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**| RESEARCH ARTICLE**

# A Rare Chest Presentation of Inflammatory Bowel Disease: Spontaneous Pneumomediastinum in Crohn's Disease

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**| ABSTRACT**

We report the case of a 46-year-old man with long-standing Crohn's disease who presented with acute central chest discomfort and dyspnea, following an episode of forceful vomiting. His gastrointestinal symptoms had been mild and self-managed, with no prior history of fistulizing disease. Physical examination revealed mild central chest tenderness and shallow breathing without overt respiratory distress. Initial chest radiography demonstrated mediastinal air consistent with pneumomediastinum. Subsequent contrast-enhanced CT scans of the chest, abdomen, and pelvis revealed free air tracking from a thickened terminal ileal segment through the retroperitoneum into the posterior mediastinum, suggesting a contained microperforation with a developing fistula. Laboratory workup showed mild elevation of inflammatory markers, with otherwise stable hematologic and metabolic parameters. The patient was admitted for conservative management, including supplemental oxygen, bowel rest, intravenous fluids, analgesia, and targeted antibiotics. Serial imaging and clinical monitoring demonstrated gradual resolution of mediastinal air without progression to pneumothorax or abscess. Gastroenterology follow-up focused on optimization of Crohn's therapy to prevent recurrence. This case underscores the rare but clinically significant occurrence of pneumomediastinum secondary to fistulizing Crohn's disease. Early recognition through imaging, careful monitoring, and multidisciplinary management allowed for a favorable outcome. Awareness of subtle respiratory manifestations in Crohn's disease is essential to prevent misdiagnosis and guide appropriate care.

**| KEYWORDS**

Crohn's disease, Ulcerative colitis, Inflammatory bowel disease, Spontaneous pneumomediastinum, Dyspnea, Shortness of breath.

