

FIBROTIC AIRWAY STENOSIS FOLLOWING RADIOTHERAPY IN PATIENTS WITH ADENOID CYSTIC CARCINOMA**Top Author: Jung Seop Eom***Division of Pulmonology, Allergy and Critical Care Medicine, Department of Internal Medicine, Pusan National University Hospital**Korea, Republic of
(South Korea)***Area and Category(at submission):**[WCBE: 4. Trachea] 2. Benign tumor / 2. Treatment**Presentation Preference:** Poster**Case Report:** NO

Background and objective: Radiotherapy is usually administered to the central airway in patients with unresectable adenoid cystic carcinoma (ACC). The purpose of this study was to investigate the incidence and characteristics of symptomatic fibrotic airway stenosis following radiotherapy in patients with unresectable ACC. In addition, the clinical outcomes of therapeutic bronchoscopy were analyzed in detail.

Methods: Forty-seven patients with ACC, who underwent radiotherapy of the tracheobronchial tree from January 1995 to December 2011, were reviewed retrospectively. Fibrotic airway stenoses were diagnosed using three-dimensional computed tomography, flexible bronchoscopy, or both.

Results: Eleven (23%) of the 47 patients with ACC suffered fibrotic airway stenosis following radiotherapy and received bronchoscopic intervention. The detailed characteristics of the 11 patients with RBS who underwent therapeutic bronchoscopy are shown in Table 1. The median interval from radiotherapy to diagnosis of fibrotic airway stenosis was 7 months. One patient had a stable clinical course after mechanical dilation without silicone stent implantation and survived 74 months after radiotherapy. Silicone stents were placed in 10 patients (91%), and the median duration of stenting was 21 months (interquartile range, 9-47 months). Bronchoscopic intervention provided both immediate symptomatic relief and improvement of lung function in all patients, and no procedure-related death or immediate major complication such as pneumomediastinum, pneumothorax, pneumonia, or massive bleeding was observed. Insertion of a straight silicone stent was required in 10 patients (91%), and 4 (36%) eventually received Y-shaped silicone stents. The patients could not remove the silicone stent once they were implanted; however, the stents were well-tolerated for a prolonged period in all patients.

Conclusions: The incidence of fibrotic airway stenosis following radiotherapy in patients with ACC was relatively high. In addition, bronchoscopic intervention, including silicone airway stenting, was a safe and useful method for treating radiotherapy-induced fibrotic airway stenosis in patients with ACC.

Table 1. Characteristics of patients who received bronchoscopic intervention for fibrotic airway stenosis following radiotherapy.

Characteristics	Patient number										
	1	2	3	4	5*	6*	7	8*	9*	10*	11*
Sex	Female	Female	Male	Male	Female	Female	Male	Female	Female	Male	Male
Age, years	36	36	49	46	44	46	67	48	40	54	70
Primary site	T	RM	T + LM	T + LM	BM	T + BM	T	T	T	C + LM	T
Sites of airway stenosis	T	RM	T + LM	T + LM	RM	T + BM	T	T	T	LM	T
Baseline lung functions											
FEV ₁ , % predicted	33	36	51	63	65	NA	67	54	32	79	NA
FVC, % predicted	81	47	61	97	82	NA	87	92	87	106	NA
FEV ₁ /FVC ratio	32	60	63	49	65	NA	54	44	29	55	NA
Radiation dose, Gy	104 [†]	69 [†]	74	67 [†]	66 [†]	60	60	60	66 [†]	54	72 [†]
Onset [‡] , months	6	7	8	9	6	1	7	3	5	16	11
Survival, months	25	74	30 [§]	59	73 [§]	58 [§]	57 [§]	50 [§]	6	37 [§]	21 [§]

* Six patients had their tumor removed by rigid bronchoscopy prior to radiotherapy. † Six patients received brachytherapy in addition to external

beam radiotherapy. ‡ From radiotherapy to the radiation bronchitis and stenosis diagnosis. § Seven patients were alive, and all received a silicone airway stent.

T, trachea; RM, right main bronchus; LM, left main bronchus; BM, both main bronchus; C, carina; FEV₁, forced expiratory volume in 1 second; NA, not available; FVC, forced vital capacity.