



# Methotrexate Pneumonitis: A Diagnostic Approach

CPT Ketan Mehta DO, LTC (ret) Herbert Kwon MD

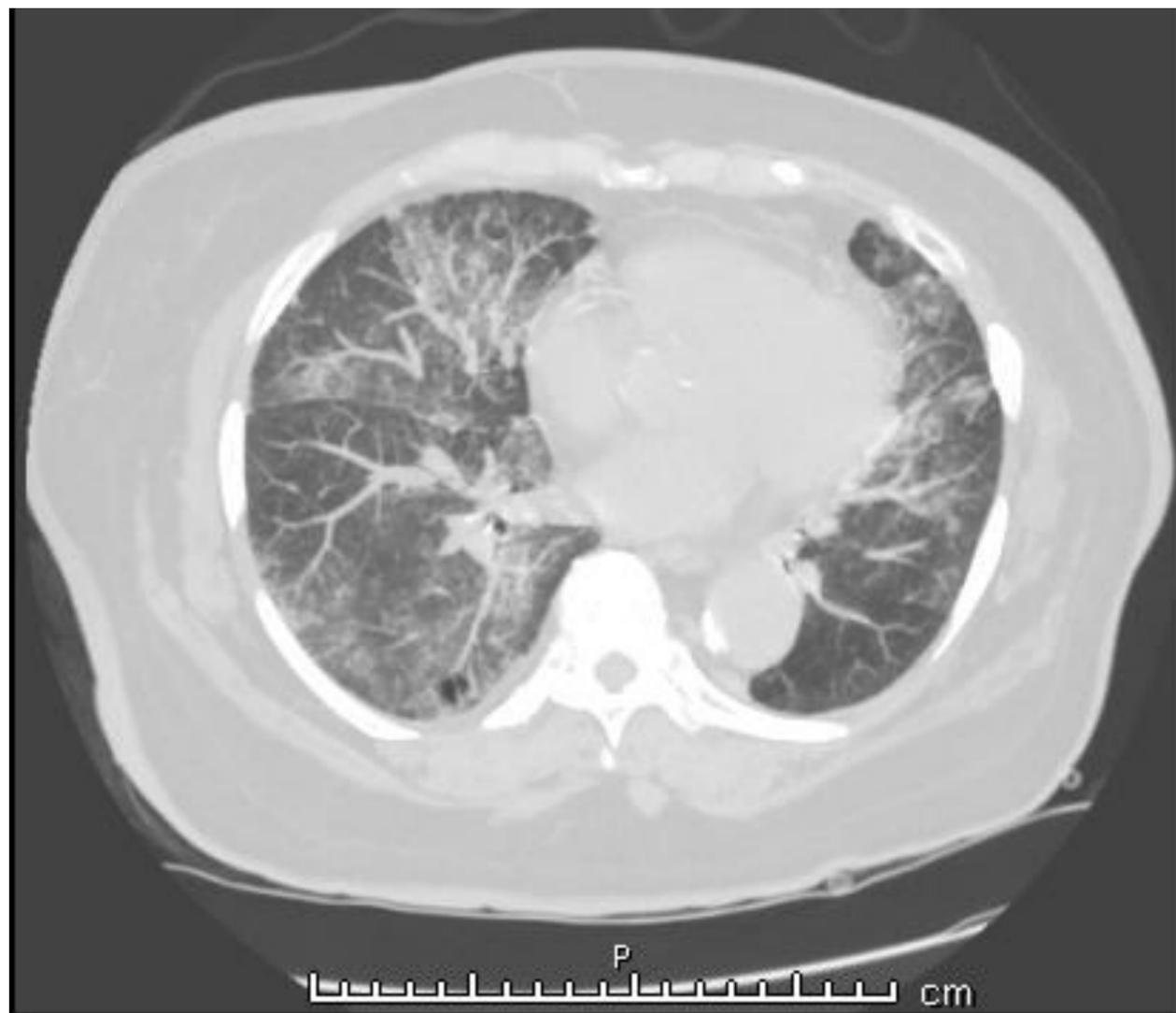


## INTRODUCTION

- Early recognition of methotrexate (MTX) pneumonitis using set diagnostic criteria may help avoid the unpredictable and sometimes fatal adverse effects of MTX.

## CASE

- 79 year old female with history of chronic obstructive pulmonary disease, chronic kidney disease stage 4, and rheumatoid arthritis
- **Presentation:** 2 weeks of dyspnea, chills, nonproductive cough, and anorexia
- **Medications:** MTX and hydroxychloroquine for 1 year
- **Exam:** Afebrile, hemodynamically stable, oxygen saturation 100%. Mild distress, bilateral upper expiratory wheeze
- **Labs:** Basic metabolic panel notable for baseline creatinine of 1.94 mg/dL.
- **Chest X-Ray:** multifocal peribronchial thickening
- **Overnight:** patient became hypoxic, requiring 4L nasal cannula to maintain oxygen saturation above 92%.



**Figure 1:** High resolution computed tomography (HRCT) obtained on hospital day 2 for concern of pneumonitis, revealing diffuse ground glass opacification, interstitial reticular opacification, and peribronchial cuffing with mild centrilobular emphysematous changes and mild traction bronchiectasis concerning for MTX pneumonitis.

## DIAGNOSTIC CRITERIA

### Major criteria:

- Hypersensitivity pneumonitis by histopathology without evidence of pathogenic organisms
- Evidence of diffuse pulmonary ground glass or consolidative opacities
- Blood cultures and sputum cultures that are negative for pathogenic organisms.

### Minor criteria:

- Shortness of breath for less than 8 weeks
- Nonproductive cough
- Oxygen saturation  $\leq 90$  percent on room air at the time of initial evaluation
- DLCO  $\leq 70$  percent of predicted for age
- Leukocyte count  $\leq 15,000$  cells/mm<sup>3</sup>

**“Definite” Condition:** major criteria 1 or 2 and major criterion 3 are present with at least three minor criteria.

**“Probable” condition:** major criteria 2 and 3 plus two minor criteria are present.

## CONCLUSION

This patient met the “definite” condition. MTX pneumonitis usually occurs weeks to months after initiation. Glucocorticoids may accelerate recovery, though evidence is limited to case reports. MTX was stopped; high dose steroids were initiated with rapid resolution of symptoms. Full recovery is anticipated.