**| ARTICLE INFORMATION**

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**Introduction**

Inflammatory bowel disease is recognized as a chronic group of conditions that affect the gastrointestinal tract, and Crohn disease represents one of its primary forms. The illness is marked by recurrent inflammation that can involve any part of the digestive tract, and its clinical course often includes periods of remission punctuated by acute flares. While the intestinal features of Crohn disease are well established, the illness has long been known to extend beyond the gut and to involve other organs, often in ways that complicate diagnosis and management [13]. These extraintestinal findings can arise from immune dysregulation, chronic inflammation, or shared pathogenic pathways, and they may appear at any stage of the disease. Their presence is increasingly recognized as an important aspect of the broader clinical picture, particularly as more attention is directed toward understanding the systemic nature of inflammatory bowel disease. Among the many extraintestinal manifestations of Crohn disease, those affecting the lungs are often overlooked. Pulmonary involvement is far less common than the intestinal features, yet it has been documented for several decades and can present with a broad range of clinical patterns [4]. The respiratory tract shares embryologic and immunologic characteristics with the gastrointestinal tract, and this shared background may contribute to the development of pulmonary findings in patients with inflammatory bowel disease [3]. Studies have shown that respiratory involvement can occur even when intestinal symptoms are mild or well controlled, and in some cases the pulmonary manifestations may be the first sign that the patient has an underlying inflammatory disorder [2]. These findings emphasize the importance of considering pulmonary complications in patients with Crohn disease, even when they present with symptoms that seem unrelated to the digestive tract. The spectrum of pulmonary disease in inflammatory bowel disease is wide. Patients may develop large airway inflammation, parenchymal disease, pleural involvement, or complications related to chronic immune activation [5]. Some presentations are subtle and may include persistent cough or mild shortness of breath, while others can be more striking. Case reports and clinical reviews have described bronchiectasis, organizing pneumonia, interstitial lung disease, and small airway disease in association with Crohn disease [2]. Although these findings are relatively uncommon, the potential severity of respiratory involvement makes it an important area of interest. Retrospective reviews of large patient cohorts have shown that respiratory symptoms may develop even in individuals without significant intestinal complaints, suggesting that the mechanisms driving pulmonary inflammation may be independent of intestinal disease activity in some cases [6]. Among the more unusual respiratory manifestations is spontaneous pneumomediastinum, which refers to the presence of free air within the mediastinum without a clear traumatic or iatrogenic cause. Spontaneous pneumomediastinum is rare in the general population and is usually associated with activities or conditions that increase intrathoracic pressure, such as asthma exacerbations, coughing spells, intense vomiting, or strenuous physical effort [14]. The sudden presence of air in the mediastinum can cause chest pain, breathlessness, neck swelling, or subcutaneous emphysema. Although the condition is often benign and self limited, it can be alarming to patients and clinicians alike because its symptoms mimic more serious cardiopulmonary problems. Understanding its causes and predisposing factors is important for distinguishing benign cases from those that require urgent intervention. In recent years, several reports have drawn attention to the association between inflammatory bowel disease and spontaneous pneumomediastinum. Although the mechanism is not fully understood, it has been suggested that chronic inflammation, microperforations, or increased intraluminal pressure during active intestinal disease may contribute to the leakage of air that eventually tracks into the mediastinum [9]. In some patients, coughing or vomiting during a flare may precipitate the event, while in others the pneumomediastinum may appear without an obvious trigger. Because the condition is so uncommon, its occurrence in patients with Crohn disease can be easily overlooked or misattributed to more common causes. However, awareness of this association has increased, with newer reports continuing to highlight it in both adult and young patients [1]. Pulmonary manifestations of inflammatory bowel disease have been described in case series, systematic reviews, and observational studies for many years. These sources collectively demonstrate that the lungs can be affected by immune mediated inflammation in ways that mirror or parallel intestinal disease [2]. The respiratory tract may respond to inflammatory bowel disease with mucosal ulceration, airway stenosis, or inflammatory infiltrates, and the resulting symptoms can range from mild to severe. While many patients present with respiratory complaints during periods of active intestinal inflammation, others may develop pulmonary symptoms even when the bowel is quiet. This variability contributes to the diagnostic challenge, and for clinicians who are not familiar with these associations, respiratory presentations may be mistaken for primary pulmonary disease, leading to delays in recognizing the link to Crohn disease. Systematic reviews examining the broader relationship between inflammatory bowel disease and pulmonary findings have found that the respiratory system is more frequently affected than once believed. These reviews note that subclinical pulmonary abnormalities may be present in a proportion of patients with no overt respiratory symptoms [3]. Studies have identified restrictive patterns, abnormal diffusion capacity, and airway inflammation in patients with inflammatory bowel disease, even when they have no respiratory complaints. These findings support the idea that inflammatory bowel disease exerts a systemic effect that extends beyond the gastrointestinal tract and that the lungs can be affected early in the disease course. Although many of these abnormalities remain subclinical, they highlight the need for a broader understanding of the disease spectrum. As clinical awareness of pulmonary manifestations increases, spontaneous pneumomediastinum has become a focus of growing interest. Several recent reports have documented its occurrence in patients with Crohn disease and have emphasized the importance of recognizing it as a potential extraintestinal complication [8]. These cases share certain common elements. Many patients are young, often presenting with sudden chest pain or shortness of breath. Imaging typically confirms the presence of mediastinal

