CASE REPORT

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A Rare Synchronous Tumor Association in a Geriatric Patient: Lung Adenocarcinoma and Colon Carcinoma

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Abstract

The incidence of synchronous colorectal and lung cancer is very low and rare. We present the case of a geriatric patient with tumors in the transverse colon and right pulmonary hilum. This case report aims to draw attention to the rare synchronous colon and lung cancer. Treatment of synchronous tumors is different from the treatment of other primary cancers. If possible, radical resection of both tumors should be performed when synchrony is detected. Since our patient was metastatic, a chemotherapy protocol that is effective on both tumors was started. Chemotherapy regimens are also quite different in these patients. Therefore, effectively differentiating synchronous cancers from colorectal cancer with pulmonary metastases has important therapeutic implications for these patients.

Keywords: Synchronous, cancer, elderly

Introduction

The liver is the first and most common site of colorectal cancer metastases. The second most common organ for metastases is the lung (1). Lee et al. (2) reported that 10-20% of patients with colorectal cancer develop lung metastases. Pulmonary metastasis of colorectal cancer usually occurs as multiple lesions in both lungs due to the distribution of the primary tumor through the circulation. However, approximately 10% of pulmonary metastases consist of a single solitary pulmonary nodule (2). A solitary pulmonary nodule in a patient with current or pre-existing colorectal cancer should initially suggest a metastasis of colorectal cancer. However, in some rare cases, patients may develop synchronous colorectal and lung cancer. In fact, lung cancer appears to be one of the most common second primary cancers in patients with colon cancer (3). In these patients, not only surgical resection but also chemotherapy regimens are quite different from those for patients with colorectal cancer with pulmonary metastases. Hence, effectively distinguishing synchronous cancers from colorectal cancer with pulmonary metastases has important therapeutic implications for these patients.

This case report aims to draw attention to synchronous tumors bypresenting a case of rare synchronous colon and lung cancer.

Case Report

A 73-year-old female patient was admitted to our polyclinic with loss of appetite, weakness, and weight loss for the last three months. On the physical examination, her general condition was moderate, body temperature was 36.8 °C, pulse was 90/min, respiratory rate was 21/min, and blood pressure was 110/70 mmHg. Head and neck examination revealed painless lymphadenopathy (LAP) of approximately 2 cm in the left cervical region. Other system examinations were normal. She had a 15-year history of type 2 diabetes mellitus. There was no feature in her family history. The patient, who had a shortness of breath in the system query and a 15 pack-year smoking history, was admitted to the geriatric service with a preliminary diagnosis of malignancy.

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In her inpatient laboratory tests, sedimentation was 55 mm/hour, hemoglobin: 13.9 g/dL, white blood cell: 7.97 10^3/µL, PLT: 283 10^3/µL, and C-reactive protein: 2.3 mg/dL. Superficial tissue ultrasonography (USG) revealed 20 mm LAP in the left cervical region and multiple LAPs, the largest of which was 24x15 mm, in the periportal, paraaortic, and peripancreatic areas. On abdominal USG, up to 30 mm of free fluid was detected in the pelvic region. Thoracic and abdominal computed tomography detected fluid up to 48 mm in the right hemithorax, 52 mm in the left hemithorax, multiple LAPs of 26x17 mm in the paraaortic, paracaval, subcarinal, paraesophageal, peripancreatic, and portal hilum, and free fluid in the pelvis.

The lymph nodes in the left cervical region of the patient were excised, and the pathology report indicated lymph node metastasis of mucinous adenocarcinoma. Sections of the metastatic lymph node revealed a neoplastic formation by glandular structures and occasional distribution of atypical cells with hyperchromatic nuclei, large cytoplasm, and a monotonous morphology in places within large mucin pools that have destroyed the lymph node structure. The tumor has the morphology of a mucinous adenocarcinoma (Figure 1). Pathologically, systematic screening of the case, primarily the digestive system, has been suggested to find the primary site of origin.

In the systemic evaluation of the patient, tumor markers were found as CA-125:124 U/mL, CA 19-9: 18.1 U/Ml, and CEA: 359 ng/mL. Positron emission tomography revealed a hypermetabolic lesion with irregular borders in the right pulmonary hilar region (SUV_{max}:4.63); several hypermetabolic nodular lesions in both lungs, 9 mm in the upper lobe of the left lung and 12 mm in the upper lobe of the right lung; hypermetabolic lymph nodes in bilateral supraclavicular, right hilar, right paratracheal, aortopulmonary, subcarinal and bilateral bronchovascular areas (SUV_{max}:4.61); pleural effusion up to 46 mm in the left lung and 50 mm in the right lung; hyperipermetabolic lesion in the 5 cm long segment in the transverse colon (SUV_{max}:12,35); celiac, gastrohepatic, paracaval, paraaortic, aortocaval, peripancreatic, hypermetabolic lymph nodes in the left common iliac area (SUV_{max}: 4.60) and hypermetabolic bone lesions in the right scapula, right acromion, right proximal humerus and left proximal humerus proximal (SUV_{max}: 3.13) Figure 2.

