

Organizing Pneumonia from Inhalational Injury

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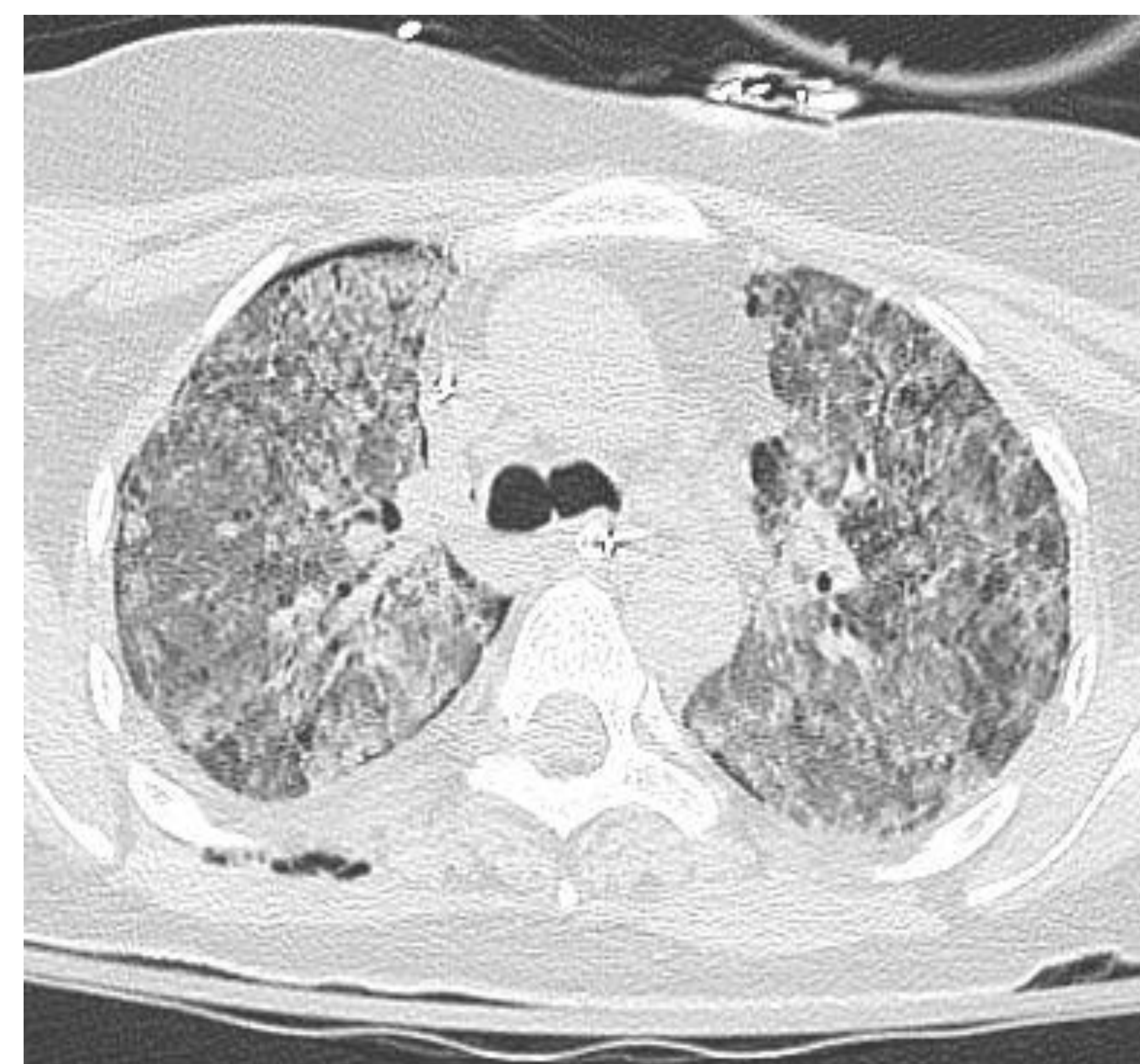