air, and most patients recover with supportive care alone. What makes these reports significant is that in several instances the pneumomediastinum was one of the earliest or only indications that the patient was experiencing an inflammatory flare. This raises the possibility that spontaneous pneumomediastinum may be an underrecognized sign of active inflammatory bowel disease. Understanding the link between Crohn disease and spontaneous pneumomediastinum requires consideration of the underlying physiological processes. During active intestinal inflammation, the mucosal barrier can weaken, and transmural involvement may predispose the bowel to microperforations. When air escapes from the gastrointestinal tract, it can travel along fascial planes and enter the mediastinum [1]. In other cases, increased intrathoracic pressure from severe coughing, vomiting, or retching during a flare may contribute to alveolar rupture, allowing air to leak into the mediastinum [14]. These mechanisms reflect the complex interplay between intestinal disease activity and systemic effects, and they demonstrate how a condition primarily involving the digestive tract can produce unexpected pulmonary findings. The rarity of spontaneous pneumomediastinum in inflammatory bowel disease makes it important to document each case carefully. Case reports play a central role in expanding clinical understanding, and they allow clinicians to identify patterns that may not be apparent from isolated encounters. Through these reports, it has become clear that spontaneous pneumomediastinum in Crohn disease may occur in patients with a range of disease severities. Some have mild intestinal symptoms, while others experience significant flares. Some have recent medication changes or increased physical strain, while others develop pneumomediastinum without any clear provoking factor [9]. These wide ranging presentations highlight the need for a high index of suspicion when patients with known inflammatory bowel disease present with acute chest symptoms. A deeper appreciation of pulmonary manifestations in inflammatory bowel disease also encourages a more comprehensive approach to patient care. Reviews on the subject emphasize that respiratory involvement may occur at any stage of the illness and that clinicians should consider the possibility of lung disease even in patients who present with subtle or nonspecific symptoms [7]. Although many pulmonary problems associated with inflammatory bowel disease are benign or reversible, failing to recognize them can result in delays in appropriate management or unnecessary invasive testing. Early identification of the underlying mechanism can help avoid misdiagnosis and ensure that patients receive care that aligns with the true nature of their condition. Because inflammatory bowel disease is a systemic disorder, the presence of unusual respiratory findings should prompt clinicians to consider the broader disease context. For example, unexplained chest pain or breathlessness in a patient with Crohn disease may not always be due to primary cardiac or pulmonary pathology. The possibility of spontaneous pneumomediastinum, although rare, should be considered in the differential diagnosis. Awareness of this condition can help guide appropriate imaging, avoid unnecessary interventions, and ensure prompt supportive treatment [14]. Most patients recover well with rest, analgesia, and monitoring, although close observation is advised due to the potential for associated complications. As research continues to explore pulmonary involvement in inflammatory bowel disease, it is clear that the relationship between the gut and the lungs is more complex than once appreciated. The respiratory manifestations of Crohn disease can encompass a wide range of clinical features, and spontaneous pneumomediastinum represents one of the more striking examples of this systemic connection. Recognizing this possible association is critical, especially as clinicians encounter more patients with inflammatory bowel disease and as diagnostic tools continue to improve. Greater awareness of these manifestations can assist in earlier detection, more accurate diagnosis, and more appropriate management of patients who present with unusual respiratory symptoms during the course of their disease [12]. In summary, Crohn disease is a multifaceted condition capable of affecting many organ systems. Pulmonary involvement is an established, though often underrecognized, aspect of the illness. Spontaneous pneumomediastinum, although rare, represents an important and sometimes overlooked manifestation. Recent reports and reviews have highlighted its occurrence in patients with inflammatory bowel disease and have underscored the need for clinicians to maintain awareness of this possible presentation [1]. By understanding the broader systemic reach of Crohn disease and acknowledging the potential for respiratory complications, clinicians can provide more comprehensive care and more accurate diagnoses. Continued study of pulmonary manifestations, including spontaneous pneumomediastinum, will contribute to a deeper understanding of the systemic nature of inflammatory bowel disease and may help guide improved clinical decision making in the future.

## Case Presentation

### Patient's history and Physical Examination

This case concerns a forty-six-year-old man with a long-standing history of Crohn disease who presented with an acute onset of chest discomfort and difficulty taking deep breaths. His gastrointestinal symptoms had been fluctuating for about two weeks before this episode, with mild abdominal cramping, loose stools, and a general sense of fatigue that he felt was related to a possible flare. He had been managing these symptoms at home and continued to work, although he noticed that his energy levels were lower than usual. He did not seek medical attention initially because his abdominal symptoms were not severe enough to disrupt daily activities. On the morning of presentation, he experienced sudden central chest pressure soon after waking. He had vomited forcefully the night before, which he initially attributed to the abdominal cramping associated with his Crohn disease. When he woke, he felt an unusual tightness behind the sternum that did not improve with rest. He described the sensation as firm pressure rather than a stabbing pain. Speaking for long periods made the discomfort more noticeable, and taking a deep breath brought on a sense of stretching in the chest. He denied palpitations, dizziness, cough, fever, wheezing, or

