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Case Report

Miliary Pulmonary Metastases from Lung Adenocarcinoma: A Case Report

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Abstract

Introduction: Miliary dissemination of adenocarcinoma is a rare, aggressive, and often terminal form of metastasis characterized by countless tiny (millimetric) nodules spreading throughout the lungs, mimicking miliary tuberculosis. It affects less than 5% of all lung adenocarcinomas. The aim of this study is to present a case of miliary disseminated adenocarcinoma originating from the lung with all diagnostic requirements. ***Materials and Methods:*** A 57year old male patient with 80-pack year smoking status admitted for invasive diagnostics in our clinic between (22.10.2026-29.10.2026) due to x-ray showing miliary disseminated lung infiltrates and pleural effusion. ***Results:*** The light criteria of the pleural effusion showed exudate with high LDH values highly suspected of malignancy. Contrast enhanced CT was scheduled and it showed multiple miliary disseminated infiltrates, mediastinal and hilar lymphadenopathy. Liver and adrenal gland metastases were also noted. Bronchoscopy with TBB from the branch of the right upper lobe, together with TBNA from position 7 and 11R, both came positive for adenocarcinoma. Immunohistochemistry was positive in 50% of ROS1; TTF1; CK7; CEA; and negative on CK20; EGFR, ALK, PDL1 confirming primary adenocarcinoma of the lung. Additionally, the patient was presented on tumor bord for treatment options and staging being T4N3M1c2. ***Conclusion:*** Miliary disseminated adenocarcinoma is aggressive and usually diagnosed late. Immunohistochemistry can provide an exact origin of the malignant disease.

Keywords: Miliary disseminated adenocarcinoma.

INTRODUCTION

Lung adenocarcinoma, a subtype of non-small cell lung cancer, is particularly common among nonsmokers and women. According to the Global Cancer Statistics report from 2020, lung cancer remained the most common type of cancer death worldwide, with approximately 1.8 million deaths [1]. Miliary dissemination of adenocarcinoma is a rare, aggressive, and often terminal form of metastasis characterized by countless tiny (millimetric) nodules spreading throughout the lungs, mimicking miliary tuberculosis. [2]. It affects less than 3% of all lung adenocarcinomas. It is characterized with innumerable small (1-3mm) nodules diffusely throughout both lungs. It can be easily misinterpreted as lesion from infective origin (tuberculosis, fungal infections (e.g., histoplasmosis)), or granulomatous disease (sarcoidosis and pneumoconiosis), with TB being the usual suspect due to the global burden, even though in our case the patient did not origin from an area with high prevalence of TB. Miliary dissemination of adenocarcinoma being rare was not fully excluded in our case considering that our patient did not come from a high prevalent area for the TB and he had a smoking history of 80-pack years. [3,4,7]. It is also highly linked with an EGFR mutation. [5,8,9]. However, if it happened in setting or area with high prevalence of TB, it should never be excluded as a secondary diagnosis, especially if the patient had a long smoking history or other related risk factors. [6].

The aim: This case report highlights the awareness for malignant disease of the lung presenting itself with an unusual pattern. It also presents adenocarcinoma originating from the lung and all diagnostic requirements for confirming it.

MATERIALS AND METHODS

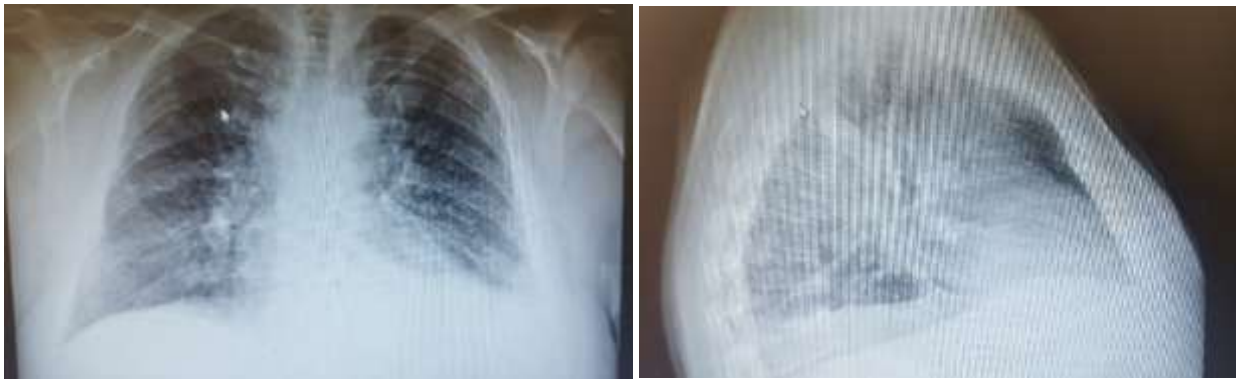
A 57year old male patient with 80-pack year smoking status admitted for invasive diagnostics in our clinic between (22.10.2026-29.10.2026) due to x-ray showing miliary disseminated lung infiltrates and pleural effusion. During the hospital stay he underwent analysis

