

Case report

Argon plasma coagulation for management of hemoptysis in endobronchial metastasis from soft-tissue sarcoma

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ABSTRACT

Hemoptysis is a manifestation of a wide variety of diseases. Endobronchial metastases from nonpulmonary neoplasms are unusual. Among these causes, soft-tissue sarcoma is also discretely rare and scarcely documented. Argon plasma coagulation is a useful tool for the interventional pulmonologist that can allow control of bleeding from these lesions. Here we report a case of hemoptysis from an endobronchial metastasis of soft-tissue sarcoma. Argon plasma coagulation of the bleeding lesion was performed successfully.

1. Introduction

Endobronchial metastases from nonpulmonary tumors are uncommon. Estimated incidence is variable, ranging from 2 to 50% of pulmonary metastases from extrathoracic neoplasms [1]. Bronchoscopy is useful in cases of hemoptysis with both diagnostic and therapeutic benefits. One of the therapeutic technique available to achieve hemostasis from bleeding endobronchial lesions is argon plasma coagulation (APC) [2]. Here we report a patient with an endobronchial metastasis from soft-tissue sarcoma presenting with hemoptysis. The bleeding was successfully managed using APC applied during flexible bronchoscopy.

2. Case summary

A 57-year-old man with soft-tissue sarcoma in lower right limb (G3pT2bN0M0) was treated with surgery and adjuvant radiotherapy. Six months later, the patient developed multiple pulmonary metastases (see Fig. 1), treated with 6 cycles of chemotherapy (Adriamycin) with partial response. One year later, the patient presented with large volume hemoptysis. Flexible bronchoscopy revealed fresh bleeding from a smooth, reddish and high-vascularized mass located in the anterior segmental bronchus of the right upper lobe (RB3) (see Fig. 2). Initial bronchoscopic management included topical instillation of cold saline, a vasoconstrictor agent (adrenaline) and an antifibrinolytic agent (tranexamic acid). Computerized tomography (CT) of the chest at this time showed enlargement of the multiple pulmonary metastases, with one mass in the right upper lobe invading the bronchial lumen (see Fig. 3).

After initial success, the patient presented another episode of hemoptysis and he was transferred to a referral bronchoscopic center. Using two sessions of flexible bronchoscopy, APC was applied to the surface of the endobronchial mass and bleeding control was achieved. Finally, the patient was discharged and chemotherapy can be restarted. Three months later, the patient did not suffer from new episodes of hemoptysis in spite of metastatic disease progression.

3. Discussion

Endobronchial metastases are uncommon, especially those from extrathoracic malignancies. Reported incidence in the literature is variable, probably in relation with factors as different clinical settings, variable timeframe between primitive tumor diagnosis and appearance of endobronchial metastases, factors related to ethnicity and differences in the criteria used for the diagnosis. Carcinomas from breast, kidney and colorectal are the most commonly encountered [3]. Sarcomas have been rarely reported as endobronchial metastases [4].

Sarcomas are a relatively rare and heterogeneous group of tumors arising from mesenchymal tissues [5]. The lung is the most frequent site of metastasis from soft-tissue sarcomas. In selected cases, pulmonary metastasectomy is successfully used. Prognostic factors include histologic subtype, size and number of the metastases or disease-free interval [6]. Parenchymal nodules are the most common type of presentation. Endobronchial metastases from sarcomas are rare and little is known about their endoscopic appearance [7].

Our report shows an endoscopic image of endobronchial metastasis from soft-tissue sarcoma. This endobronchial involvement was probably

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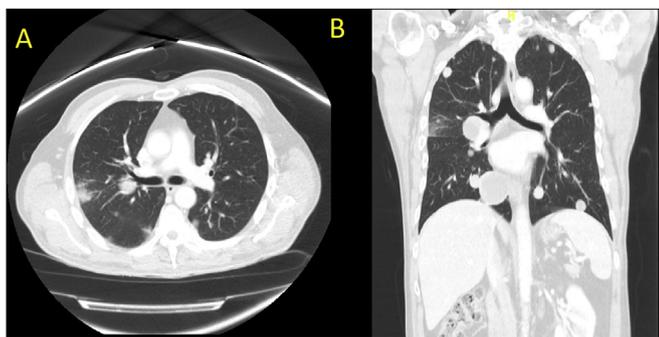


Fig. 1. Computerized tomography (CT) scan of the chest 6 months before presenting with hemoptysis. Axial (A) and sagittal (B) views shows multiple pulmonary nodules and masses of different size compatible with pulmonary metastases.



Fig. 2. Bronchoscopic view from the right main stem bronchus showing a smooth, reddish and high-vascularized mass located in the anterior segmental bronchus of the right upper lobe (RB3). Total occlusion of the corresponding segmental bronchus and fresh bleeding are present.

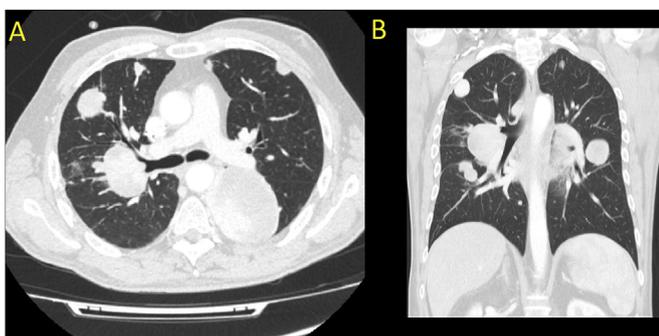


Fig. 3. Computerized tomography (CT) scan of the chest during the bleeding episode. Axial (A) and sagittal (B) views shows enlargement of the multiple pulmonary metastases, with invasion of the bronchial lumen by one mass located in the right upper lobe.

originated from the large pulmonary mass by extension along the proximal bronchus. This is the type IV of the developmental modes proposed by Kiryu et al. [8].

Hemoptysis can be a life-threatening condition and its management has changed in the recent years due to technological advances. Introduction of the bronchial artery embolization and improvements in

CT are important landmarks. Bronchoscopy remains one of the main procedures in cases of hemoptysis. Beyond the diagnostic value, therapeutic techniques of interventional pulmonology can be useful in the bleeding management. Available procedures include application of hemostatic or vasoconstrictive agents, placement of bronchial stents or bronchial blockers, endobronchial embolization, use of laser photocoagulation or APC, pulmonary isolation or selective endobronchial intubation. All of them could have a potential benefit in the vital status of these patients [9].

APC is an electrosurgical noncontact thermal ablation technique used to achieve hemostasis in bleeding endobronchial lesions. It has been successfully described in both flexible and rigid bronchoscopy. Their stated advantages include rapid and effective coagulation, lower risk of airway damage, better control of depth and short operating time [2]. In cases of hemoptysis related to endobronchial malignancies, APC can achieve immediate resolution of bleeding with long-term effectiveness. Another advantage includes its potential use in different scenarios, like in an outpatient setting or at the bedside in the Intensive Care Units [10].

The large size of the pulmonary metastasis in upper right lobe discouraged vascular management of the hemoptysis using arterial embolization. In addition, the endobronchial high-vascularized appearance encouraged the use of APC. Immediate bleeding cessation was achieved and maintained after 3 months. This long-term effectiveness could be related with the thermal ablation produced in the endobronchial surface of the metastasis [2,10].

4. Conclusion

In summary, endobronchial metastases from soft-tissue sarcomas are uncommon. They are a rare cause of hemoptysis. Bleeding control can be achieved with interventional pulmonology procedures, as APC successfully used in the case presented here.

Declarations of interest

None.

Funding and conflict of interest

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