hemoptysis. He had no difficulty swallowing and no sore throat. As the day progressed, he became more aware of shortness of breath during activities that he normally tolerated well. Walking from the parking lot to his office left him mildly breathless and climbing a single flight of stairs required him to pause midway. These limitations were entirely new to him. He denied any recent respiratory illnesses, no influenza like symptoms, and no exposure to sick contacts. He had not traveled recently and had not been around anyone with tuberculosis or severe respiratory infections. His past medical history was significant only for Crohn disease diagnosed in early adulthood. He had been treated with mesalamine and had previously required short steroid courses during flares but had never been on biologic therapy. He had not needed bowel surgery and had no history of fistulizing disease. He denied previous lung issues, including asthma, chronic bronchitis, or recurrent respiratory infections. He was a lifelong nonsmoker and had no history of vaping or illicit drug use. He drank alcohol rarely. His family history was unremarkable for inflammatory bowel disease or chronic lung disease. He worked in a finance related job and spent most of his time indoors. He denied exposure to dust, fumes, or chemical irritants. At home, there were no pets or environmental triggers. He maintained an active lifestyle, walking daily for exercise. He had not experienced any recent trauma or heavy lifting. When asked about stress or overexertion, he recalled only the episode of vomiting the previous night, which he suspected might have strained his chest muscles but did not think would fully explain his symptoms. By the time he presented for evaluation, he reported persistent moderate chest discomfort and a sense of inadequate expansion when he inhaled deeply. He denied panic or anxiety and described the sensation as purely physical. Because his symptoms were persistent and interfered with normal activities, he decided to seek medical attention. On examination, he appeared tired but was fully alert and cooperative. He sat comfortably but avoided taking large breaths. His vital signs were as follows: temperature 36.9°C, pulse 98 beats per minute, blood pressure 126 over 80 millimeters of mercury, respiratory rate 20 breaths per minute, and oxygen saturation 96 percent on room air. His body mass index was 24 kilograms per square meter. He was not in overt respiratory distress, and his speech was fluid without pauses for breath. Inspection of the chest showed normal movement with respiration. There was no visible swelling of the neck or upper chest. Palpation revealed no tenderness along the ribs or sternum other than mild diffuse discomfort over the central chest, which the patient described as the same sensation that prompted the visit. Cardiovascular examination revealed a regular rhythm with no murmurs. His pulses were strong bilaterally, and there was no peripheral edema. Pulmonary examination revealed generally clear breath sounds with slightly reduced air entry at the upper sternal borders, likely due to his reluctance to inhale deeply. There were no wheezes, crackles, or rhonchi. His breathing was shallow but controlled, and he denied pain on palpation of the thoracic cage. Percussion was normal throughout. There were no abnormal sounds appreciated during auscultation. The abdomen was soft with mild diffuse tenderness, consistent with his baseline Crohn symptoms during flares. There was no guarding, rebound, or palpable mass. Bowel sounds were present and normal. Musculoskeletal examination showed no joint swelling or deformities. Skin examination revealed no rashes, ulcers, or lesions. Neurological assessment showed intact cranial nerves, normal motor strength, and stable gait. Because of his persistent chest symptoms and difficulty taking full breaths, a chest radiograph was obtained as a routine first step in the assessment of chest pain and dyspnea. The image, shown in Image 1, revealed the presence of mediastinal air outlining the central structures, consistent with pneumomediastinum. The lungs themselves appeared clear. This unexpected finding provided an explanation for his symptoms and guided the decision to admit him for further evaluation and monitoring.

