**Case Report** 

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# **Diagnosis of Testis Carcinoma by Bronchial Biopsy**

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# Abstract

Testicular germ cell tumors (GCTs) are relatively rare but highly curable malignancies, primarily affecting young males. While most cases present with palpable scrotal masses, metastases to the lungs may be the initial manifestation of the disease. Respiratory symptoms may dominate the clinical profile complicating a timely diagnosis. This case report highlights a rare presentation of metastatic testicular cancer diagnosed via transbronchial biopsy in a patient presenting with unexplained respiratory symptoms and unrecognized clinical signs of a testicular mass at the initial admission.

A 32-year-old male presented with dyspnea, cough, and weight loss. Physical examination and laboratory findings were normal. Chest x-ray and CT revealed multiple nodules in the lung parenchyma. Histopathologic examination of the TBB sample was compatible with non-seminomatous germ cell tumor. The patient underwent radical orchiectomy and chemotherapy.

Metastatic testicular cancer can present with a range of symptoms, including isolated pulmonary complaints. This case illustrates the need for clinicians to maintain a high index of suspicion for germ cell tumors in young men with respiratory and constitutional symptoms, even in the absence or unrecognized of overt testicular pathology at the initial admission.

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#### Introduction

Testicular carcinoma is primarily diagnosed through scrotal ultrasound and serum tumor markers (1-4). However, metastatic involvement of the lungs can lead to misdiagnosis in atypical cases (5-7). We present a rare case of testicular carcinoma diagnosed via bronchial biopsy, highlighting the importance of considering testicular malignancy diagnosis in patients with respiratory symptoms that went unrecognized for a testis tumor at admission. Testicular carcinoma, although rare, is one of the most common cancers in young men. It typically presents as a painless testicular mass and diagnosis is usually made through imaging and tumor markers. However, in cases of pulmonary metastatic disease, respiratory symptoms can dominate the clinical picture. This report describes a case where histopathologic examination of the transbronchial biopsy sample revealed the underlying testicular cancer.

# **Case report**

A 32-year-old male with no significant past medical history presented to the emergency department with a dry cough, and unintentional weight loss of eight kilograms. He also reported intermittent night sweats and generalized fatigue. He denied chest pain, hemoptysis, or any palpable masses. There were no complaints of scrotal pain or swelling and the patient had no history of trauma, recent travel, or exposure to sick contacts. Personal and family history did not reveal any significant disease. On initial physical examination, the patient was afebrile, with a heart rate of 86 beats per minute, blood pressure of 130/80 mm Hg, and a respiratory rate of 16 breaths per minute. Peripheral lymphadenopathy, abdominal, or testicular masses were not detected. Oxygen saturation was 96% on room Serum laboratory and urine analysis findings were air. unremarkable. ECG showed regular sinus rhythm of 84/min with a normal cardiac axis. Chest x-ray at admission did not reveal any abnormal findings including infiltrations, nodules, lymph nodes, pleural effusion, or mediastinal lesions.

Chest x-ray and thorax CT were done after three months for progressive dyspnea and increased dry cough revealed multiple lung nodules in both lungs (Figure 1,2). Histopathology from bronchial biopsy samples demonstrated sheets of large, atypical cells with prominent nucleoli. Immunohistochemical staining was positive for placental alkaline phosphatase,  $\alpha$ -fetoprotein, and β-human chorionic gonadotropin, consistent with metastatic germ cell tumor. Serum tumor markers showed an elevated AFP level of 850 ng/mL (normal: <15 ng/mL) and  $\beta$ -hCG of 1200 IU/L (normal: <5 IU/L). Testis ultrasound revealed an 8 mm hypoechoic mass in the right testis that was previously unnoticed by the patient. Final diagnosis was seminomatous germ cell tumor with pulmonary metastases, originating from a primary testis tumor. The patient underwent radical orchiectomy and was initiated on a standard chemotherapy regimen for advanced GCT (bleomycin, etoposide, and cisplatin). After three cycles of chemotherapy, follow-up imaging demonstrated a significant reduction in the size of the pulmonary nodules. His serum AFP and  $\beta$ -hCG levels normalized, indicating a favorable response to treatment. The patient continues to be monitored closely with serial tumor markers and imaging.



