

Endobronchial Treatment for Multiple Colon Carcinoma Metastasis

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Received: February 15, 2021; Accepted: March 23, 2021; Published Date: March 30, 2021

ABSTRACT

INTRODUCTION

Endobronchial metastasis of colorectal cancers is rare. Their clinical, radiological and bronchoscopic similarity to primary bronchial carcinoma make differential diagnosis difficult. As they are seen usually with systemic metastases, palliative approaches are at the forefront of treatment. Emergent treatment may be required when central airways are involved.

CASE

A 76-year-old male presented with cough and increased shortness of breath. In his background, he had undergone left hemicolectomy operation 5-years ago due to colon adenocarcinoma. Thorax CT showed mass lesions in the lower 1/3 part of the trachea and in the left lower lobe. An endobronchial tumor lesion obstructing the lower 1/3 part of the trachea and upper left lobar lumen was found in his bronchoscopy. Endobronchial electrocauterization and argon plasma coagulation were used to des obstruct the lumen. His respiratory symptoms improved. Immunohistochemical pathological examination of bronchial biopsies was reported as “Adenocarcinoma Originating from Colon”.

CONCLUSION

Endobronchial metastasis is rare in metastatic colorectal cancers. Interventional bronchoscopic treatments applied in central airway obstructions are successful in providing symptom palliation and improving quality of life.

KEYWORDS

Endobronchial colorectal cancer; Endobronchial therapy

INTRODUCTION

Endobronchial metastasis (EM) of colorectal cancers is rare. They can occur years after a primary tumor operation. Their clinical, radiological and bronchoscopic similarity to primary bronchial carcinoma make differential

diagnosis difficult. Therefore, careful background inquiry and immunohistochemical examination of bronchoscopic material are important for diagnosis. As EM's are seen mostly with systemic metastases, palliative approaches (Radiotherapy, chemotherapy, and local endobronchial interventions) are at the forefront of EM treatment [1-13].

Citation: Aydan Mertoğlu, Endobronchial treatment for multiple Colon Carcinoma Metastasis. Clin Surg J 4(3): 8-14.

If technically possible, surgical resection is another treatment option [4,7,8,14].

It is known that, in central airway involvement, endobronchial therapy applications with laser, electrocauter, argon plasma coagulation are successful in preventing asphyxia and relieving respiratory distress and improve the quality of life [2,5,6,8,10,11,13].

We presented a patient with multiple endobronchial metastasis which developed 5 years after colon cancer operation and whose palliation in symptoms was achieved with endobronchial treatment. The purpose of presenting this case was to emphasize the need to know that endobronchial metastasis may develop long after diagnosis in colorectal cancers and that interventional bronchoscopy can be used for palliative purposes, especially in metastatic lesions which block central airways.

CASE REPORT

A 76-year-old male patient was admitted to our clinic with cough and shortness of breath that had proceeded for a month. In his background, it was found out that 5 years ago he underwent left hemicolectomy operation (pathology: Adenocarcinoma) followed by 5 cycles of chemotherapy. Three years after the operation, a mass lesion had been detected in the left lung and he had undergone a metastasectomy (colon adenocarcinoma metastasis) operation. There was no disease in his family history. He never smoked.

In his physical examination; blood pressure: 120/80 mmHg, pulse: 92/minutes, oxygen saturation 92% (with 2 liters/minute oxygen), and respiratory rate: 25/minutes. He was dyspneic and there was decrease in respiratory sounds in left hemithorax and coarse rals and ronchi were heard in both hemithoraces.

Laboratory findings were as follows: C-reactive protein: 8 mg/litres, Leucocyte: 11.00/mm³, sedimentation: 34 mm/hour, SGOT: 49 U/L, SGPT: 64 U/L. Other routine laboratory findings were normal.

His chest X-ray (Figure 1) showed a homogeneous 3 cm × 4 cm sharply- circumscribed lesion in the left hiler region extending towards infrahiler region, and a homogeneous density in the lower zone which did not obscure the heart but obscured the diaphragm and left costophrenic sinus. In thorax CT, in addition to the lesion (Figure 2A and Figure 2B) that narrows the lumen near fully in the 1/3 lower part of the trachea, a relatively limited mass lesion in the lower left lobe with a diameter 5 cm × 4 cm and another solid noduler lesion with a diameter of about 2 cm were detected.