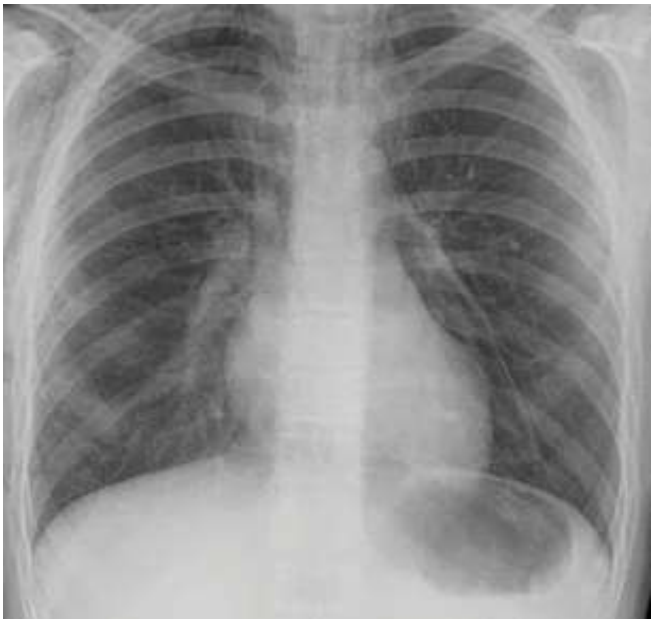

**Image 1:** Chest X-ray with mediastinal air surrounding central structures, suggesting pneumomediastinum.

**Investigations and diagnostic reasoning:**

Initial laboratory testing showed a mild rise in inflammatory markers, which matched his recent flare of abdominal pain and diarrheal episodes. His white cell count was slightly elevated, while hemoglobin, platelets, renal function, and liver enzymes remained within normal limits. Arterial oxygen levels were mildly reduced but stable. An ECG showed normal sinus rhythm without abnormalities. Because the chest radiograph demonstrated a clear band of air outlining the mediastinum, a CT scan of the chest with contrast was arranged to confirm the diagnosis and assess for complications. The CT scan revealed free air tracking along the mediastinum and surrounding the trachea and proximal bronchi, extending upward toward the lower cervical region. The lungs were well aerated, and there was no pneumothorax, consolidation, or pleural effusion. No esophageal tears were seen, and the esophageal wall showed no edema or fluid collections. The radiologist described the findings as consistent with pneumomediastinum. Given the patient's established Crohn disease and the fact that the mediastinal air volume was more than typically seen after simple alveolar rupture, the team considered the possibility of air originating from a fistulating intestinal segment. To explore this further, a CT scan of the abdomen and pelvis with contrast was obtained. This study showed thickened terminal ileal loops with surrounding fat stranding, features compatible with an active Crohn flare. Importantly, a small tract of air was seen extending from the inflamed ileal segment into the retroperitoneal space, following the fascial planes superiorly. No large volume free intraperitoneal air was present, which made gross perforation unlikely, but the appearance strongly suggested a contained microperforation with a developing fistula. The retroperitoneal air tracked cranially along the psoas margin and up toward the posterior mediastinum, providing a plausible anatomical pathway for the free air visualized on chest imaging. There were no drainable abscesses, and the bowel remained structurally intact aside from the suspected fistulating tract. These combined findings supported the conclusion that the pneumomediastinum resulted from air dissecting upward from a contained retroperitoneal fistula associated with his Crohn disease, rather than from a primary pulmonary cause. With the diagnosis established and no immediate signs of sepsis or hemodynamic instability, the patient was admitted for close monitoring, targeted medical management of his Crohn flare, and multidisciplinary evaluation including gastroenterology and thoracic specialists.

**Management course**

Management focused on stabilizing the patient's respiratory status, addressing the underlying Crohn flare, and ensuring that no evolving complications were missed. Upon admission, he was placed on a monitored medical ward with continuous pulse-oximetry to track for any subtle changes in oxygenation or breathing effort. Although his oxygen levels were acceptable at rest, he was given low-flow supplemental oxygen via nasal cannula during the first day to help reduce the sensation of breathlessness and to support comfort, especially as pneumomediastinum can sometimes cause mild discomfort on deep inhalation. Intravenous access was secured for fluids and medications, as well as for serial laboratory testing to track inflammatory markers and hydration status. Because his chest CT had confirmed pneumomediastinum without pneumothorax, and because his abdominal imaging showed a contained fistulating process rather than a free perforation, the initial management strategy was conservative.

The gastroenterology team was consulted early to guide treatment of the presumed Crohn-related microperforation. Given the absence of systemic instability, high fevers, or signs of sepsis, he was started on targeted intravenous antibiotics commonly used for intra-abdominal inflammatory complications. The regimen aimed to control bacterial translocation around the inflamed bowel segment and reduce the risk of progression to a more overt perforation or abscess. At the same time, aggressive immunosuppression was avoided during the early phase of hospitalization because of the microperforation risk, and the team planned to adjust his Crohn therapy only after his condition stabilized. Supportive care played a central role in his management. He was kept on bowel rest initially, with gradual reintroduction of clear liquids as his abdominal pain settled. Intravenous fluids helped correct mild dehydration and supported adequate perfusion while his oral intake was limited. Pain control was given using non-narcotic options to avoid suppressing respiratory drive. Antiemetics were essential because any further retching could worsen the mediastinal air leak. Daily clinical assessments were performed to monitor his breathing pattern, effort, and comfort, and to detect early signs of tension physiology, which, although rare, can develop in severe pneumomediastinum. No such features emerged during his course. Respiratory therapy assessed him shortly after admission. Because he did not have pneumonia, airway secretions, or lobar collapse, intensive respiratory interventions were not required. Instead, he was encouraged to take slow, steady breaths and avoid forceful coughing or Valsalva maneuvers, as sudden changes in intrathoracic pressure could enlarge the mediastinal air pocket. Gentle ambulation was started once he felt comfortable, with nursing staff monitoring his walking oxygen saturation to ensure that exertion did not trigger symptomatic desaturation. Serial imaging was used to ensure stability. A repeat chest radiograph performed the following day showed no increase in mediastinal air and no new complications such as pneumothorax. This stability allowed the team to continue with conservative care. Abdominal examinations were repeated several times each day to make sure the contained ileal microperforation had not evolved into a free perforation or abscess. His abdominal pain gradually eased, and his inflammatory markers began to decline over the next forty-eight hours. Once this improvement was evident, his gastroenterology team discussed optimization of his Crohn regimen.