of basic blood work and serology, further imaging methods, TBB and TBNA, histopathological and molecular analytical diagnostics

4. RESULTS

4.1 Clinical Presentation:

The patient complained of fatigue, weight loss and chronic cough. The symptoms were present for 2-3 months before hospitalization. Before coming to our institution, he was examined in a local secondary center where an x-ray was performed showing miliary disseminated lung infiltrates (disease) and left sided pleural effusion (**Figure 1, 2**).



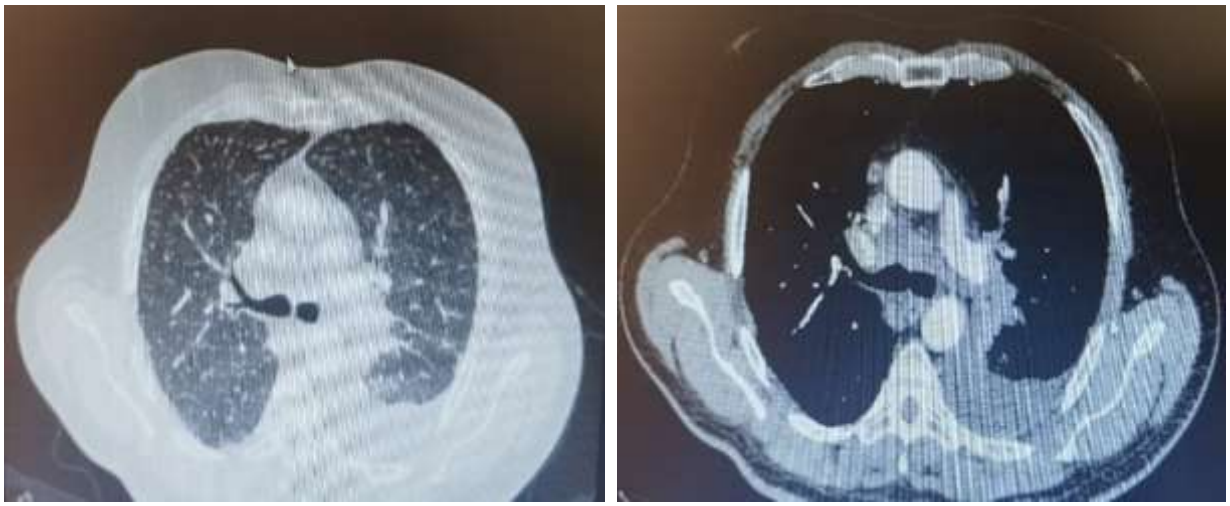
1 **2**

Figure 1,2: A chest x-ray with frontal (1) and lateral (2) view showing miliary disseminated lung disease, hilar lymphadenopathy and left sided pleural effusion

His medical history revealed a smoking history of 80-pack years, no professional exposure due to having an office work occupation. Comorbidities were Type 2 Diabetes Mellitus with insulin substitution therapy, hypertension and hyperlipidemia all treated with chronic therapy accordingly. Other anamnestic data was unremarkable. Auscultation noted disseminated diffuse crackles on the lungs and physical examination of the abdomen noted hepatosplenomegaly. Both of these clinical finding can be consistent with TB as well as miliary disseminated malignant disease.

