Recurrent Pneumonia in an Adolescent With Down Syndrome: The Cumulative Impact of Common Coexisting Comorbidities

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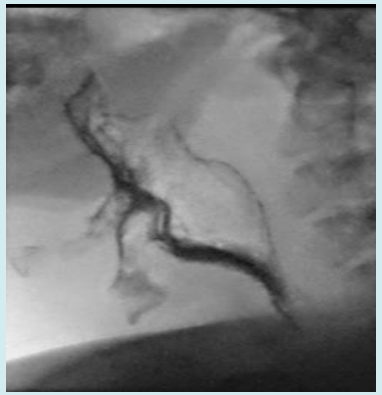
INTRODUCTION

- Down syndrome increases the risk of recurrent respiratory disease due to:
  - immune dysfunction
  - airway abnormalities
  - sleep-disordered breathing
- These conditions frequently coexist and interact, rather than occur in isolation
- Persistent respiratory symptoms should not be attributed to a single cause
- Lack of improvement despite targeted therapy should prompt evaluation for additional diagnoses beyond Down syndrome

CASE REPORT

- 17-year-old male with trisomy 21
- Referred at age 14 for recurrent pneumonias since infancy, more than 2 episodes per year
- Multiple hospitalizations and ICU admissions. Near need for ECMO
- Frequent ED visits: cough, fever, and hypoxemia



- Age 1-10: •Recurrent pneumonia RUL 2 per year
- 10 yo: •Severe pneumonia •ICU admission
- 14 yo: •Severe pneumonia •ICU admission
- 15 yo: •Dx Common Variable Immunodeficiency
- 16 yo: •Pneumonia •Dx Laryngeal cleft
- 17 yo: •No more pneumonia •Significant aspiration reduction

Weekly SC Immunoglobin

Prolaryn injection

DISCUSSION

-Immune dysregulation is common in Down syndrome, characterized by impaired antibody responses, altered B-cell function, and frequent IgG2 deficiency.

-Laryngeal cleft: ~1:10,000–20,000 births

Higher prevalence in Down syndrome: ~6% on endoscopy airway evaluation

Associated risks: Feeding difficulty, aspiration, recurrent respiratory infections

Clinical clue: Consider in persistent aspiration or recurrent pneumonia, especially if symptoms continue despite feeding therapy

CONCLUSION

- **Multiple coexisting conditions synergistically worsen pulmonary disease** in Down syndrome.
- **Avoid diagnostic anchoring.**
- Maintain **high suspicion for multiple etiologies** when symptoms persist despite targeted treatment