They recommended transitioning him back to enteral feeding while planning for outpatient escalation of therapy, most likely with a biologic class appropriate for fistulating disease. Because of the active flare and the presence of a fistula, they emphasized that long-term control of intestinal inflammation would be crucial for preventing recurrence of similar complications. By the third day of hospitalization, his breathing pattern became noticeably more comfortable. He no longer required supplemental oxygen, and his saturation remained above ninety-six percent on room air even with mild exertion. His chest discomfort on deep inhalation diminished significantly. A follow-up chest radiograph performed before discharge showed gradual reabsorption of the mediastinal air, as expected in spontaneous pneumomediastinum. The residual air was small and stable, and there was no evidence of new air collections. Discharge planning included clear counseling regarding activity restrictions. He was advised to avoid heavy lifting, strenuous exercise, or anything that would require straining for the next one to two weeks. He was educated on recognizing concerning symptoms such as sudden chest pain, difficulty breathing, swelling of the neck, or voice changes, as these might indicate recurrence or expansion of mediastinal air. He was instructed to maintain adequate hydration and avoid vomiting triggers, as forceful retching could increase the risk of a new air leak. His nutrition plan emphasized gradual reintroduction of soft foods and careful monitoring of gastrointestinal tolerance while avoiding foods that typically worsen Crohn symptoms during a flare. The multidisciplinary team arranged early outpatient follow-up with gastroenterology to reassess his clinical status and finalize adjustments to his Crohn management. This included evaluating for initiation or escalation of advanced therapy aimed at fistulizing disease. Follow-up imaging was scheduled for several weeks after discharge to confirm complete resolution of the pneumomediastinum and to evaluate the evolution of the suspected ileal fistula. He was also referred to a dietitian to support long-term disease control through nutritional strategies. His prognosis was favorable. Most cases of spontaneous pneumomediastinum resolve with conservative management, and the absence of complications such as pneumothorax, mediastinitis, or sepsis strengthened this outlook. The contained nature of the microperforation and the lack of abscess formation also supported a good abdominal recovery. The primary determinant of long-term outcome would be optimal control of his Crohn disease, as preventing further inflammation would reduce the risk of future fistulas or air dissection into the mediastinum. By the time of discharge, his symptoms had improved markedly, and he expressed confidence in returning to light daily activities. With appropriate gastroenterology follow-up and adherence to therapy, the overall expectation was a gradual return to baseline function and a low likelihood of recurrence.

**Discussion**

This case highlights the uncommon but clinically significant pulmonary complications that can arise in patients with Crohn's disease, particularly those with fistulizing disease. The patient presented with subacute respiratory symptoms, including persistent dyspnea, low-grade fever, and nonproductive cough, culminating in radiographic findings of pneumomediastinum and mediastinal emphysema. Such presentations are rare and often underrecognized, yet they provide critical diagnostic clues in patients with underlying gastrointestinal pathology [1,2].