4.2 Contrast enhanced CT

showed diffuse miliary randomized dissemination of infiltrates subpleural and peri broncho vascular. Extensive mediastinal lymphadenopathy. Left sided pleural effusion (**Figure 3, 4**). On the proximal caught parts of the abdomen, mild ascites was noted around the liver, hepatomegaly and multiple infiltrates on the liver and the adrenal glands. The final comment of the radiologist was that this case can still go both ways being infective or malignant because no venous phase contrast was done to differentiate the abdominal finding since this was a lung protocol CT.



3 **4**

Figure 3,4: Contrast enhanced CT showing multiple infiltrates of the parenchyma (3) and mediastinal and hilar lymphadenopathy with pleural effusion (4)

4.3 Serology and lab findings:

An infective disease specialist was consulted to eliminate any infective origin of the disease and he initiated serology, PCR and cultures for TB and all other infective pathogens who can cause this pattern but all came negative. Additionally, blood work showed elevated d-dimer and positive tumor marker response to CA-19-9; CA-72-4 and CYFRA21. The light criteria of the pleural effusion were consistent with exudate.

4.4 Abdominal ultrasound

showed ascites in the abdominal and pelvic cavities and multiple focal changes in the liver most consistent with secondary metastatic deposits. Other ultrasound findings of the abdomen and pelvis were unremarkable.

4.5 Invasive diagnostics:

Since the diagnostic pattern moved towards a malignant disease path a bronchoscopy was scheduled which showed: No intra-bronchial infiltrates until subsegments. Mild compression on the left lower bronchus due to pleural effusion. Transbronchial biopsies were taken from both sides and Transbronchial needle aspiration from glands 7 and 11R.

4.6 Histopathological findings:

The biopsy confirmed lung tissue infiltrated with glandular malignant tissue most consistent with adenocarcinoma as well as the Cyto-block came positive for malignant cells. In order to differentiate primary origin or secondary immunohistochemistry was performed on the tissue samples as well. Immunohistochemistry on the malignant cells was positive in TTF1; CK7; CEA; and negative on CK20. 50% of the cells were positive of ROS1 protein and negative to EGFR, ALK, PDL1 related proteins confirming primary adenocarcinoma of the lung.

4.7 Aftermath:

Additionally, the patient was presented on tumor board for treatment options and staging being T4N3M1c2 associated with poor prognosis. However, his ECOG score was 1 and KPS was 90. A decision was made to start initial oncologic treatment and additional molecular examination using NGS methods for a more targeted approach. During the hospital stay a psychiatrist was consulted due to present anxiety from prolonged hospital stay and unfavorable diagnosis. Oncologic treatment was initiated with 1st line oncologic treatment right after the hospitalization. Sadly, the patient passed 1 month after the confirmation of the diagnosis.

DISCUSSION

This case highlights the clinical presentation of a malignant disease with a pattern most consistent with other disease especially TB. [2,3,4,7]. Even though TB is still present in our region, luckily not being a medical burden, it was still needed to exclude it and consider it in our diagnostic pattern. [10,11,12]. This is all as noted ruled out with serology, lab findings and cultures. [13]. The methods used for invasive diagnosis being TBB and TBNA have moderate diagnostic yield, but in our case, it was sufficient and the guidelines recommend doing it before other methods with higher yield. [14,15] The immunohistochemistry was used to confirm site of origin of the malignant disease and give us a look to the cancer genome that we are dealing with. [16]. Our case being EGFR negative is consistent with worse prognosis then EGFR positivity in this type of radiological presentation with median survival of 1-3 months of starting the diagnostic procedures. [17]. ERS latest guidelines for non-small cell lung cancer staging recommend multiple specialties tumor board presentation in advanced disease, experimental approach with new therapeutic modules and end of life care due to poor prognosis in general. [18]. Additionally, clinical reviews show that standard systemic chemotherapy does not go beyond twelve months survival. [2]. Favorable genetic mutations in EGFR, ALK can increase survival with Tyrosine kinase inhibitor (TKIs) to well past a year to several years. [2]. However, our case not being such had an unfavorable conclusion [17]. Also to note is that all these advanced therapeutic modules (like the 2nd and 3rd generation TKIs) are not fully available in all parts of the world. [19]

CONCLUSION

Miliary disseminated adenocarcinoma is aggressive and usually diagnosed late. Multimodal investigation including high-resolution imaging, targeted biopsy, Immunohistochemistry can provide an exact origin of the malignant disease. Early recognition of a miliary pattern as a possible manifestation of metastatic adenocarcinoma is important in patients with risk factors. While treatment options are scarce some improvements and responses are noted in new and upcoming clinical trials. However, prognosis in general still remains poor.

