

Atypical Legionella pneumonia in Geriatric Practice: Diagnostic complexity and domestic hot tub as source of infection

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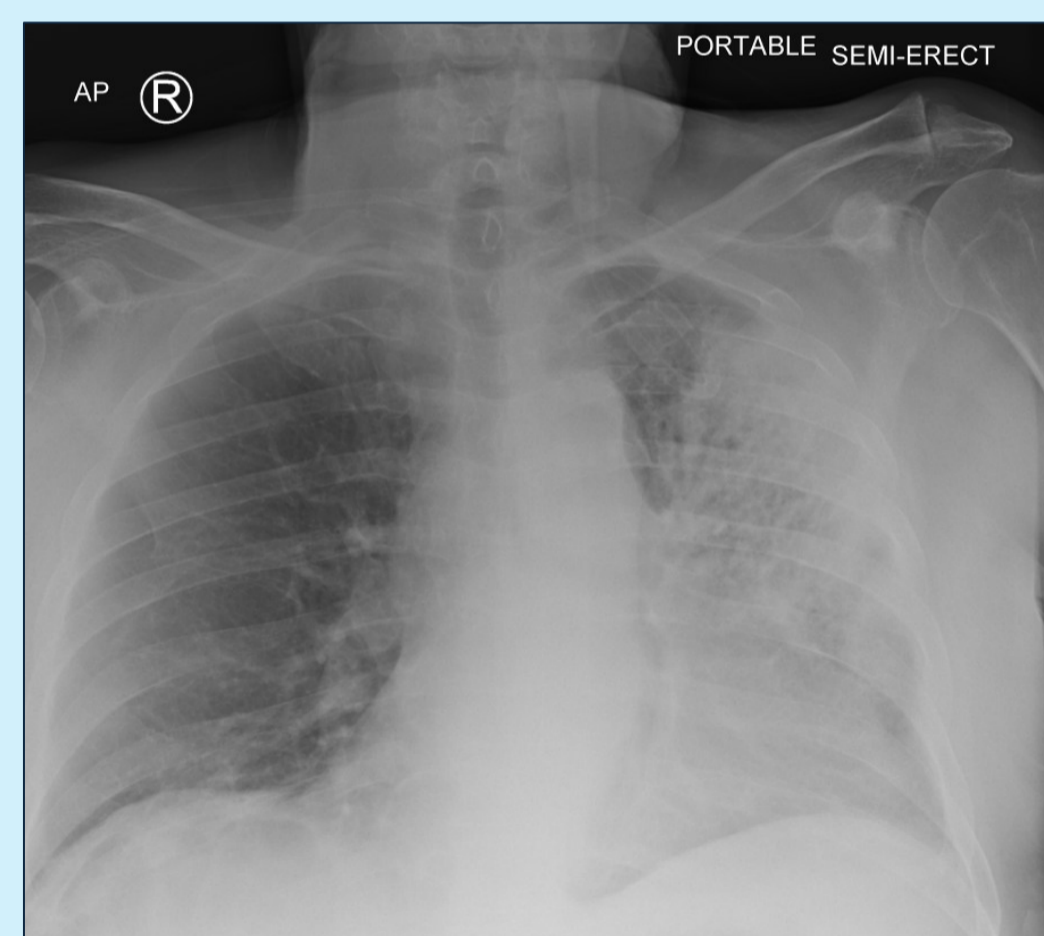
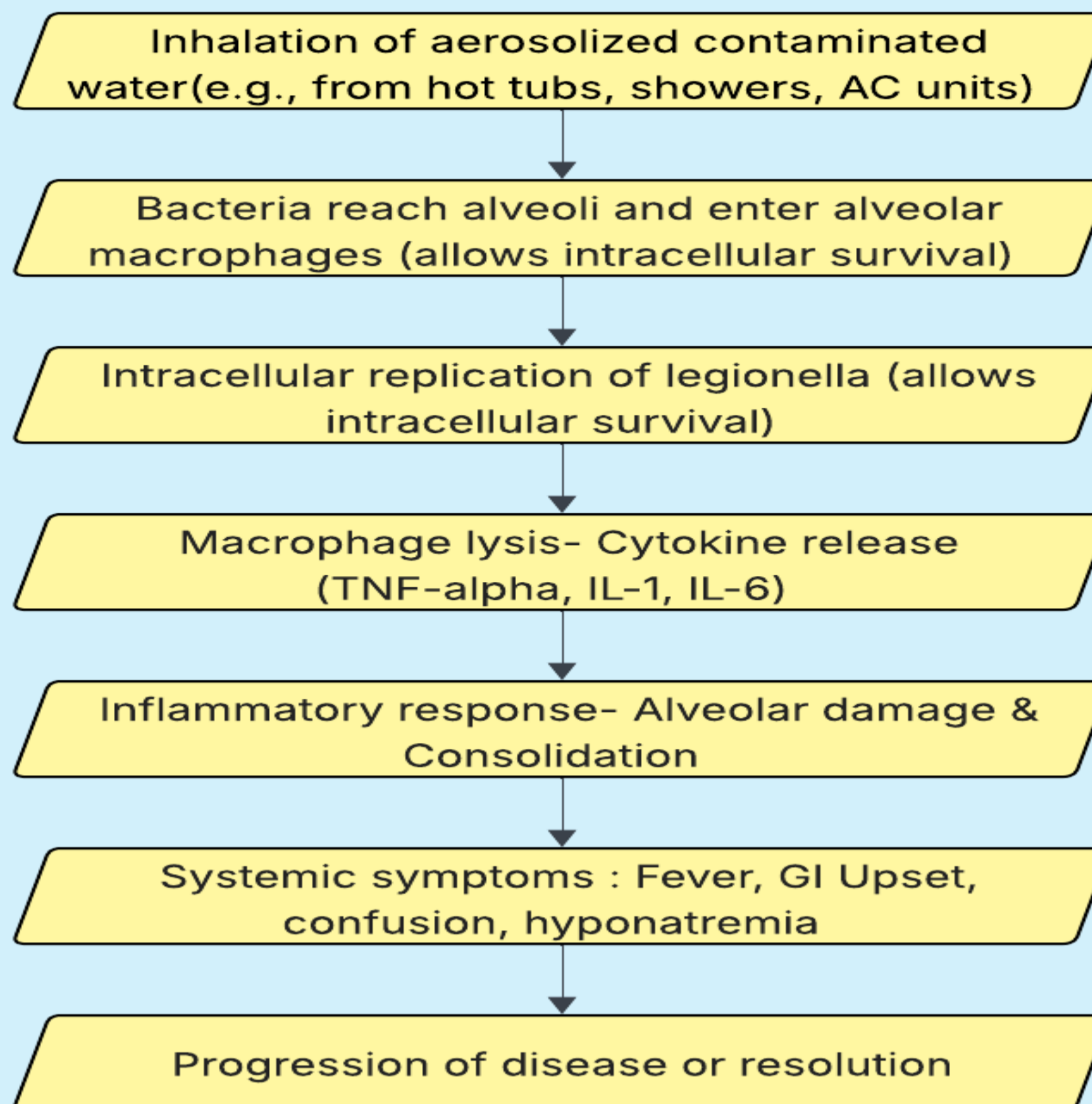
Background

