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CORRESPONDENCE

A Rare Clinical Co-Occurrence: Synchronous Presence of AML-MR and Lung Adenocarcinoma on Imaging and Pleural Fluid Cytology in a Non-Smoker Harbouring SRSF2 Mutation

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Dear Editor,

We present a rare and clinically significant case of the synchronous occurrence of Acute Myeloid Leukemia with Myelodysplasia-Related (AML-MR) and lung adenocarcinoma in a 70-year-old male. While both malignancies are individually common in the elderly, their concurrent presentation—especially with the AML-MR subtype—is exceedingly rare and may reflect a shared molecular pathogenesis.

A 70 year old male patient, a retired ENT surgeon, presented with exertional breathlessness and persistent dry cough over 2–3 months, in addition to a history of recurrent anemia with history of 6 units of PRBC transfusions for 1.5 years. He had no history of smoking or alcohol and no significant comorbidities. Physical examination showed poor performance status with moderate pallor, signs of right-sided pleural effusion and no lymphadenopathy or organomegaly.

Initial laboratory evaluation revealed anemia (Hb 7.7 g/dL), thrombocytopenia (platelets 75×10^9/L), and normal total leukocyte count (6.1×10^9/L). Peripheral smear examination showed marked anisopoikilocytosis, microcytic hypochromic red cells and 26% blasts, 1% promyelocytes, 8% myelocytes, 3% metamyelocytes, 47% neutrophils, 13% lymphocytes, 1% monocytes, and 1% basophils along with marked dysgranulopoiesis. Bone marrow aspirate (Fig. 1a) revealed hypercellular marrow with trilineage dysplasia (in >50% granulocytic, megakaryocytic and erythroid series) and 15% blasts. However, bone marrow biopsy showed clusters of blasts (Fig. 1b). Bone marrow aspirate flow cytometry confirmed 11.33% blasts of myeloid phenotype (CD34+, CD117+, HLA-DR+, CD13+, MPO+) (Fig. 1c). Cytogenetic studies revealed trisomy 8 (47,XY,+8[10]). Molecular profiling by next-generation sequencing (NGS) showed pathogenic mutations in **SRSF2**: NM_003016.4:c.284 C>A (p.Pro95His), VAF 48.1%, **IDH1**: NM_005896.4:c.394 C>T (p.Arg132Cys), VAF 38.6% and **STAG2**: NM_001042749.2:c.2025+1G>A (p.?), VAF 11%. No fusions were detected by RNA sequencing.

Based on SRSF2 mutation, a final diagnosis of Acute Myeloid Leukemia – Myelodysplasia Related (AML-MR) was made as per recent WHO 2022 [1].

On further investigations, HRCT Thorax revealed soft tissue density lesion involving right upper lobe medially with small soft tissue nodules involving right middle lobe and enlarged mediastinal lymph nodes suggestive of neoplastic etiology with mild fluid in right pleural space. The diiferential diagnosis of the lesion included primary bronchogenic carcinoma (adenocarcinoma likely), malignant mesothelioma and metastatic pleural disease. (Fig. 1d). Microscopic examination of pleural fluid aspiration showed cellular smears with aggregates and 3D clusters of atypical epithelial-looking cells with significant microscopic atypia, leading to an impression of adenocarcinoma of pleural origin (Fig. 1e).

A whole-body PET-CT scan showed a metabolically active paramediastinal soft tissue mass in the right lung upper lobe encasing the upper segmental bronchus and abutting the posterior mediastinal pleura with moderate pleural effusion in the right lung with partial basal collapse.

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