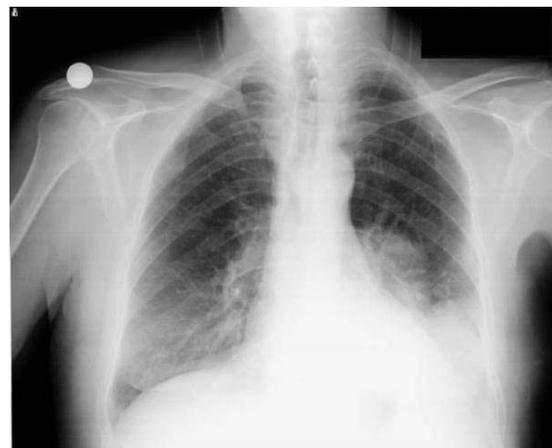


Figure 1: Chest x-ray.

We planned rigid bronchoscopy to apply endobronchial therapy in the same session to the tracheal lesion seen in the patient's CT scan and relieve his dyspnea.

Procedure was performed transorally in the operation room, under general anaesthesia. For general anaesthesia, rocuronium (induction dose of 0.6 mg/kg, maintenance dose of 0.15 mg/kg), propofol (Induction dose 1.5 mg/kg - 2.5 mg/kg, maintenance dose 4 mg/kg/h - 12 mg/kg/h infusion) and remifentanyl [Bolus infusion 1 µg/kg (applied in at least 30 min), continuous infusion dose 0.05 µg/kg/min - 2.0 µg/kg/min] were used.

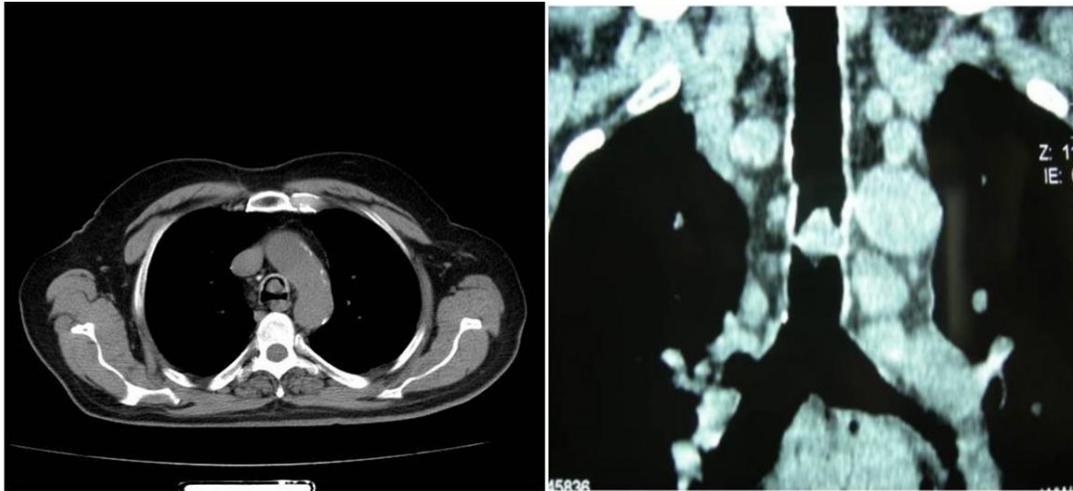


Figure 2A and Figure 2B: thorax CT, in addition to the lesion

Endobronchial treatment was carried out with an electrosurgery unit (ESU)/APC unit (ERBE ICC 200 EA; and APC 300 combination, Tübingen, Germany) via flexible (model EB 1970, 2.8 model) rigid bronchoscope (EFER- DUMON BRONCHOSCOPE BT series; Marseille, France). The ESU (EC) has a constant-voltage-cutting feature with four adjustable voltage levels. This allows the vaporisation of tissue because of a dense concentration of electrical energy with minimal and controllable lateral thermal spread. Conversely, the SOFT and FORCED coagulation modes enable the use of slow dispersive and quick effective coagulations, respectively.