Colonoscopy performed for the primary site investigation revealed a suspicious lesion in the transverse colon and biopsy was performed. Pathological examination of the colon biopsy revealed tubulovillous adenoma fragments containing areas of invasive carcinoma (Figure 3). However, mucinous areas were not observed morphologically, and therefore, it was predicted that the case may have a second primary malignancy in the morphology of mucinous adenocarcinoma.

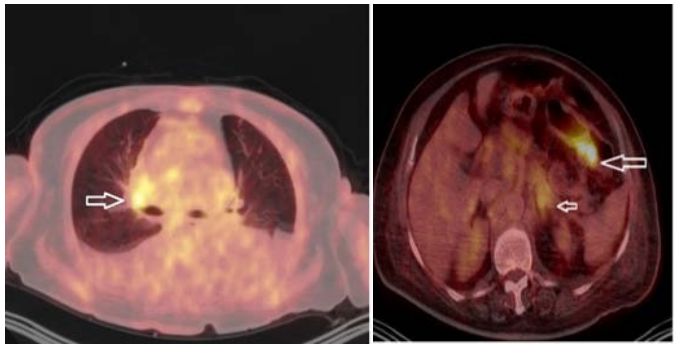

Figure 2. PET CT: Synchronous tumor involvement in the transverse colon and right pulmonary hilar region

PET: Positron emission tomography, CT: Computed tomography

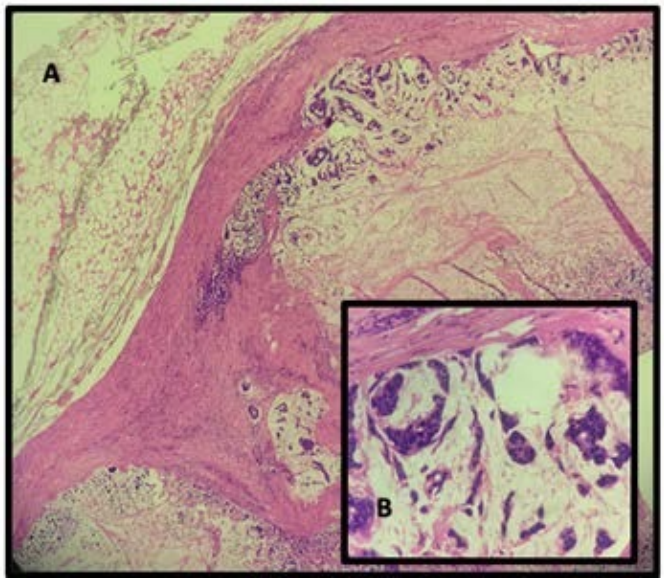

Figure 1. Mucinous adenocarcinoma metastasis positive lymph node

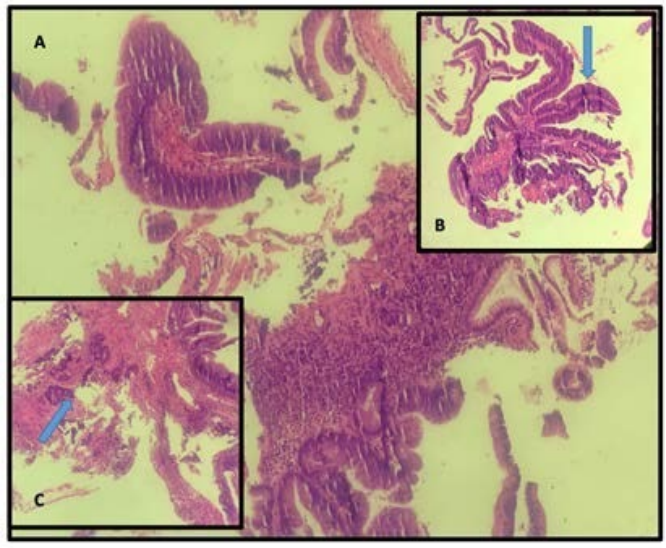

Figure 3. A-Tubulovillous adenoma fragments containing areas of invasive carcinoma, B- villous structure, C-Invasive areas (H&t)

