

Fibrosing Mediastinitis Mimicking Disseminated Metastatic Disease: A Diagnostic Pitfall

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Abstract:

- Fibrosing mediastinitis is a rare benign fibroinflammatory condition, often related to granulomatous infections such as tuberculosis, and characterized by progressive encasement of mediastinal structures.
- We report a 46-year-old man presenting with respiratory symptoms and weight loss. Computed tomography revealed a right mediastinohilar mass associated with hepatic and adrenal lesions, initially suggesting disseminated metastatic disease.
- Despite this highly suspicious presentation, histopathological examination ultimately revealed fibrosing mediastinitis. A post-infectious origin, most likely related to tuberculosis, was suspected.
- This case illustrates a striking diagnostic pitfall in which a benign condition mimics advanced metastatic disease, highlighting the need for histological confirmation before establishing a diagnosis of malignancy.

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I. Introduction:

- Fibrosing mediastinitis is an uncommon benign condition characterized by an excessive fibrotic reaction within the mediastinum, most often occurring as a sequela of granulomatous infections such as tuberculosis. Despite its benign nature, it may behave in a locally aggressive manner, progressively encasing mediastinal structures.
- From a radiological standpoint, fibrosing mediastinitis can closely mimic malignant disease. It may present as an infiltrative mass involving the hilar and mediastinal regions, raising strong suspicion of a metastatic process or primary thoracic malignancy. This overlap in imaging features represents a significant diagnostic challenge and may lead to initial misdiagnosis and inappropriate management.
- Awareness of this entity is therefore crucial, particularly in tuberculosis-endemic areas, to avoid misinterpretation of imaging findings
- We report a case of fibrosing mediastinitis presenting as a right mediastinohilar mass with CT findings suggestive of disseminated metastatic disease, highlighting this diagnostic pitfall.

II. Case Report:

- A 46-year-old man with a history of thalassemia and former smoking (10 pack-years) presented with a 4-month history of dry cough. He reported recent tuberculosis exposure, as his brother had smear-positive pulmonary tuberculosis on treatment.
- He complained of mMRC grade III dyspnea associated with anorexia and a 5 kg weight loss over one month. Physical examination was unremarkable.
- Thoraco-abdomino-pelvic CT revealed a poorly defined heterogeneous right mediastinohilar mass measuring approximately 91 × 94 mm, with an infiltrative pattern encasing adjacent mediastinal structures. It was associated with mediastinal lymphadenopathy and diffuse pulmonary nodules, as well as hypodense hepatic lesions and a right adrenal nodule, initially suggestive of metastatic disease. However, PET-CT showed intense hypermetabolism of the mediastinohilar mass (SUVmax 12.9) without evidence of distant hypermetabolic lesions.

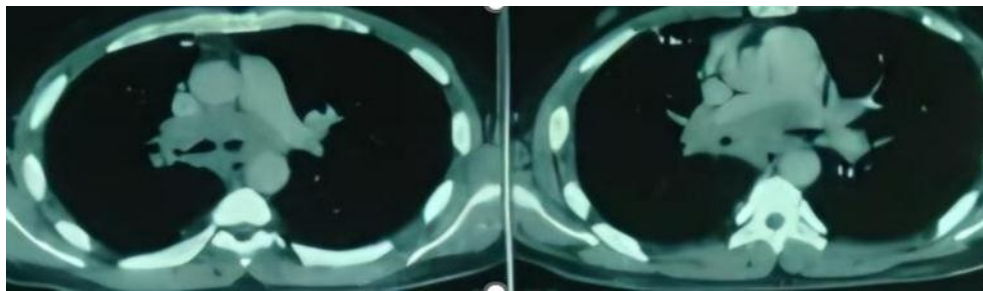


Figure 1. Contrast-enhanced chest CT (mediastinal window) showing a poorly right mediastinohilar infiltrative mass encasing adjacent structures.



Figure 2: FDG PET-CT (coronal view) showing intense hypermetabolism of the mediastinohilar mass without abnormal uptake in hepatic or adrenal lesions, arguing against true metastatic disease.

- Bronchoscopy demonstrated whitish granulations and bronchial wall thickening. Histopathological examination of bronchial biopsies was unremarkable. Microbiological investigations, including AFB staining and GeneXpert testing, were negative.
- In this context, empirical anti-tuberculosis therapy was initiated, resulting in clinical improvement and regression of pulmonary nodules, while the mediastinal mass persisted.
- Due to persistent suspicion, mediastinoscopy and endoscopic ultrasound (EUS) were performed but remained inconclusive. A surgical biopsy via video-assisted thoracoscopic surgery, converted to thoracotomy because of dense adhesions, revealed a firm fibrotic infiltrative process encasing mediastinal structures without a clear cleavage plane.
- Histopathological analysis showed dense fibrosis without evidence of malignancy, consistent with fibrosing mediastinitis.
- The patient remains in good general condition and is currently under clinical follow-up.