Rigid bronchoscopy showed a partially smooth surfaced lobulated lesion which nearly obstructed the trachea to full in the 1/3 distal trachea (Figure 3). After, the biopsy process, desobstruction with argon and electrocauterization were performed. Lumen was 100% opened by these processes (Figure 4). Then, right bronchial system was analyzed through the fiberoptic bronchoscope that was inserted through the rigid bronchoscope and secretions were cleaned.

Although we had not seen any lesion in the left upper lobe in thorax CT, we noticed a white vegetan tumoral lesion which fully obstructed upper lobe bronchus (Figure 5).

This lesion was desobstructed by using argon and electrocauter fiber probes and full clarity was provided (Figure 6), no endobronchial lesion was observed in the lower left lobe. Immunohistochemical examination was reported as “Colon Adenocarcinoma Metastasis” (Figure 7).



Figure 3: Rigid bronchoscopy showed a partially smooth surfaced lobulated lesion which nearly obstructed the trachea to full in the 1/3 distal trachea.

No complications developed related to the operation. Respiratory function tests could not be performed due to hearing impairment of the patient. There was clinically significant relief of dyspnea. The patient was discharged as his oxygen saturation was 96% at room air.



Figure 4: Lumen was 100% opened.



Figure 5: White vegetant tumoral lesion.

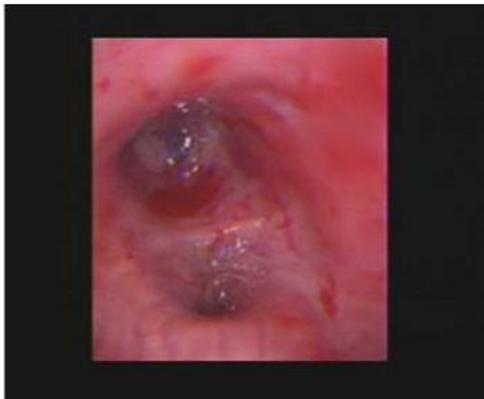


Figure 6: Lesion was desobstructed by using argon and electrocauter fiber probes and full clarity was provided.

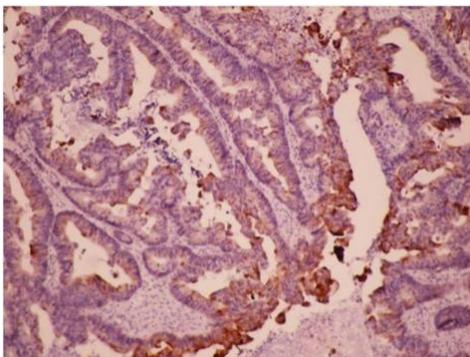


Figure 7: Immunohistochemical examination.

DISCUSSION

Endobronchial metastasis of extrathoracic solid organ tumors is rare. Breast, colon, and renal cell carcinoma are the most frequent tumors associated with endobronchial metastases [1,4,6,8,9,12,14-18].

Parenchymal lung metastasis of extrathoracic malignancies is more common. Since bronchoscopy is not routine in every patient with parenchymal metastasis, it is thought that the true incidence of EM's is not fully known.

In postmortem studies, Braman et al. reported the EM detection rate of extrathoracic solid organ tumors as 2% [19].

In the literature, there are case reports or a few case series about endobronchial metastasis of colorectal cancers. Incidence rates of colorectal cancers in these case series are variable. Extrapulmonary endobronchial colon metastasis were reported by Rovirosa [12] in 3 of 30 (10%) cases, by Sorenson [16] 30 of 204 (14.7%) cases, by Kiryu [17] 6 of 16 cases (37.5%) [1,3,6,7-10,12,13].

Most endobronchial metastases also have paranchymal pulmonary metastasis [9,10,15]. However, since bronchoscopy is not a routine practice in every case with parankimal metastasis, the true incidence of endobronchial metastasis is not fully known.