Endobronchial USG was performed because the patient had a suspicious lesion with SUV_{max}: 4.63 in the lung. Biopsy was performed from the lap reaching 40 mm in size in the lower right paratracheal area. Histomorphological examination revealed atypical pleomorphic neoplastic cells with large hyperchromatic nuclei within mucin pools, occasionally containing intracytoplasmic mucin. Its pathology was reported as mucinous adenocarcinoma metastasis (Figure 4). In the immunohistochemical analysis of the case, immune expression was monitored with ck20 and cdx-2 (Figure 3), but no immune expression of ck20 and cdx-2 (Figure 5). No reactivity was observed with immunohistochemical CK7, TTF-1 and napsin A (Figure 6). The patient was diagnosed with lung mucinous adenocarcinoma and colon adenocarcinoma synchronously.

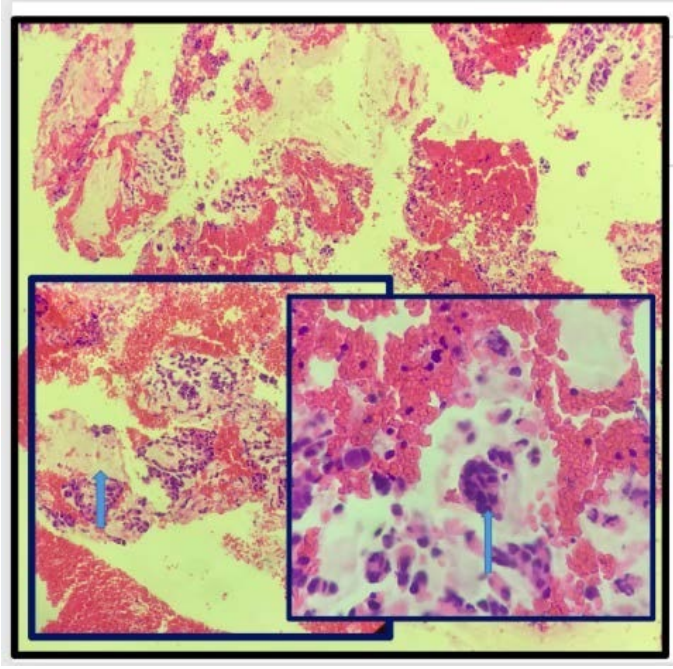

Figure 4. EBUS material from 4R lymph node (H&E)

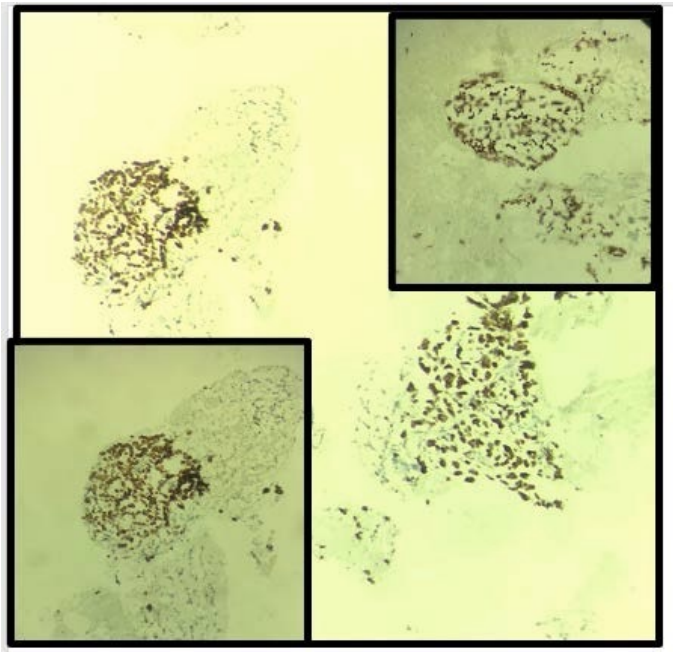

Figure 5. CK20 and CDX-2 immunoexpression in an immunohistochemical study

The patient was referred to the medical oncology clinic with the diagnosis of metastatic synchronous lung and colon cancer, and chemotherapy (3 cycles of paclitaxel d1, d8, d15, and carboplatin d1, d8, d15 every 28 days) was started. The outpatient follow-up of the patient, who is in the first month of treatment, continues.

