

SPRAY CRYOTHERAPY FOR HEMOPTYSIS DUE TO FIBROSING MEDIASTINITIS

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Background

Fibrosing mediastinitis (FM) is an uncommon diagnosis that, in the United States, is usually associated with previous *Histoplasmosis capsulatum* infection. It is estimated that of the over 500,000 people per year in the US infected with *Histoplasmosis*, less than 1% will develop FM. The natural history of FM is that of indolent progression leading to compression of surrounding structures including the airways, esophagus and vascular structures. Hemoptysis is a rare complication caused by various mechanisms including invasion of mucosa by fibrous tissue, post-obstructive necrotizing pneumonia, pulmonary venous (PV) obstruction leading to PV hypertension, and pulmonary artery (PA) obstruction leading to functional anastomoses between the intercostal/bronchial arteries and the PA. Few techniques have been described to manage FM-related hemoptysis including Nd:YAG laser and radiation therapy. We describe a case of FM-related hemoptysis treated successfully with endobronchial spray cryotherapy (SCT).

Case Report

A 44-year-old man presented with previously diagnosed FM. His course was complicated by left PV obstruction requiring stenting. Patient presented with chronic cough that later became notable for hemoptysis that eventually lead to hypoxemia and hospitalization. Initial flexible bronchoscopy revealed hyperemic mucosa that bled with the slightest touch of the scope. Patient was then referred for SCT which he received over the course of two separate treatments. The first treatment was directed at the left mainstem bronchus and second to the carina. On follow-up 4 weeks later the patient endorsed significant improvement in his cough. Repeat bronchoscopy showed complete resolution of the hyperemia and patient had no further episodes of hemoptysis at six months post-treatment.

Conclusion

Spray cryotherapy is a non-contact mode of cryotherapy using a low-pressure delivery system allowing for treatment of wide areas. This modality has been used extensively in the GI tract with proven efficacy and safety. Several case reports and articles have now demonstrated equal safety and efficacy in various structures of the pulmonary system including the airways and pleura. Histologically, SCT in the airway causes necrosis limited to the mucosal and submucosal layers up to 1.5mm in depth including the underlying vasculature. Studies have shown no damage to the connective tissue or extracellular matrix. Although cryotherapy via probe-device is well established as a means of managing endobronchial lesions, very little has been reported on the use of cryospray. Reports of SCT for endobronchial disease exist, but very few describe benign disease. This is the first report of the use of this technology in FM.