Pulmonary involvement in inflammatory bowel disease (IBD) is relatively uncommon, but its prevalence has been increasingly recognized with the advent of advanced imaging and heightened clinical awareness. Studies suggest that up to 50% of patients with IBD may have some form of respiratory manifestation over the course of their disease, though the majority remain subclinical [3,4,13]. These manifestations range from airway inflammation, bronchiolitis, and bronchiectasis to interstitial lung disease and pleural or mediastinal complications [4,5,6]. The occurrence of pneumomediastinum, particularly secondary to fistulizing Crohn's disease, represents an extreme spectrum of extraintestinal pulmonary involvement [1,8,9]. In the patient described, the mediastinal air visualized on chest X-ray and confirmed on CT imaging serves as a direct indicator of translocation of air from the gastrointestinal tract to the thoracic cavity, most plausibly via an enteromediastinal fistula [1,2]. The pathophysiology underlying fistula-related pneumomediastinum in Crohn's disease involves transmural inflammation, which predisposes the intestinal wall to microperforations or full-thickness breaches. These breaches can establish abnormal communications between the bowel lumen and contiguous anatomical spaces, including the mediastinum, retroperitoneum, and pleural cavities [1,2,4]. Gas from the intestinal lumen can then dissect along fascial planes into the mediastinum, producing radiographic and clinical manifestations. In this patient, the chronicity of his Crohn's disease and the subclinical course of prior gastrointestinal symptoms may have contributed to delayed recognition, emphasizing the importance of maintaining a high index of suspicion for thoracic complications even in the absence of acute abdominal signs [2,4]. Clinically, the presentation of pneumomediastinum in Crohn's disease can be subtle. Patients may report mild dyspnea, chest heaviness, or a sensation of subcutaneous air without dramatic pain, making routine imaging crucial in uncovering the diagnosis [1,2,8]. In the current case, the initial chest X-ray was obtained as part of routine assessment for persistent respiratory symptoms, a practice consistent with contemporary guidelines recommending imaging in patients with unexplained cough or dyspnea and risk factors for underlying systemic disease [2,4]. Recognition of mediastinal air should prompt further cross-sectional imaging, as CT scanning provides superior sensitivity and delineates the extent of gas, associated pneumothorax, and potential fistulous tracts [1,2]. CT imaging in this patient revealed mediastinal air contiguous with a fistula originating from a segment of diseased ileum, confirming the suspected pathophysiological mechanism. These findings illustrate the critical role of advanced imaging in identifying atypical pulmonary manifestations of gastrointestinal disease [2,4,5]. From an epidemiological perspective, extraintestinal manifestations

of Crohn's disease are reported in 25–40% of patients, with pulmonary involvement documented in 0.4–8% of cases, depending on study population and diagnostic modality [4,5,13]. Pneumomediastinum, though exceedingly rare, carries significant clinical implications because it may signal ongoing intestinal perforation or abscess formation, both of which can lead to rapid deterioration if unrecognized [1,8,9]. Awareness of this potential complication allows clinicians to integrate gastrointestinal and pulmonary assessments, thereby expediting targeted investigations and appropriate management. The differential diagnosis of spontaneous pneumomediastinum is broad and includes primary alveolar rupture due to increased intrathoracic pressures, traumatic injury, iatrogenic causes, and pulmonary infections. In patients with Crohn's disease, the most compelling cause is usually transdiaphragmatic air entry from fistulizing bowel segments rather than isolated alveolar rupture [1,2,4,8]. Distinguishing these etiologies is essential because management strategies differ markedly. While isolated spontaneous pneumomediastinum may be managed conservatively, fistula-related cases necessitate careful gastrointestinal evaluation to prevent recurrent mediastinal contamination and associated sepsis [1,2,8]. The literature suggests that conservative management is appropriate for hemodynamically stable patients without evidence of tension physiology or sepsis, as in the present case [1,2,5,8]. Supportive measures, including supplemental oxygen, analgesia, and close monitoring of respiratory status, are typically sufficient to allow gradual reabsorption of mediastinal air [1,2,14]. Oxygen therapy, particularly at high concentrations, can accelerate nitrogen resorption from the mediastinum, facilitating resolution [14]. Continuous clinical assessment is crucial, as progression to respiratory compromise may require intervention, such as needle decompression or surgical exploration, though these measures are rarely needed when the source of air is well-contained and the patient remains stable [1,2]. An important clinical learning point from this case is the subtlety of pulmonary manifestations in fistulizing Crohn's disease. Patients may present without acute abdominal pain, fever, or overt signs of intestinal perforation. In such scenarios, vigilance for indirect indicators such as progressive dyspnea, mild hypoxemia, or incidental radiographic findings is critical. Clinicians should integrate these cues with detailed patient history, including prior gastrointestinal complaints, recent disease activity, and medication exposure [2,4,6]. The absence of systemic inflammatory response syndrome or severe leukocytosis does not exclude significant pathology, highlighting the need for a multidisciplinary approach involving pulmonology, gastroenterology, and radiology [2,4,5,6]. This case also underscores the importance of understanding disease chronicity and the relationship between gut and lung in IBD. Pulmonary manifestations can precede, coincide with, or follow gastrointestinal flares, and they may persist independently of intestinal disease activity [3,4,5,6]. Awareness of this temporal relationship allows clinicians to anticipate potential respiratory complications in patients with known fistulizing Crohn's disease and to initiate timely imaging and monitoring. Early recognition of mediastinal air and identification of fistulous tracts via CT can reduce the risk of severe complications, such as mediastinitis, empyema, or secondary infection [1,2,8].