Discussion

Colorectal cancer is one of the most common types of cancer, it tends to metastasize by the hematogenous route. The liver and lung are the organs that it metastasizes most frequently. Approximately 50% of patients develop liver metastases and approximately 20% develop lung metastases. Therefore, when a patient with colorectal cancer has multiple pulmonary lesions, most clinicians consider them to be lung metastases. However, sometimes pulmonary metastases may occur as a single solitary lesion. In addition, as presented in our case, it can be seen in rare patients with primary lung cancer and synchronous colorectal cancer as a type of multiple primary malignant neoplasms.

Evans et al. (4) investigated the incidence of primary lung cancer in 127,281 patients with colorectal cancer and found the incidence of primary lung cancer to be 0.6% (801 cases), whereas the incidence of synchronous colorectal and lung cancer was much lower. The pathogenesis, biological behavior, and treatment of synchronous colorectal and lung cancer are

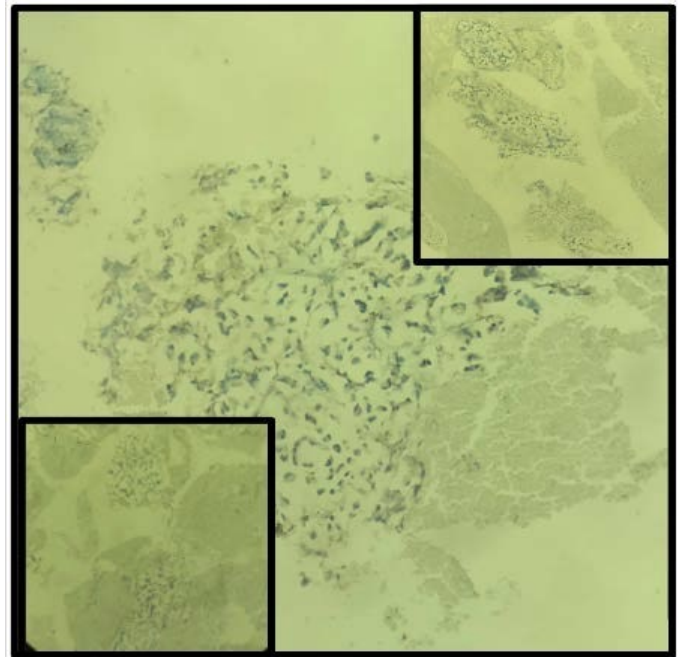

Figure 6. No immunohistochemical reactivity was observed with CK7, TTF-1, and napsin A

quite different from that of colorectal cancer with pulmonary metastases. Therefore, when a single solitary pulmonary lesion is detected in a colorectal cancer patient, it is crucial to distinguish between these two possibilities for appropriate surgical treatment or appropriate chemotherapy. Due to the low incidence, physicians do not have much experience in synchronous colorectal and lung cancer. This may lead to misdiagnosis and delay in treatment. For instance, if a patient with synchronous colorectal and lung cancer is misdiagnosed as colorectal cancer with lung metastases, the chemotherapy given may not be effective for the patient. For these reasons, cancer patients should be carefully examined. If synchronous cancers are detected in the early period, these patients may have better treatment options. Since the incidence of synchronous colorectal and lung cancer is relatively low, each organ should be carefully examined when the first primary cancer is found, and it should be kept in mind that there may be another malignant neoplasm. When suspicious lesions are found, further investigation should be performed immediately. Biopsy if necessary, can reduce the possibility of misdiagnosis and will make it easier for physicians to detect synchronous lesions.

When the patient's condition allows, radical resection of synchronous tumor foci should be performed. After radical resection, appropriate adjuvant chemotherapy should be given according to the pathological type and stage of the tumors. If surgical resection is not feasible, an appropriate chemotherapy protocol that can affect both tumor foci should be chosen.

In conclusion, lung cancer and colon cancer are two very common types of malignancies and are among the leading causes of cancer-related deaths. Especially in developed countries, these cancers constitute a significant public health burden (5). It is generally accepted that smoking plays an important role in lung carcinogenesis (6). In addition, epidemiological data suggest that obesity is associated with an increased risk of colon cancer (7). Diabetes and high dietary meat intake are also associated with an increased risk of colon cancer (7). Although the incidence of synchronous lung and colon cancers is low, future genetic and epidemiological studies are needed to elucidate the potential link between these two types of cancer.

Ethics

Informed Consent: Informed consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: A.T., P.T.T., A.M., S.Ö., Design: A.T., P.T.T., A.M., S.Ö., Data Collection or Processing: A.T., P.T.T., A.M., S.Ö., Analysis or Interpretation: A.T., P.T.T., A.M., S.Ö., Literature Search: A.T., A.M., S.Ö., Writing: A.T., P.T.T.

Conflict of Interest: No conflict of interest was declared by the authors.

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