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Commentary: Endobronchial treatment of central airway typical carcinoid tumors: The devil is in the details

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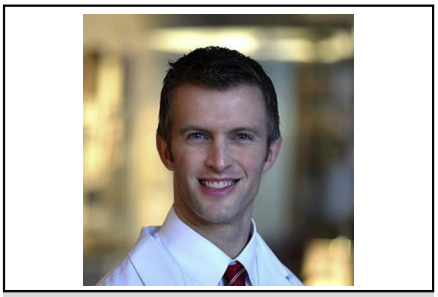

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CENTRAL MESSAGE

Photodynamic therapy is a therapeutic treatment option for highly selected patients with typical carcinoid tumors less than 20 mm in length of the central airways.

Although bronchopulmonary carcinoid tumors account for only 1% to 2% of all lung cancers, most (80%) are centrally located.[1] Consequently, understanding the role bronchoscopy plays in the diagnosis and treatment of these tumors is essential. Although anatomic resection is considered the gold standard by most,[2,3] some have advocated a tissue-sparing approach with endobronchial treatment as first-line therapy for appropriately selected patients.[4]

In this issue of *JTCVS Techniques*, Shah and colleagues[5] present a report of 2 patients with typical carcinoid tumors of the central airways treated with endobronchial cryotherapy and photodynamic therapy (PDT) via flexible bronchoscopy, demonstrating the safety and efficacy of this approach and no evidence of recurrence at 1 (patient 1) and 2.5 years (patient 2) of follow-up. Several salient points regarding endobronchial treatment of these tumors deserve mention. First, appropriate staging (including invasive mediastinal staging) and multidisciplinary discussions are critical to ensure appropriate patient selection. Because of the longitudinal extent of central airway tumors is an important predictor for worse outcomes with endobronchial therapy, these techniques should be limited to patients with typical carcinoid tumors less than 2 cm.[6,7]

The authors offer several important technical details. They highlight the rationale for using PDT over other endobronchial energy modalities, citing its predictable depth of penetration (in contrast to the risk of perforation with electrocautery or argon plasma coagulation), ability to treat and retreat large surface airways, and specific properties of the photosensitizing agent. In particular, porfirmer sodium interacts with specific wavelengths of light in the presence of oxygen to release oxygen free radicals, resulting in cell death through apoptotic and nonapoptotic (necrosis) pathways.[8] The resultant sloughing tissue and edema can result in airway obstruction. Thus, it's imperative for these patients to debride necrotic tissue at the time of PDT, to institute aggressive postprocedure pulmonary toilet, and to perform serial bronchoscopies during the course of initial treatment. In theory, porfirmer sodium becomes concentrated in rapidly dividing (eg, malignant) tissue and quickly clears from benign tissue. Therefore, repeat bronchoscopy should be performed 48 hours later to clear necrotic slough and to selectively retreat remaining malignant tissue; additional treatments may be required. Because the half-life of porfirmer sodium is approximately 2 weeks, PDT treatments should be focused within this time window to assure maximal tissue concentration of the photosensitizing agent.

Finally, surveillance is an important component of endobronchial treatment. Repeat bronchoscopy should be performed at 1 month to clear any necrotic debris and at regular intervals in parallel with surveillance computed tomography scans of the chest. It's important to note that while

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noncurative endobronchial therapy does not increase the morbidity of patients who go on to surgery, it also does not reduce the necessary extent of resection.[9] Consequently, medically fit patients for whom endobronchial therapy has failed should be evaluated for surgical resection without delay.

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