III. Discussion:

- Fibrosing mediastinitis is a rare and likely underrecognized condition with an uncertain incidence. Its etiology is heterogeneous, most commonly related to prior granulomatous infections such as tuberculosis or histoplasmosis, but also including autoimmune and idiopathic forms [1,2]. The disease is thought to result from an abnormal immune-mediated response leading to progressive fibroinflammatory changes and dense collagen deposition within the mediastinum. In our case, a post-infectious origin, most likely related to tuberculosis, was suspected based on the clinical context and partial response to anti-tuberculosis therapy, although no microbiological confirmation was obtained.
- Clinically, fibrosing mediastinitis presents with nonspecific symptoms related to compression of mediastinal structures, including the airways, vessels, or esophagus, such as dyspnea or cough [3]. In our patient, respiratory symptoms and subsequent dysphagia were consistent with this pattern.

- On computed tomography, it typically appears as an infiltrative mediastinal or hilar process with loss of fat planes, calcifications, and encasement of adjacent structures. However, these findings are not specific and may closely mimic malignant diseases such as bronchogenic carcinoma or metastatic involvement [4-6]. In our case, the presence of hepatic and adrenal lesions on CT strongly suggested disseminated metastatic disease, representing an unusual and particularly misleading presentation.
- Diagnosis remains challenging and often requires histopathological confirmation. Minimally invasive procedures may be inconclusive, as observed in our patient, ultimately necessitating surgical biopsy to exclude malignancy [7].
- Management of fibrosing mediastinitis remains challenging, as no clearly effective medical therapy has been established. Evidence is mainly derived from small case series, and treatments such as corticosteroids generally provide limited benefit, although some symptomatic improvement may occur, particularly in cases of vascular compression. Better responses have been reported in presumed immune-mediated forms, while other agents such as tamoxifen have shown inconsistent results [2,8].
- In symptomatic patients, interventional procedures—especially vascular or airway stenting—play a key role by relieving obstruction, although their effect is mainly palliative [1]. Therefore, treatment strategies are individualized, guided by clinical severity and extent of disease.
- Prognosis is variable, depending on disease extent and degree of mediastinal involvement .
- Our case highlights an unusual presentation of fibrosing mediastinitis mimicking disseminated metastatic disease, with discordant imaging findings and a complex diagnostic course, emphasizing the importance of histopathological confirmation before establishing a diagnosis of malignancy

IV. Conclusion:

- Fibrosing mediastinitis is a rare but challenging condition that may present with misleading imaging findings, requiring careful evaluation and individualized management.

References:

- [1]. Kang H, Jung Mj. Aggressive And Progressive Fibrosing Mediastinitis Involving The Thoracic Spine Mimicking Malignancy: A Case Report. *Radiol Case Rep* 2019;14(4):490–494. Doi: 10.1016/J.Radcr.2019.02.003
- [2]. Hu Y, Qiu Jx, Liao Jp, Et Al. Clinical Manifestations Of Fibrosing Mediastinitis In Chinese Patients. *Chin Med J (Engl)* 2016;129(22):2697– 2702. Doi: 10.4103/0366-6999.193457
- [3]. Loyd Je, Tillman Bf, Atkinson Jb, Et Al. Mediastinal Fibrosis Complicating Histoplasmosis. *Medicine (Baltimore)* 1988;67:295-310.
- [4]. Goodwin Ra, Nickell Ja, Des Prez Rm. Mediastinal Fibrosis Complicating Healed Primary Histoplasmosis And Tuberculosis. *Medicine (Baltimore)* 1972;51:227-46.
- [5]. Bateman K, Chauhan Aj, Singh N, Et Al. Sclerosing Mediastinitis In A Smoker With Suspected Lung Cancer. *Respir Med Cme* 2010;3:257-9.
- [6]. Sherrick Ad, Brown Lr, Harms Gf, Et Al. The Radiographic Findings Of Fibrosing Mediastinitis. *Chest* 1994;106:484-9.
- [7]. Koksai D, Bayiz H, Mutluay N, Koyuncu A, Demirag F, Dagli G, Et Al. Fibrosing Mediastinitis Mimicking Bronchogenic Carcinoma. *Respir Med Case Rep*. 2012;5:1–3.
- [8]. Ganigara M, Flores J, Slivnick J. Et Al. Fibrosing Mediastinitis Caused By Histoplasmosis In An Adolescent. *Jaccase Rep* 2023;29(2):102161. Doi: 10.1016/J.Jaccas.2023.102161