**Figure 1:** Chest x-ray showing multiple lung nodules in both lungs after three months following admission.



**Figure 2:** Thorax CT revealing bilateral multiple lung nodules of variable size compatible with metatastic disease.

#### Discussion

This case underscores the importance of considering metastatic testicular cancer in the differential diagnosis of young male patients presenting with unexplained pulmonary nodules, even in the absence of scrotal symptoms. Initial presentation displayed only respiratory symptoms that contributed to a delayed diagnosis. The unnoticed testis nodule by the patient due to its small size with absence of testicular complaints that was identified by testis ultrasonography is another hallmark finding of this case. A testis tumor with such a small size leading to multiple lung metastases that were identified by chest x-ray and CT imaging represents another noteworthy presentation of this patient.

Metastatic testicular germ cell tumors often involve the retroperitoneal lymph nodes, lungs, liver, and brain. In this patient, the primary manifestation was the dominant pulmonary symproms caused by extensive pulmonary metastases that were detected via bronchial biopsy. Bronchoscopy with biopsy remains a valuable tool for diagnosing metastatic disease in patients with unknown primary malignancies. The elevation of serum tumor markers, including AFP and  $\beta$ -hCG, is characteristic of seminomatous germ cell tumors that plays a critical role in both diagnosis and monitoring response to therapy. The prompt initiation of cisplatin-based chemotherapy following orchiectomy is associated with high cure rates, even in metastatic disease (8-10).

Early recognition of testis cancer, particularly with atypical presentations in this patient, can have a significant impact towards a much better prognosis. This case highlights the importance of a thorough evaluation of symptoms that are evident simulating primary lung disease and lack of localized signs of malignancy may exclusively lead to a misdiagnosis in patients with respiratory complaints Since early detection and treatment are the most crucial distinctive features of these tumors to improve the prognostic outcomes, precocious diagnosis carries the utmost and the exclusive importance for clinicians. The diagnostic hallmark of this case lies in the pathologic assessment of the transbronchial sample. The small size of the testis tumor that is almost infeasible to visualize even with ultrasound, is the other noteworthy point concerning this patient. Multiple metastatic nodules caused by such a small sized tumor leading to culminant pulmonary manifestations along with the completely asymptomatic clinical profile of the testis tumor and lack of any symptoms or physical signs, except for the overarching respiratory complaints at the initial admission are the other distinctive features of our case. Another notable feature of this case is the completely normal chest radiograph at the initial presentation, when the metastatic nodules have not yet reached sufficient size that became apparent after three months. Metastatic testis tumors can present with a range of symptoms, including isolated pulmonary findings or other extratesticular organ manifestations caused by metastasis in the associated organ regardless of the size of the primary testis tumor. This case illustrates the need for clinicians to maintain a high index of suspicion for germ cell tumors in young men with respiratory or other organ related symptoms even in the absence of overt testicular pathology at initial admission.

# Conclusions

Metastatic testis tumors may present with a range of symptoms, including isolated primary findings associated with the organ metastasized by tumor cells. This case illustrates the need for clinicians to maintain a high index of suspicion for germ cell tumors in young men with respiratory symptoms in the absence of overt testicular symptoms and signs at the initial admission. Transbronchial biopsy, tumor markers, and testis ultrasonography were the distinctive diagnostic features guiding the management in this patient. Another hallmark of this case is the presentation with metastatic lung disease along with the dominant pulmonary symptoms. due to an extremely small testis tumor that is difficult to visualize even with ultrasound. The third remarkable point is that a tumor that can only be visualized with ultrasound due to its extremely small size has caused such widespread metastasis in the lungs causing the ubiquitous clinical profile. The normal chest imaging at the initial admission is another enlightening and noteworthy finding of this case for clinicians.

#### Author contributions:

Cuneyt Tetikkurt contemplated and wrote the study.

Muammer Bilir prepared the laboratory findings of the patients. Halil Yanardag analyzed the test results and performed the statistical analysis.

#### **Conflicts of interest**

All authors declare that they do not have any conflicts of interest associated with this case report. Authors confirm that there does not exist any supporting or funding agencies for this case Diagnosis of Testis Carcinoma by Bronchial Biopsy

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