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Case Report and Review of Literature: Malignant Pleural Mesothelioma Misdiagnosed as Breast Carcinoma

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Background: Malignant pleural mesothelioma (MPM) is a rare but aggressive tumor that is linked to asbestos exposure. Pleural mesothelioma is frequently challenging to diagnose because it mimics many other cancers. Among them, the two most common causes of pleural metastasis are breast and primary lung malignancies.

Case presentation: Here, we describe a case of a 69-year-old female patient who was complaining of shortness of breath as a result of recurrent left-sided pleural effusion, which necessitated thoracentesis three times in three months. The patient was misdiagnosed as having breast adenocarcinoma according to the initial pathology impression from a core biopsy. The adenocarcinoma was highlighted by estrogen receptor (ER) (focal), GATA3 (focal) immunostains, and Cytokeratin 7 (CK7), however, mammography was negative. Thus, a new incisional biopsy was obtained, and pathology results confirmed the diagnosis of epithelioid

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mesothelioma. The tumor cells were highlighted positive for calretinin, cytokeratin 5/6 (CK 5/6), and Wilms' Tumor 1 (WT1).

As a therapeutic intervention, the patient was transferred to a specialized center to receive chemotherapy; her chemotherapy medications are Bevacizumab, Pemetrexed, and Carbotaxol with good tolerance. However, the patient still suffers from recurrent pleural effusions; necessitating the placement of a permanent pleural catheter that drains around 1000 ml weekly, in order to prevent further referrals to the emergency room for pleural tapping.

Discussion: Malignant mesothelioma is a very challenging tumor to diagnose as it has similar features to other neoplasms. Sufficient size specimens are needed to help in the diagnosis of malignant pleural mesothelioma conjugated with immunohistochemistry. The immune profile of the tumors can successfully differentiate between them; because every tumor has specific immune markers. Furthermore, radiologic investigations are crucial in the assessment of MPM; CT is the most often used initial imaging modality. Cytology preparations on sufficient-size specimens can help in the diagnosis of MPM conjugated with immunohistochemistry.

Conclusion: Multidisciplinary diagnosis based on clinical, laboratory, radiological, cytological, and pathological evidence, should be implemented in order to confirm the diagnosis and differentiate it from other neoplasms.

Keywords: Malignant pleural mesothelioma (MPM), breast adenocarcinoma, pleural effusion, immunohistochemistry.

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