
Endobronchial metastasis: The challenge continues

Endobronchial metastases (EBMs) are considered to be present when the primary involvement of bronchial epithelium by a malignant lesion at the extrapulmonary site is histologically verified with that of the extrapulmonary primary tumor. These are actually metastatic lesions to subsegmental or more proximal central bronchus in a bronchoscopically visible range. Almost 20 extrapulmonary sites have been reported in an analysis of 204 patients with EBM, the most common being breast, kidneys, and colorectal cancers.^[1] Only 1% of the endobronchial tumors are metastatic.^[2] The incidence may be underestimated because of unremarkable clinical manifestations in the majority of the patients and asymptomatic or normal chest radiographs in a minority. To make a distinction between primary lung cancers and metastasis is of utmost importance as treatment possibilities may be different.

The EBMs are principally a consequence of permeation of mucosal lymphatics by malignant cells, resulting in swollen lymphatics, which may coalesce to form solid tumor masses under the bronchial epithelium. They may eventually ulcerate to form polypoidal endo-lumen masses. Hematogenous spread and aspiration may be the other possibilities for such metastases. While the earlier lesions may be either asymptomatic or may not be radiologically visible, thus difficult to suspect and recognize; those at later stages may cause partial or complete airway obstruction resulting in distressing respiratory symptoms. Both situations may pose challenges for treating pulmonologists.

Depending on location in the tracheobronchial tree, number of lesions, laterality of the lesions, depth, and relationship with associated bronchus, four types of developmental modes have been proposed. Type I mode, direct metastasis to the bronchus; Type II mode, bronchial invasion by parenchymal lesion; Type III mode, bronchial invasion by mediastinal or hilar lymph node metastasis; and Type IV mode, peripheral lesions extending along the proximal bronchus.^[3]

The challenge posed by EBM in asymptomatic individuals with micrometastasis and by those symptomatic individuals with normal chest radiographs is to recognize their presence at the earliest. These cases are difficult to diagnose until there is a strong clinical suspicion. Most difficult cases are those with EBM being the only site of recurrent disease. In a series of 204 patients with EBM in the above-mentioned study,^[1] 56 patients (27%) had EBM as the only site of distant metastases. The same review has also reported four patients (4%) with EBM having a normal chest radiograph. Lee *et al.* also reported four patients presenting with normal chest radiograph of their

series of 43 cases (9.3%) with EBM.^[2] Another case series reported by Dogan *et al.* found that 5 of 16 cases (31.3%) had no respiratory symptoms related to EBM.^[4] King and Castleman have reported that seven patients in their series of 109 patients with lung metastasis had only microscopic endobronchial involvement on the autopsy study.^[1] Newer diagnostic techniques like fluorescent bronchoscopic visualization of such lesions may facilitate early detection. Positron-emission tomography-computed tomography may also give a clue to the presence of EBM in such asymptomatic cases. EBM should be considered in cases of endobronchial fluorodeoxyglucose uptake.^[4]

Another challenge is in managing a group of individuals with EBM presenting with large visible endobronchial lesions and have distressing airway symptoms. With the advent of newer intrabronchial therapies, i.e. brachytherapy, photodynamic therapy, mechanical debulking, laser cauterization and stents, it is now possible to provide palliation of symptoms for these patients, even with a possibility of cure in a few of them. Bronchoscopic interventions are considered to be safe and effective. Technical success was achieved in 89.9% of patients in a series reported by Shin *et al.*^[5,6]

EBMs are known to manifest late in the course of cancer progression, yet there are reports of cases where endobronchial lesions were diagnosed at the same time as primary tumors. Malignant melanoma is one such cancer, where EBMs were found at the time of diagnosis of primary cancer in one study.^[2] Therefore, the presence of respiratory symptoms at the time of diagnosis of extrathoracic malignancies must raise the suspicion of EBMs even when the chest radiographs are normal.

A small series of 11 patients with evidence of endobronchial metastasis published in this issue also supports the previous findings of common sites of extrapulmonary malignancies responsible for EBM.^[7] The case series describes the confirmation of EBM by the use of immunohistochemistry. The challenge of differentiating EBM from primary lung malignancies is one of the great diagnostic conundrums. Immunohistochemistry is a critical diagnostic adjunct in this regard. Thyroid transcription factor-1, apoprotein-A1, and CK profile are few of the important immunohistochemical markers.^[8]

Overall, a high degree of clinical suspicion and use of appropriate diagnostic techniques help in early identification of EBM which ultimately may lead to better treatment results and early palliation of distressing respiratory symptoms. Treatment plan must be

individualized because in some cases long-term survival can be expected.

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Access this article online	
Quick Response Code: 	Website: www.lungindia.com
	DOI: 10.4103/lungindia.lungindia_84_19

How to cite this article: Gupta N. Endobronchial metastasis: The challenge continues. *Lung India* 2019;36:181-2.