REFFERENCES

1. Siddiqui F, Vaqar S, Siddiqui AH (2022). StatPearls. StatPearls Publishing; St. Petersburg, Florida: Lung cancer.
2. Hanmil Choi, Yunjoo Im, Byeong-Ho Jeong at al (2023) Jun 20 Clinical characteristics of miliary pulmonary metastases in non-small cell lung cancer Thorac Cancer.
3. Nandakumar G Patnam Kamaxi Trivedi Amit Janu *et al.,* (2023 Oct) Cross-sectional imaging review of common to uncommon lung cancer mimickers in a tertiary care oncology center.
4. 4.Ana María Vera-Carmona[a], , Luis Gorospe Sarasúa[a], Marta González Sanz[b] (March 2025) Adenocarcinoma de pulmón como simulador de tuberculosis miliar
5. Shang-Gin Wu Fu-Chang Hu Yih-Leong Chang Frequent (2013) *EGFR* mutations in nonsmall cell lung cancer presenting with miliary intrapulmonary carcinomatosis. European,RespiratoryJournal

6. Mahmoud Ali • Mahmoud Helaly • Abdulrahman Irhouma • Shamsaldeen Abdelraheem (July 17th2025) Miliary Lung Lesions Mimicking Tuberculosis: A Case of Metastatic Lung Adenocarcinoma
7. Shamma W, (6 Aug 2023) Adenocarcinoma of the lung with miliary lung metastasis. Case study, Radiopaedia.org
8. Hee Joung Kim, Seong Hui Kang, Hyun Woo Chung, *et al.,* (2015 Feb) Clinical features of lung adenocarcinomas with epidermal growth factor receptor mutations and miliary disseminated carcinomatosis.
9. Ming-Hung Chang, Kuo-Hwa Chiang, Jiunn-Min Shieh (2022 Oct 28); Analysis of non-small cell lung cancer with miliary lung metastasis in patients harboring epidermal growth factor receptor mutations
10. Lir Peposhi Holta Tafa Donika Bardhi (2020) Clinical and epidemiological evaluation of Tuberculosis in Albania during the period 2009-2018
11. Z. Gledovic, H. Vlajinac, T. Pekmezovic, (2010) Burden of Tuberculosis: Serbian Perspectives Handbook of Disease Burdens and Quality of Life Measures
12. https://data.worldbank.org/indicator/SH.TBS.INCD?locations=MK&name_desc=false Incidence of tuberculosis (per 100,000 people) - North Macedonia
13. Gönül Aslan (2024) Diagnosing Tuberculosis: Traditional and New Methods Against an Old Enemy
14. Viboon Boonsarngsuk , Wasana Kanoksil , Sarangrat Laungdamerongchai (2015) Comparison of diagnostic performances among bronchoscopic sampling techniques in the diagnosis of peripheral pulmonary lesions
15. Hui Shen, Lingyun Lou, Ting Chen, (2020) Comparison of transbronchial needle aspiration with and without ultrasound guidance for diagnosing benign lymph node adenopathy
16. Imrana Tanvir Amber Hassan Bushra Nisar (2026-05-09) Immunohistochemistry as a Cornerstone in Lung Cancer Diagnosis: Subtyping Based on the 2021 World Health Organization Classification and Its Practical Application
17. Padmastuti Akella; Maya Gogtay (2020) EGFR-Negative Miliary Mets: A Poor Prognostic Entity October 2020
18. Georgia Hardavella Joanna Chorostowska-Wynimko Torsten Gerriet Blum (2024) Lung cancer: an update on the multidisciplinary approach from screening to palliative care.
19. Mélodie Carbonnaux, Pierre-Jean Souquet, Anne-Pascale Meert *et al.,* (2016 May) Inequalities in lung cancer: a world of EGFR