Therapeutically, management of fistula-related pneumomediastinum focuses on stabilization and addressing the underlying gastrointestinal disease. In hemodynamically stable patients, initial conservative care includes supplemental oxygen, pain management, and close observation [1,2,8,14]. Nutritional optimization and careful monitoring of fluid status support overall recovery. In cases where the fistula is persistent, symptomatic, or complicated by abscess formation, surgical intervention or targeted endoscopic therapy may be required [2,4]. Pharmacologic therapy for Crohn's disease, including biologics or immunosuppressants, may be considered to reduce ongoing transmural inflammation and prevent recurrent fistulization [4,5,6]. The prognosis for patients with isolated pneumomediastinum secondary to Crohn's fistula is generally favorable when identified early, though the risk of recurrence or additional extraintestinal manifestations warrants ongoing surveillance [1,2,8].

Radiographic assessment remains central to both diagnosis and follow-up. Chest X-rays can detect mediastinal air, subcutaneous emphysema, and associated pneumothoraces, but CT provides definitive anatomical detail, identifies the origin of fistulous tracts, and assesses for complications such as mediastinitis or abscess formation [1,2,4,5]. Serial imaging may be warranted to document resolution and to monitor for new or expanding air collections. This approach underscores the principle that in complex IBD patients, radiographic findings can reveal subclinical disease and guide the need for further gastrointestinal or surgical evaluation [1,2,4,5]. Finally, this case offers several teaching points for clinicians. First, subtle respiratory symptoms in patients with Crohn's disease should prompt consideration of extraintestinal manifestations, particularly when initial evaluations are inconclusive [1,2,4]. Second, radiographic detection of mediastinal air warrants a high index of suspicion for fistulous communication, even in the absence of abdominal symptoms [1,2,8]. Third, conservative management is effective in stable patients, but close monitoring is essential to detect deterioration early [1,2,14]. Fourth, interdisciplinary collaboration improves diagnostic accuracy, therapeutic planning, and long-term outcomes [2,4,5,6]. Fifth, understanding the pathophysiology of fistula-related air migration emphasizes the need for targeted treatment of underlying intestinal disease, not just the pulmonary manifestation [1,2,4,5]. In conclusion, the presentation of pneumomediastinum secondary to fistulizing Crohn's disease illustrates a rare but clinically important complication that integrates gastrointestinal and pulmonary pathology. Recognition of subtle respiratory cues, timely imaging, and careful multidisciplinary management are essential to optimize outcomes. Conservative therapy with supplemental oxygen, supportive care, and close monitoring is effective in stable patients, while ongoing evaluation and treatment of the underlying Crohn's disease are critical to prevent recurrence. This case reinforces the importance of a high index of suspicion, the value of advanced imaging, and the need for an integrated approach to managing complex extraintestinal manifestations of inflammatory bowel disease [1,2,4,5,6,8,14].

**Conclusion**

This case highlights that sudden chest discomfort and dyspnea in patients with Crohn's disease may signal rare but significant complications such as pneumomediastinum from a fistulating microperforation. Early imaging, including chest X-ray and CT, is crucial to identify air tracking and exclude life-threatening causes. Conservative management with close monitoring, supportive care, and targeted antibiotics can lead to favorable outcomes in stable patients. Clinicians should maintain a high index of suspicion for atypical respiratory presentations in Crohn's disease, coordinate multidisciplinary care, and optimize long-term intestinal disease control to prevent recurrence. Vigilance, imaging correlation, and tailored therapy are key lessons.

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