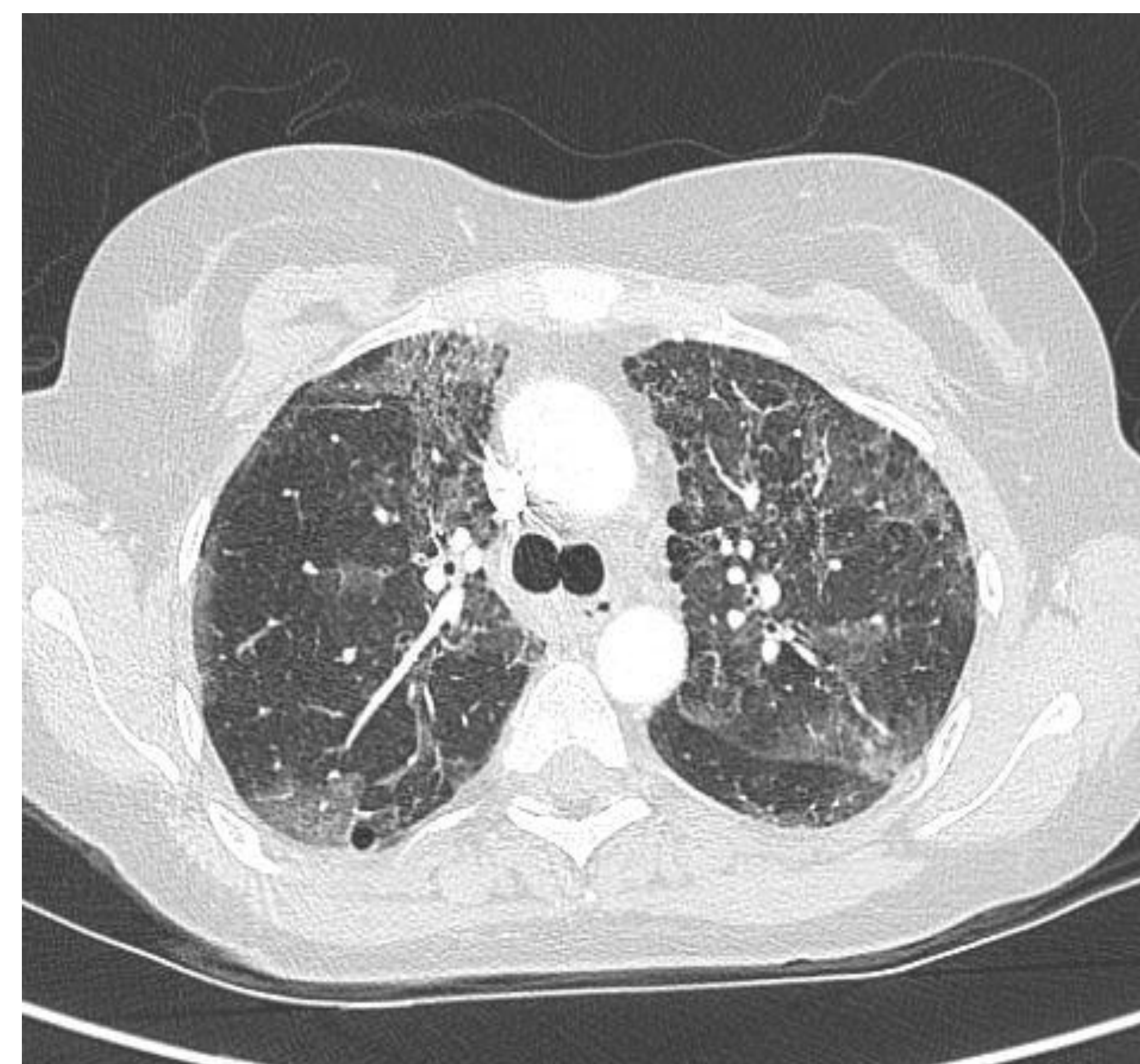
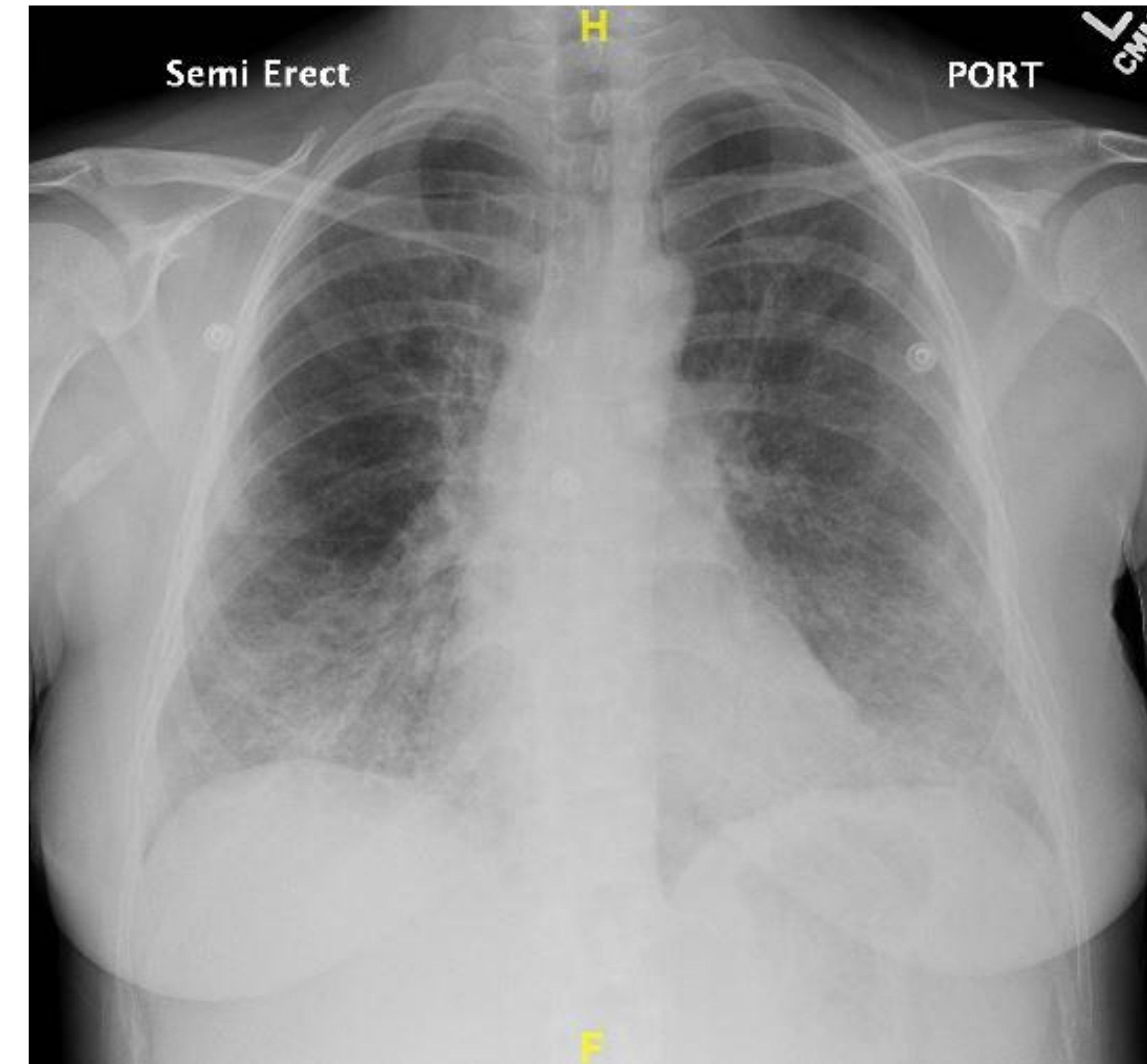
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Introduction

