutes of BiPAP patient returned to non-labored spontaneous breathing with adequate oxygen saturation

Discussion

- 50% of COVID-positive patients have experienced pulmonary complications³
 - Risk is increased in patients undergoing general anesthesia due to heightened inflammatory and immunosuppressive responses to surgery and mechanical ventilation³
- Although this patient did not endorse pulmonary symptoms related to his initial COVID infection, it is suspected he had residual lung compromise which was exacerbated under general anesthesia⁴
- General anesthesia commonly causes atelectasis, airway collapse in dependent areas of the lung, and reduced functional residual capacity
- These factors will put greater strain on already compromised lung tissue

Conclusion

- American Society of Anesthesiologists recommend delaying elective surgical procedures four weeks for an asymptomatic patient or recovery from only mild, non-respiratory symptoms⁵
- It remains imperative to obtain a full patient history including results of previous COVID tests even if the patient was asymptomatic or has since fully recovered
- Knowledge of this patient's history of positive test would have changed the anesthetic plan to consider endotracheal intubation to allow for better ventilation control and airway protection

References:

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