There is an average of 4 years - 9 years between colorectal tumor diagnosis and endobronchial metastasis detection [1,3,4,6-8,10,14-17,20], synchronous metastasis cases are rarer [9,12,17].

The most common symptoms in patients with endobronchial metastasis are dyspnea, cough, chest pain and hemoptysis [6,9,10,15,17,10,12,20]. The patients who have respiratory failure due to disseminated or central lesions [1,3] and asymptomatic cases have also been identified [1,12,17,14]. Our case presented with cough and shortness of breath.

Atelectasis is the most common finding in computed tomography or chest X-ray [6,15,20]. In addition, nodular metastatic lesions (due to paranchymal metastasis), hilar growth, enlarged mediastinal lymph nodes, pleural effusion and lobar/segmental infiltrates can be observed [3,9,10,12,13,16].

Lesions are frequently found in trachea, main bronchi and lobar bronchi. Multiple endobronchial lesions, like our patient's, are rarer [3,4,10,15,17].

Endoscopic presentations can be polypoid, pedicled or infiltrative. As they have similar appearance with primary lung cancer, immunohistochemical examination of biopsies are needed for differential diagnosis [1,3,6,7,9,10,14,15]. In our case, the lesion in trachea was smooth surfaced and the lesion in upper lobe bronchus was broad-based.

EM's are thought to be formed by direct metastasis to the bronchi or by bronchial invasion from paranchymal lesions, or by bronchial invasion of the hilar/mediastinal metastatic lymph nodes, or by the progression of the peripheral lesion to the proximal bronchi. The rarest are direct metastasis and these usually coexist with lymphangitis carcinomatosa [1,6,17].

Since EM's usually seen with systemic dissemination, treatment is primarily symptom palliation. After making patient-based evaluation, radiotherapy, chemotherapy, and local endobronchial interventions can be used alone or in combination. (1,8,10,15,18)

The choice of treatment should be decided considering the urgency of clinical findings, the location of the tumor, the type and degree of bronchial obstruction, the presence of other metastases and the patient's performance status.

In central airway obstructions that cause respiratory distress, interventional bronchoscopic methods which can provide airway patency immediately, such as laser,

electrocauter, argon plasma coagulation, are preferred. These treatments are recommended to be carried out before radiotherapy and/or chemotherapy [11,21]. In our case, we preferred interventional bronchoscopic methods which have quick effect to the lesions that nearly obstructed the trachea and caused dyspnea. These treatments are effective in symptom palliation, but their contribution to prognosis is limited to selected cases [2,6,10,11,13,15,16,21].

Shitrit et al. reported that in their series of 8 cases in which they applied endobronchial laser therapy combined with chemotherapy and/or radiotherapy; there were symptom palliation in all patients, but 4 patients (50%) died in 2-years follow-up [10].

Fournel et al. reported that, in 24 colorectal cancer patients who had endobronchial metastasis treated with endobronchial mechanical resection, laser and cryotherapy, they had effective symptom palliation (72%) and increase in FEV₁ by 34% [6].

Carlin et al. presented 9 cases of colorectal EM, which they performed debulking with Nd-Yag laser. In all cases, they achieved total bronchial opening, and in 8 cases they had symptomatic palliation. They report median survive to be 21 months [13].

Recurrence was reported after symptomatic treatments in EM's. Therefore, repeatability of endobronchial therapies provides great advantage [6,10].

Colorectal EM is usually seen with disseminated disease. Therefore, the prognosis after EM is detection is poor. Mean survival is reported as 1 year - 4 years. The presence of other organ metastasis, treatments, clinical performance of the patient and accompanying diseases are factors affecting survival [1,3,5,6,8,12-17]. In our patient, he had had metastasectomy operation from left lung two years ago, EM was detected 5 years after the diagnosis of

primary tumor. Our case died in the 20th month after endobronchial treatment.

CONCLUSION

As a conclusion, EM's of colorectal cancers are rare. They can occur years after the diagnosis of primary tumors.

The possibility of endobronchial metastasis should be considered in patients with colorectal carcinoma with respiratory symptoms and endobronchial therapies in palliative treatment should be kept in mind.

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