Legionnaires' disease, a form of atypical pneumonia caused by *Legionella pneumophila*, can present without respiratory symptoms, particularly in elderly patients with multiple comorbidities. While commonly associated with contaminated water sources and travel-related exposure, community-acquired cases without typical respiratory symptoms can be easily overlooked. Early recognition and targeted therapy are crucial to reduce morbidity and mortality.

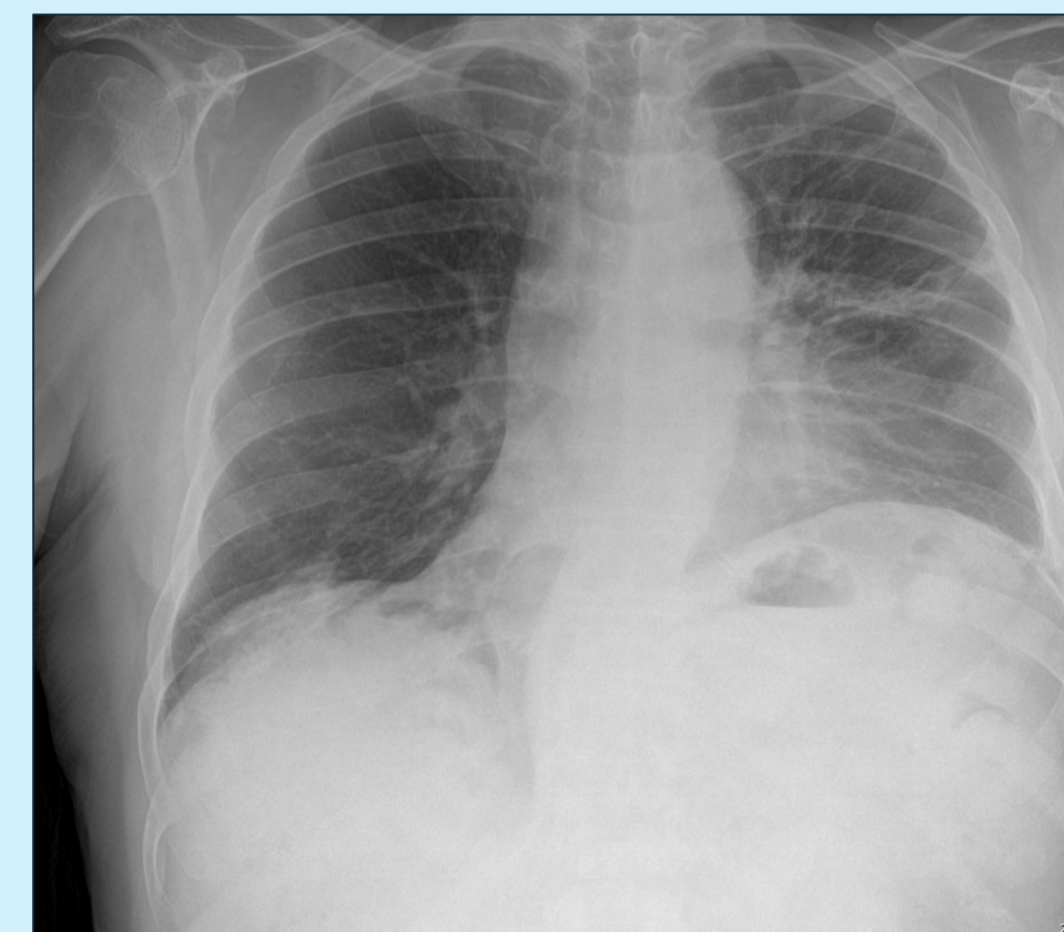
Case Presentation

A 78-year-old male, ex-smoker, with known COPD, Chronic kidney Disease, non-alcoholic fatty liver disease and hypertension presented with fever, confusion, diarrhea, vomiting, and headache, but no cough, chest pain, or dyspnea. His atypical presentation prompted a broad initial workup. On admission, he was febrile, disoriented, and hemodynamically stable. His CURB-65 score was 3, indicating a high risk of mortality from pneumonia. A 4AT score of 6 suggested delirium, consistent with his acute confusion

Pathophysiology of Legionnaires' Disease



Initial X-Ray



Follow-up X-Ray

Objective

To highlight the diagnostic challenges of legionella in elderly patients and underscore the importance of domestic environmental exposure history, especially domestic hot tub use.

Investigation & Management

- Blood tests showed leukocytosis (WCC $13.4 \times 10^9/L$) and a markedly raised CRP (349 mg/L).
- Blood cultures remained negative. Chest X-ray revealed extensive left upper lobe consolidation and right lower lobe involvement.
- Initial management included IV piperacillin-tazobactam for presumed sepsis.
- Upon radiological findings, empirical amoxicillin and clarithromycin were commenced for CAP.
- A positive *Legionella* urinary antigen test and confirmatory PCR for *Legionella pneumophila* serogroup 1 prompted a switch to oral levofloxacin, completed over 10 days.
- The patient made a full recovery and was discharged with plans for follow-up imaging in six weeks.

Conclusion

This case underscores the importance of suspecting Legionnaires' disease in elderly patients with systemic symptoms and radiographic pneumonia—even in the absence of respiratory complaints. A high index of suspicion, combined with rapid diagnostic tools, can guide targeted therapy. Notably, the source was traced to a home hot tub—highlighting how domestic exposures, not just travel, can be culprits in atypical pneumonia. As a notifiable disease, this case was reported to public health authorities to support surveillance and prevention efforts.