COEXISTING EGFR MUTATION AND ALK REARRANGEMENT IN LUNG ADENOCARCINOMA ALONG WITH SYNCHRONOUS BREAST ADENOCARCINOMA: A CASE REPORT

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Objective:

Introduction: ALK and EGFR mutations found together are rare and until recently the general opinion was that these mutations are mutually exclusive. Synchronous tumors of lung and breast are also rare. Determining the first line therapy is a challenge when there is a presence of two driver mutations at the same time along with another primary carcinoma. We present the case of a patient with both driver mutations in her lung cancer and synchronous cancer in her breast.

Case: A 72-year-old woman was admitted to emergency due to prolonged cough and some discomfort in her abdomen. On the thoracic x-ray, abundant pleural effusion was seen and evacuated. Cytological examination of the pleural effusion showed papillary structures of polymorphous malignant cells, nuclei were irregular, with somewhat fine chromatin, nucleoli were present, cytoplasm were abundant somewhere with large vacuoles. Malignant cells were positive for epithelial antigen (Ber-Ep4), TTF-1 and CK7, some weak positivity was seen in CK20 and calretinin was negative. The diagnosis of metastatic adenocarcinoma probably of lung origin was made. Predictive immunocytochemistry was ALK positive, PD-L1 positive in 40% of malignant cells and ROS1 negative. The sample was sent for molecular testing and insertion in exon 20 was found. On further examinations, CT scan of the thorax showed a suspicious tumor in the left breast and a suspicious metastatic/primary tumor in the right lung as well as a presence of pleural effusion. Core needle biopsy of the left breast showed invasive carcinoma of the breast; ER and PR negative, HER2 positive. Biopsy of the lung nodule showed adenocarcinoma of the lung, also TTF-1 positive, ER, SOX10 and HER2 negative. Predictive immunohistochemistry was made and ALK was also positive like in cytology sample of pleural effusion. Since the EGFR mutation and ALK positivity are rarely found together we confirmed ALK positivity with FISH analysis. The patient was presented on multidisciplinary team for further clinical management.

Conclusion: Coexistence of mutually exclusive mutations and synchronous tumors is rare and eligible for broad molecular testing that would possibly lead to better treatment strategies.