

Refractory Asthma-Like Dyspnea Due to Diaphragmatic and Thoracic Somatic Dysfunction: A Case Report

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Introduction

- Asthma affects approximately 24 million people in the United States and is characterized by chronic airway inflammation and airway hyperresponsiveness, commonly presenting with wheezing, dyspnea, cough, and chest tightness.^{1,2}
- Standard management follows a stepwise pharmacologic approach using inhaled bronchodilators and inhaled corticosteroids, with escalation to additional controller therapies or biologics in refractory cases.³⁻⁵
- Despite appropriate treatment, some patients continue to have difficult-to-treat or uncontrolled asthma-like symptoms, increasing the risk of limited therapeutic benefit and medication-related adverse effects.^{6,7}
- Persistent dyspnea and wheezing should prompt consideration of alternative or contributing diagnoses, including vocal cord dysfunction, cardiac disease, anxiety, and musculoskeletal or diaphragmatic dysfunction.⁸⁻¹¹
- The diaphragm is the primary muscle of respiration, and impaired diaphragmatic excursion or thoracic/rib cage restriction may disrupt respiratory mechanics and mimic asthma symptoms.^{12,13}
- Osteopathic manipulative treatment is a low-risk adjunctive approach that may improve rib motion, diaphragmatic function, and breathing mechanics in selected patients with refractory asthma-like dyspnea.^{14,15}
- This case highlights a patient with chronic asthma-like symptoms whose dyspnea appeared to be driven largely by diaphragmatic and thoracic somatic dysfunction rather than isolated airway disease.

Relevance of Osteopathic Medicine

- Highlights the osteopathic focus on structure–function relationships in respiratory mechanics.
- Demonstrates how somatic dysfunction of the ribs, thoracic spine, and diaphragm can mimic or exacerbate asthma-like dyspnea.
- Illustrates the potential of OMT as a low-risk adjunct to improve breathing mechanics in refractory asthma-like cases.

References

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Case Report

Case Presentation

- 40-year-old woman with longstanding asthma-like symptoms
- Persistent dyspnea and wheezing despite high-dose ICS/LABA
- Frequent albuterol use (3–4× daily)
- Symptoms worsened after COVID-19 infection (3 years prior)
- History of prolonged steroid use and prior biologic therapy without adequate control

Exam Findings

- Mild tachycardia, O₂ sat 95% RA
- Diffuse inspiratory and expiratory wheezing
- Key OMT findings:
 - Restricted thoracic motion
 - Elevated first rib
 - Diaphragmatic restriction
 - Sacral and pelvic dysfunction

Intervention

- OMT targeting respiratory mechanics:
 - Rib raising
 - Thoracic inlet release
 - Diaphragmatic treatment
 - Lymphatic techniques

Outcomes

- **Immediate:**
 - Improved depth of breathing
 - Better air movement
 - O₂ sat ↑ to 96%
- **2-week follow-up:**
 - Marked symptom improvement
 - Reduced inhaler use (≤1× daily)
 - Improved exercise tolerance
 - Clear lung exam, O₂ sat 97%

Discussion

Refractory Asthma Like Symptoms

- Asthma is commonly misdiagnosed, with up to one-third of cases overdiagnosed.¹⁶⁻¹⁸
- Persistent symptoms should prompt evaluation for alternative causes, including:¹⁸⁻²⁰
 - GERD, vocal cord dysfunction
 - Cardiac or lower respiratory conditions
 - Impaired respiratory mechanics (e.g., diaphragmatic dysfunction)
- Although inhaled corticosteroids (ICS) are first-line therapy, prolonged use carries risks (osteoporosis, metabolic effects) and may not relieve symptoms in all patients.²¹
- This case highlights the importance of reassessing diagnosis and considering non-airway contributors in patients with refractory symptoms.

Diaphragmatic & Thoracic Dysfunction

- The diaphragm is the primary muscle of respiration; dysfunction can impair ventilation and mimic asthma symptoms (dyspnea, wheezing).^{22,23}
- Restricted rib and thoracic motion further disrupt respiratory mechanics and lymphatic flow.^{22,23}
- These biomechanical issues may be missed on routine evaluation, leading to persistent symptoms despite medical therapy.²⁴⁻²⁷
- In this case, OMT targeting rib cage and diaphragmatic dysfunction led to:
 - Improved breathing mechanics
 - Reduced inhaler use
 - Decreased medication side effects
- Suggests OMT may serve as a non-invasive, adjunctive approach for refractory respiratory symptom

OMT & Clinical Implications

- Standard asthma management relies on pharmacologic therapy, but some patients remain symptomatic.
- OMT techniques (rib raising, thoracic inlet release, diaphragmatic and lymphatic treatments)²⁹⁻³⁵ aim to:
 - Improve rib mobility and ventilation
 - Enhance lymphatic drainage
 - Modulate autonomic balance
- Prior studies show OMT can improve respiratory function and patient outcomes.
- This case supports:
 - Considering OMT as an adjunct therapy in refractory asthma
 - Evaluating somatic dysfunction as a contributor to persistent symptoms

Limitations and Future Directions

In conclusion, OMT may be an effective treatment for patients with asthma-like symptoms refractory to traditional pharmaceutical therapy.

This case is limited by its single patient design and lack of objective pulmonary function testing. Future studies should evaluate OMT in larger populations using objective measures and standardized protocols to better define its role in refractory asthma like symptoms