- Organizing Pneumonia is a type of Interstitial Lung Disease with a wide-range of etiologies, a peculiar subacute presentation, diagnosis requiring histopathological confirmation and a clinical course that is usually unremarkable with medical management.
- Out of the many etiologies, vaping and cocaine use can also be the culprits and generally avoidance with medical management of the condition carries a good prognosis.
- However in certain cases, like the one described here, the disease can be refractory to medical management and can quickly progress to mortality.

Case Presentation

- A 39 year old female with no known medical history and a 10 year history of vaping and occasional cocaine use presented with subacute onset of shortness of breath over the past 2 months. Reportedly, her symptoms initially included dyspnea on exertion but then progressed to fatigue, chills and worsening dyspnea at rest. On arrival to the ED and subsequent hospitalization, she became O2 dependent to maintain SaO2 >92%.
- Based on initial imaging (Chest XR and CT Chest in fig 1&2) a tentative diagnosis of a parenchymal lung disease was made.
- Bronchoscopy with BAL was done showing elevated leukocytes.
- Surgical biopsy was then performed and intraoperatively, significant friability of lung tissue was noted and the patient had prolonged postoperative intubation with subsequent extubation. Tissue biopsy showed 'organizing pneumonia' and treatment with high-dose steroids was initiated.
- Despite optimal dosing, the patient's clinical condition continued to deteriorate and she was intubated and mechanically ventilated again.
- A trial of mycophenolate was also given with no significant improvement. Her P/F ratios continued to decline with a sharp increase in peak and plateau pressures. A repeat CT chest (as shown in figure 3) showed diffuse bilateral fibrosis. Based on the patient's ineligibility of getting a lung transplant and personal preferences, a decision was made to consider terminal extubation which was also in-line with family wishes in light of her prognosis.



Discussion

- Through our case, we aim to shed light on two important facts associated with Organizing Pneumonia. Firstly, Vaping and cocaine use are among the etiologies of OP and prolonged inhalation injury from them can trigger a severe inflammation [1] Secondly, OP can sometimes be refractory to medical therapy and lead to a severe ARDS which can be life-threatening as in our case. [2]
- OP is usually considered a feature of lung remodeling secondary to an injury but in our case it appeared to be a marker of a severe progressive and medically-refractory disease.
- Growing literature on Vaping induced lung injury over the recent years has indicated towards inflammatory processes and structural damage to the lungs that may not be completely reversible and more knowledge of the exact mechanism of injury and pathways to target in treatment are urgently required [1]

Conclusion

- Organizing Pneumonia(OP) is a collective entity with different etiologies but similar presentations, histopathology and progression. We present a case of a 39 year old female with a 10 year history of polysubstance abuse and inhalational injury (including cocaine use and vaping) who presented with subacute onset of shortness of breath which progressed to significant distress at rest and oxygen dependency over the course of 2 months.
- Based on imaging and surgical biopsy, the patient was found to have organizing pneumonia secondary to inhalation injury. Optimal therapy was initiated but despite high-dose steroids and mycophenolate therapy trial, the patient's condition deteriorated into severe ARDS.
- Patient eventually ended up with a severely fibrotic lung progressing to ventilator dependency and mortality. This was a case of fast deteriorating lung injury in which a generally reversible process became a life-threatening severe ARDS.

References

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