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High Dose Rate Endobronchial Brachytherapy (HDR-EB) in Recurrent Benign Complex Tracheobronchial Stenosis: Experience in Two Cases

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Abstract

Benign complex tracheobronchial stenosis (BCTS) is a tracheobronchial stenosis that is longer than 1 cm or has more than one site of stenotic area. The most common etiology of the stenosis is endobronchial tuberculosis. BCTS causes challenge in diagnosis and management because of nonspecific presentation and usually precluded surgical treatment. Available interventional bronchoscopic techniques fail to manage BCTS because of high rate of restenosis. Experience in using HDR brachytherapy to prevent restenosis in two cases of BCTS is reported.

Cases Report: There were two cases of BCTS who received HDR brachytherapy in order to prevent restenosis. First case was a 39 year-old female who had 5 cms tracheal and 2 cms left main bronchial stenosis from previous endobronchial tuberculosis. After 36 procedures of tracheobronchial dilatation by rigid bronchoscopy and two tracheal stents placement, her trachea became restenosis in an average time of 1 month. She also developed anaphylactic reaction with lidocaine. She received HDR brachytherapy with the dose of 10 Gy and no restenosis was found after 5 months follow-up. The second case was a 18 year-old male who had 4 cm tracheal stenosis result from post intubation. He was done dilatation and stenting of the trachea by regid bronchoscopy because he refused surgery. After 1 year, the tracheal stent was removed and rapid restenosis of the trachea resulted in respiratory failure occurred in 7 days. The tracheal stent was reimplanted and 1 year later 7.0 Gy HDR brachytherapy was done after stent removal. He was doing well 4 months after with 50% tracheal stenosis and occasional stridor.

Conclusion: Failure of intervention bronchoscopic techniques in management of BCTS was significantly shown by the restenosis even after endobronchial stent placement. HDR brachytherapy had a beneficial role in preventing granulation tissue formation and delay or prevent restenosis after bronchoscopic dilatation in selected case of BCTS patients. The case selection and long term outcome were needed before introduced HDR brachytherapy to be the standard care of BCTS patients.

Keywords: High dose rate endobronchial brachytherapy, Benign complex tracheobronchial stenosis

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